इंडियन ऑयल कॉर्पोरेशन लिमिटेड
हल्दिया रिफाइनरी, डाकघर : हल्दिया ऑयल रिफाइनरी - 721606
जिला : पूर्व मेदिनीपुर (प० बंo)
Indian Oil Corporation Limited
Haldia Refinery, P.O. : Haldia Oil Refinery- 721606
District : Purba Medinipur, West Bengal
Website : www.iocl.com, E-mail : haldiarefinery@indianoil.in
Phone : 91-3224-223270

रिफाइनरीज प्रभाग
Refineries Division

Ref No.: HR/HSE/8D/2024-25/02 23.05.2025

To

Shri. A.T.Mishra
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 2024 to March 2025 – 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 **01.10.2024 to 31.03.2025**.

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,

23/5/25

Santanu Sen
Dy. General Manager (HSE)
IOCL, Haldia Refinery

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

Copy to:

1. **The Regional Officer, West Bengal Pollution Control Board (WBPCB), Haldia**

INDIANOIL CORPORATION LIMITED
HALDIA REFINERY

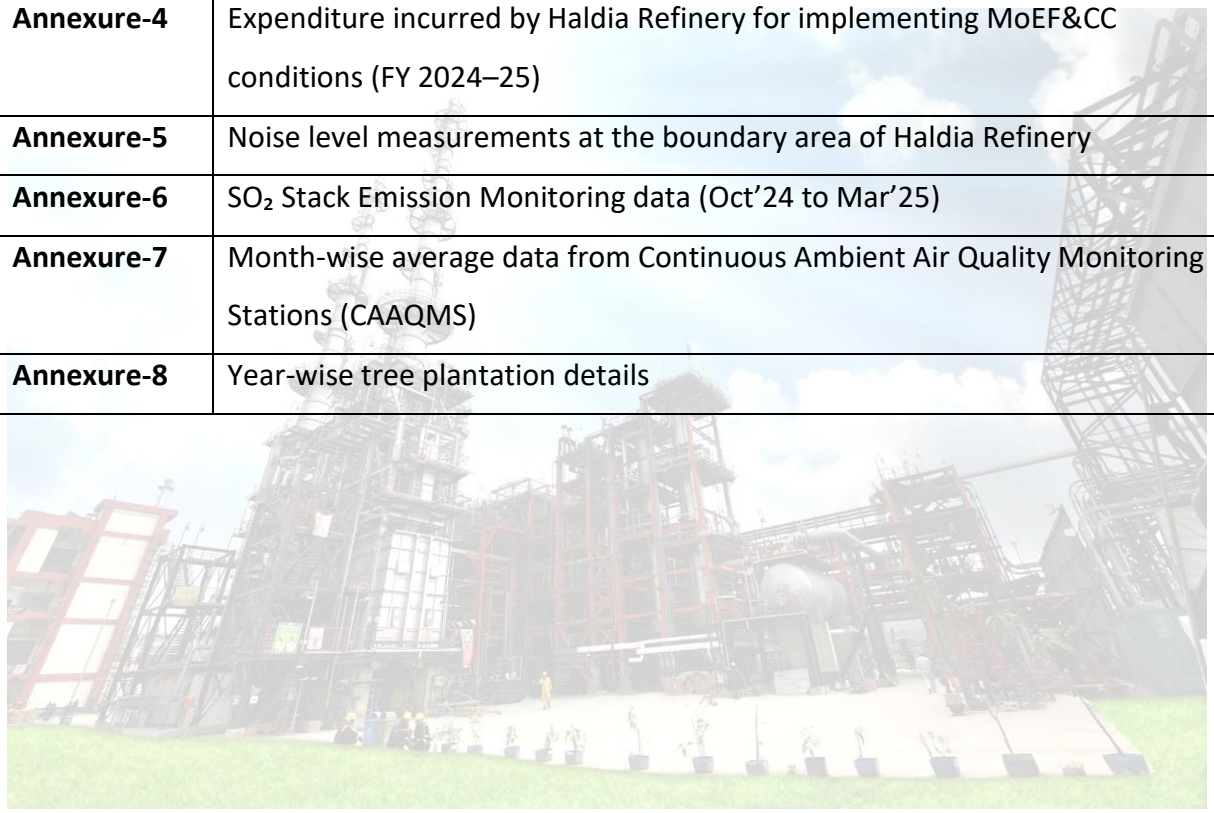
HALF YEARLY COMPLIANCE REPORT OF ENVIRONMENTAL CLEARANCE

(Status for the Period 1st October 2024 – 31st March 2025)

Index on Status of Compliance of Past Environmental Clearances
(Haldia Refinery – Indian Oil Corporation Ltd.)

List of Annexures

Annexure	Description
Annexure-1	Month-wise average data of Manual Ambient Air Quality Monitoring Stations (Oct'24 to Mar'25)
Annexure-2	Monthly average data of Final Treated Effluent discharge to River Hooghly (Oct'24 to Mar'25)
Annexure-3	Groundwater sampling results by WBPCB recognized lab
Annexure-4	Expenditure incurred by Haldia Refinery for implementing MoEF&CC conditions (FY 2024–25)
Annexure-5	Noise level measurements at the boundary area of Haldia Refinery
Annexure-6	SO_2 Stack Emission Monitoring data (Oct'24 to Mar'25)
Annexure-7	Month-wise average data from Continuous Ambient Air Quality Monitoring Stations (CAAQMS)
Annexure-8	Year-wise tree plantation details



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 the stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule.
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 amount emission of SO_2 at 1.5 tonnes / hour. The quarterly report of the progress in this regard should be submitted to this Ministry till the installation of the unit. Efforts being made to obtain the necessary approvals should be clearly indicated.	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
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. A minimum of three air quality monitoring stations should be set up.	• Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. • Six-monthly air quality monitoring data is submitted to the MoEF&CC Regional Office (refer **Annexure-1** for Oct'24-Mar'25 data). • Three Continuous Ambient Air Quality Monitoring Stations

		(CAAQMS) are installed inside the refinery and are integrated with the CPCB server (refer **Annexure-7** for Oct'24-Mar'25 data)
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 stack monitoring systems with SO_2, PM_{10}, NOx, and CO analyzers are installed on all furnaces with heat duty >10 MM Kcal/hr, and the data is linked to the CPCB server. • WBPCB also carries out quarterly sampling for stack emissions verification.
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 provided. They should ensure that no leaching of pollutants like sulphides take place from the solid wastes. The plan for disposal and management of solid wastes should be submitted to the competent authority for scrutiny and approval within six months.	Haldia Refinery has implemented an integrated and environmentally responsible solid waste management system, with a strong emphasis on waste minimization, resource recovery, and safe disposal. **Oily Sludge Management:** • In-situ oily sludge centrifuge used to recover oil and minimize residuals. • De-oiled sludge is either bioremediated or stored in PVC-lined pits. • Thermo-mechanical sludge treatment unit commissioned for enhanced oil recovery. **Oil Recovery:** • Melting pits commissioned for tank bottom sludge oil recovery. • Combined system significantly reduces hazardous waste. **Bio-Sludge Management:** • Bio-Tower technology reduces biomass generation. • Sludge is dewatered using thickener and centrifuge for easier handling. **Spent Catalyst:** • Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers. • Zero-value catalysts sent to authorized TSDF. **Other Solid Waste:** • Spent resins, carbon, and mineral wool securely stored and disposed through WBPCB-authorized TSDF.

		Authorization & Compliance: • Hazardous waste authorization obtained from WBPCB. • Annual returns submitted; WBPCB conducts regular site verifications.
vi)	No change in design of stack should be made without the prior approval of State Pollution Control Board. Alternate pollution control system and/or proper design (steam injection system) of the stack should be made to minimize hydrocarbon emission due to failure in the flare system in the plant.	• No changes have been made to the stack design. • Since 2010, Flare Gas Recovery and Utilization (FGRU) has been operational, helping to recover and reuse flare gas as fuel and reducing flaring emissions
vii)	Additional area under the control of project which is not being used for the plant utilities should be afforested and funds for this purpose should be suitably provided.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees

viii)	Tree plantation program in the plant premises and in the periphery of the plant should be undertaken in consultation with State Forest Department. Plant species which are sensitive as well as resistant to Sulphur-dioxide emissions should be chosen for plantation purposes.	Haldia Refinery has undertaken several target tree plantations over the years via MoUs with the Forest Department (GoWB) and HDA. Species planted include those sensitive and resistant to SO_2 emissions. As of March 2024, 22,14,930 trees have been planted, covering more than 68% of the total area (including IOCL, HDA, and forest land). **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
ix)	Project authority must set up laboratory facilities in the existing premises for testing air emissions and water quality.	• The refinery operates an in-house, first-party Quality Control Laboratory with a permanent facility inside the refinery premises. • This lab is NABL accredited (**TC10599, valid till 01.05.2026**) and WBPCB-approved lab for daily water testing.
x)	The clearance of Chief Inspector of Explosives must be taken before starting construction of the proposed plant and a copy of consent letter should be made available to this Ministry.	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 to monitor the quality of stream water and to study the impact of treated effluent discharge and will submit its report quarterly to state Pollution Control Board and half yearly to this Ministry. Ground water quality also should be monitored.	• Effluent quality is monitored daily at NABL-accredited lab. Online analyzers installed at ETP-1, ETP-2, and TTP/RO outlets to monitor pH, TSS, COD, and BOD. • Additional monitoring stations are installed in the stormwater channel. • Refer **Annexure-2** for six-month average data of treated effluent (Oct–Mar 2024). • Groundwater is monitored quarterly via WBPCB and external agencies. Report attached as **Annexure-3**.
xii)	The project authority will explore the possibility of water recycling to the maximum possible extent. A plan in this	Haldia Refinery has adopted multiple sustainable practices to ensure effective

	regard should be prepared within the next one year and furnished to this Ministry.	reuse, of treated effluents thereby reducing its water footprint. • The refinery operates a comprehensive and robust **Effluent Treatment Plant (ETP)** equipped with physical, chemical, biological, and tertiary treatment facilities to meet and maintain the statutory discharge norms. • Haldia Refinery is undertaking a major modernization and capacity augmentation of **ETP-1** with a capital investment of Rs. 87 crores • In line with its commitment to maximizing treated water reuse, the refinery has installed a Reverse Osmosis (RO) plant that enables further polishing of treated effluent for reuse in cooling tower make-up and as feed water to the Demineralization (DM) plant. • Further Treated effluents are reused in fire water systems, cooling towers make up.
xiii)	The liquid effluent coming out of the plant premises should strictly conform to MINAS.	Treated effluent meets MINAS standards and is continuously monitored through online systems.
xiv)	The project authority will submit a Disaster Management Plan duly approved by nodal agency.	Emergency Response & Disaster Management Plan certified by PNGRB-authorized agency (M/s EHS Integrated Solution); valid till 31.08.2025
xv)	A separate environmental management cell with suitably qualified people to carry out various functions related to environmental management should be set up under the control of a Senior Technical 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, 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 and the budget so provided will not be delivered for any other purpose. The	• Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities.

	conditions stipulated above needs additional funds it should be so provided either from non-recurring or recurring budget of the unit.	• This fund is not diverted for any other purposes and is utilized solely for environmental compliance. • The funds are utilized for comprehensive activities including the operation and maintenance of pollution control systems (ETP, TTP-RO), greenbelt development, environmental monitoring, hazardous waste management, sludge oil recovery, consent/authorization fees, awareness programs, and EIA/RA studies. These allocations are made from both recurring and non-recurring budgets as required, ensuring that all environmental obligations are fully met without any shortfall. A summary of environmental expenditure over the last nine financial years is provided below: **Year** | **Expenditure (₹ 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

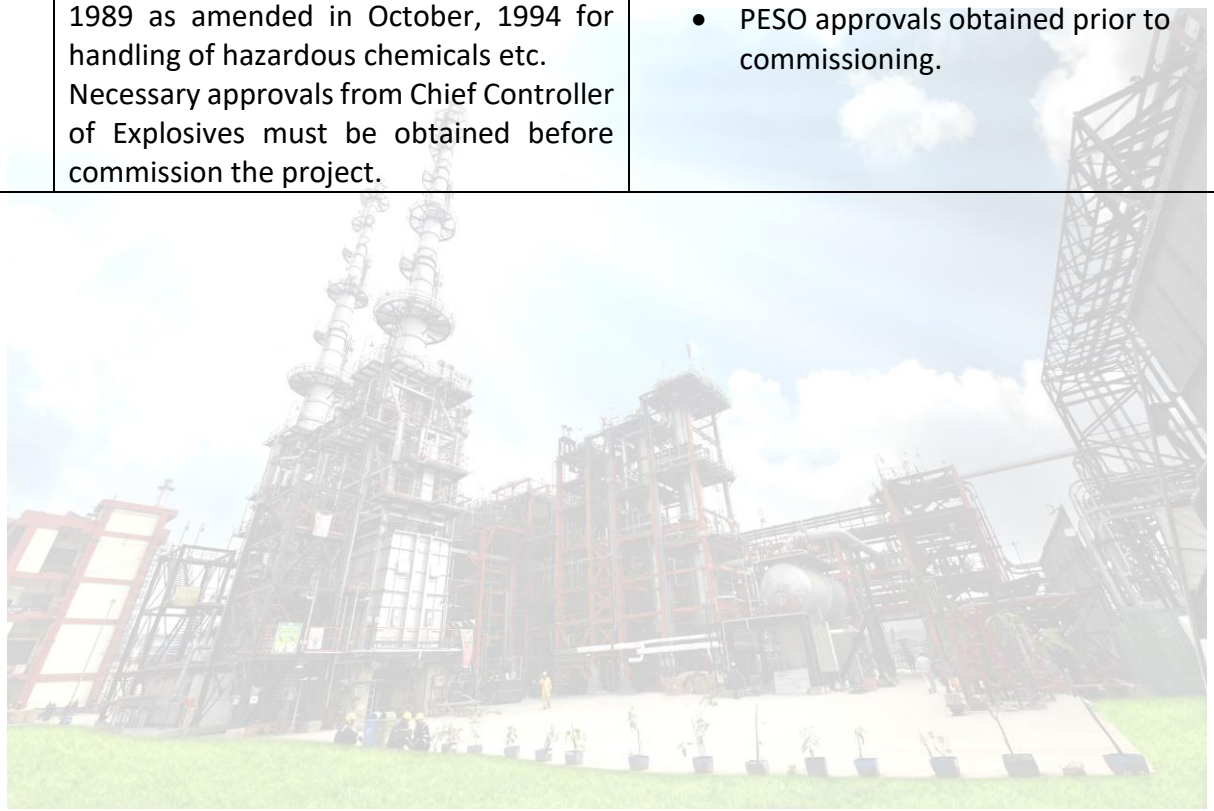
2.0 EC Reference No. & Issue date: 11011/39/96-IA II (I); 18/12/1996

Status of Conditions Imposed With respect To Environmental Clearance: For DHDS unit at Crude Processing level for 4.6 MMTPA at Haldia Refinery, IOC

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 complies with all WBPCB and State Government stipulations and submits regular compliance reports as per schedule.
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.
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).	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
iv)	The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning the project so as ensure that the treated effluent meets the MINAS.	• The refinery operates a comprehensive and robust **Effluent Treatment Plant (ETP)** equipped with physical, chemical, biological, and tertiary treatment facilities to meet and maintain the statutory discharge norms.

		• The refinery has progressively enhanced its **Effluent Treatment Plant (ETP) capacity** from the initial **320 m³/hr** (at commissioning) to the current **1,250 m³/hr**, consisting of **ETP-1:** 650 m³/hr which was revamped during 2003–04 and **ETP-2:** 600 m³/hr commissioned in 2010. • Further, jobs are underway for ETP-1 upgradation to increase capacity from 650 to 850 m3/hr. • The combined capacity of the two ETPs caters to the effluent load of the refinery.
v)	Time bound Action Plan for disposal of oily sludge / recovery of oil & design details of the solid waste disposal pit should be furnished to the Ministry within a period of three months. Hazardous waste should be handled as per Hazardous Waste (Management & Handling) rules, 1989 and necessary approval from SPCB must be obtained for its safe collection, treatment, storage and disposal.	HW authorization valid till 31.12.2025. Annual HW returns submitted to WBPCB. Solid waste and oily sludge are handled per HW Rules, 1989.
vi)	SRU having an efficiency of more than 99% should be installed.	New SRUs having efficiency >99.5% installed and operational.
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. IOC should also obtain the expert opinion of NIO or any other expert body on the best possible location of the outfall point and IOC should abide by the changes if any recommended by the expert body.	• The job was carried out by National Institute of Oceanography (NIO), Goa. As per the study, the existing location of outfall point of treated effluent to river Hooghly is suitable and does not require change. • The copy of final report sent to Joint Director (S), MOE&F, Bhubaneswar in Aug-99. The sketch on location of riverine outfall point has already been included in that report.
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 and submit to the Ministry the results of the study within one year.	A study was carried out by National Institute of Oceanography (NIO), Goa to evaluate the effects of effluents on aquatic life and on mangroves. As per the study report, the effect of treated effluent is insignificant. The copy of final report was sent to Joint Director (S), MOE&F, Eastern Regional Office, Bhubaneswar in Aug-99.

ix)	A detailed risk analysis study board on maximum credible accident analysis (MCA) and HAZOP study should be done to the Refinery including DHDS project facilities and submitted to this Ministry Board. On this, a Disaster Management Plan and off site plan be prepared and submitted after approval has been obtained from nodal agency.	• Risk Analysis Report submitted to Ministry for every project during obtaining EC. • Quantitative Risk Assessment study is done every 5 years of interval. • HAZOP study being done at 5 years interval. • Emergency Response and Disaster Management Plan (ERDMP) recertified every 3 years; valid till 31.08.2025.
x)	The project authority must strictly comply with the provisions made in MSIHC Rules, 1989 as amended in October, 1994 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission the project.	• 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 of IOC"

Sl. No.	CONDITIONS	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 strictly adheres to the stipulations of West Bengal Pollution Control Board and State Government, with timely submission of compliance reports.
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. (letter dated 16.03.89). However, efforts may be made to peg the SO_2 values at 1240 kg/hr. in the post DHDS and FCCU phase.	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
iv)	The studies on aquatic life and marine outfall for discharge of treated effluent into the river should be expedited. A time	A study by NIO, Goa, found negligible impact of treated effluent on aquatic life and riverine outfall.

	bound action plan to implement the conditions stipulated by the Ministry while according approval for the DHDS unit vide letter dated 18/12/96 should be submitted to the Ministry for review within a period of one month.	The final report was submitted to MoEF&CC (ERO Bhubaneswar) in Aug'99.

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 Of "2nd Vacuum Distillation Unit (Capacity 2 MMMTPA) and Catalytic ISO-Dewaxing Unit (Capacity 0.2 MMMTPA) At 7.5 MMMTPA Crude Processing Level at Haldia Refinery of IOC"

SPECIFIC CONDITIONS:

Sl. No	STIPULATION BY MoE&F & CC	STATUS
1	The SO2 emission from the refinery unit including the proposed 2nd VDU and CIDW should not exceed 1340 kg/hr.	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
2	The ETP load should be within the design capacity of 540 m^3/hr. The total quantity of effluent generation should not exceed 414 m^3/hr as indicated in the EMP of which 150 m^3/hr treated effluent should be recycled and rest 264 m^3/hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	• The refinery operates two ETPs with a combined treatment capacity of 1,250 m^3/hr (ETP-1: 650 m^3/hr; ETP-2: 600 m^3/hr). • The actual ETP load remains within 900–1100 m^3/hr. • Treated effluent is reused for TTP-RO feed, fire water, and cooling tower make-up. • Only TTP-RO reject is discharged into the Hooghly River after meeting prescribed standards.

		• The monthly average data of final treated effluent (last six months) 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. The recovered oil should be recycled. The residual oily sludge should be disposed off in the HDPE lined pits. The spent catalyst from CIDW unit should be sent to supplier for metal recovery.	**<u>Oily Sludge Management:</u>** • Mechanized recovery of slop oil from tank bottom sludge is carried out in melting pits; the recovered oil is recycled back into the system. • A thermo-mechanical sludge treatment unit has been commissioned to enhance oil recovery efficiency. • In-situ centrifuge systems are deployed for oily sludge generated from ETP to recover oil and minimize residual waste. • De-oiled residual sludge is stored in jumbo bags at a designated area prior to disposal. • Residual oily sludge is disposed of through WBPCB-approved authorized agencies as per regulatory norms. • The integrated system significantly reduces oily sludge generation. **<u>Spent Catalyst Management:</u>** • Spent catalysts from the CIDW unit are securely stored in sealed drums. • They are sent to authorized metal recyclers through MSTC for metal recovery, as and when required.
4	Oil spill response facilities should be in place, in accordance with OISD guidelines with regard to the likely risks associated with transportation of finished products by Hooghly-Sea route.	**Oil Spill Response (Tier-I readiness):** • Tier-I oil spill response facilities in place as per OISD & Indian Coast Guard guidelines. • Oil dispersants, 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 all around the plant in consultation with the local DFO. The bio-sludge from biotreater should be used as manure in the green belt development.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees **Bio-Sludge Management:** • Bio-Tower technology reduces biomass generation. • Sludge is dewatered using thickener and centrifuge for easier handling.
6.	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act and the West Bengal Factories Rules.	Haldia Refinery has its own Occupational Health center with all facilities. Periodical health checkup schedule is being followed for target employees as per Factories Act and WB Factory Rules and records are being maintained.

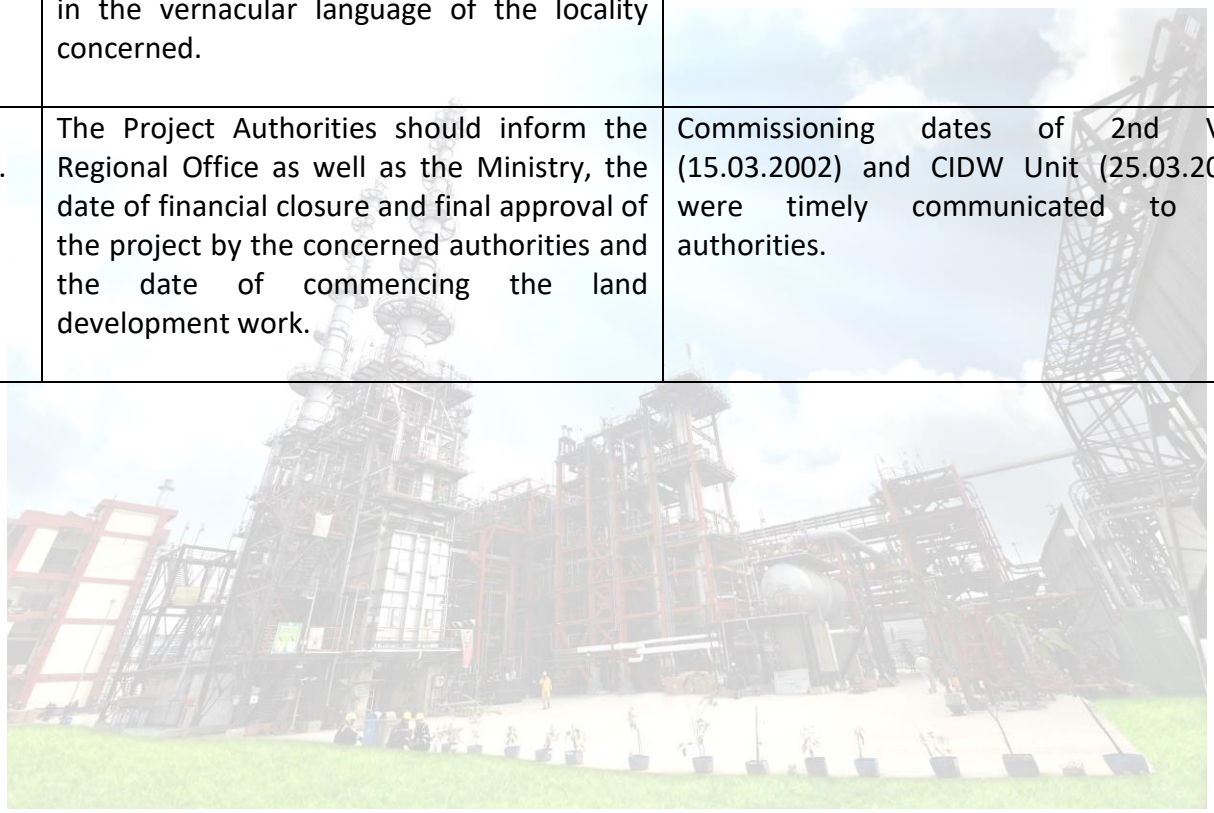
GENERAL CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	STATUS
1	The project authorities must strictly adhere to the stipulations made by the West Bengal State Pollution Control Board and the State Government.	Haldia Refinery has been adhering to the stipulations made by the WBPCB and submitting necessary compliance Reports as per schedule.
2	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Environmental clearance from MoEF & CC is taken before any expansion or modernization in the plant.
3	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	• Emissions from all stacks are continuously monitored and maintained well within the prescribed standards. • Online Continuous Emission Monitoring Systems (OCEMS) have been installed and are integrated with the CPCB server for real-time data transmission. • The six-month average SO_2 emission from heater stacks during Oct'24–Mar'25 was **697 kg/hr**, significantly below the **980 kg/hr** limit specified in the latest Environmental Clearance (EC) conditions. Refer **Annexure-6** • In the event of any malfunction in pollution control systems, affected units are immediately shut down and restarted only after restoration of required efficiency.
4	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules 1989 viz., 75 dBA (daytime) and 70 dBA (night time).	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
5	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals	• Third-party Safety Audits under MSIHC Rules are conducted every year.

<table>
<tr><td></td><td>Rules 1989 as amended in October, 1994 for handling of hazardous chemicals etc.
Necessary approvals from Chief Controller of Explosives must be obtained before commission of the project.</td><td>• PESO approval was obtained prior to commissioning.</td></tr>
<tr><td>6</td><td>The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes</td><td>• Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities.
• This fund is not diverted for any other purposes and is utilized solely for environmental compliance.
• The funds are utilized for comprehensive activities including the operation and maintenance of pollution control systems (ETP, TTP-RO), greenbelt development, environmental monitoring, hazardous waste management, sludge oil recovery, consent/authorization fees, awareness programs, and EIA/RA studies. These allocations are made from both recurring and non-recurring budgets as required, ensuring that all environmental obligations are fully met without any shortfall.

A summary of environmental expenditure over the last nine financial years is provided below:
<table><tr><th>Year</th><th>Expenditure (₹ Crore)</th></tr><tr><td>2024–25</td><td>19.17</td></tr><tr><td>2023–24</td><td>17.84</td></tr><tr><td>2022–23</td><td>20.61</td></tr><tr><td>2021–22</td><td>23.86</td></tr><tr><td>2020–21</td><td>20.79</td></tr><tr><td>2019–20</td><td>20.58</td></tr><tr><td>2018–19</td><td>20.59</td></tr><tr><td>2017–18</td><td>15.07</td></tr><tr><td>2016–17</td><td>21.19</td></tr></table></td></tr>
<tr><td>7</td><td>The stipulated conditions will be monitored by the Regional of this Ministry at Bhubaneswar/ Central Pollution Control Board / State Pollution Control Board. A six</td><td>Six-monthly compliance reports are regularly submitted to MoEF&CC Regional Office (Bhubaneswar) and WBPCB. Last submission: Dec 2024.</td></tr>
</table>

	monthly compliance report and the monitored data should be submitted to them regularly.	
8	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry and Forests at http:/ WWW. envfor.nic.in. This should be advertised in at least two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.	Post-EC, the project details were advertised in two local newspapers (one in vernacular), and consent to establish was obtained from WBPCB.
9.	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Commissioning dates of 2nd VDU (15.03.2002) and CIDW Unit (25.03.2003) were timely communicated to the authorities.



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) at Haldia refinery of M/S. IOCL in district Midnapore (E), West Bengal.

A. SPECIFIC CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	STATUS
I	The company shall ensure strict implementations / compliance of the terms and conditions mentioned vide Ministry's letters No. J-11011/39/96-IA.II(1) dated 18/12/96, J-11011/99/96-IA.II(1) dated 01/10/1997 AND J-11011/28/2000-IA.II(1) dated 21st August, 2000.	All terms and conditions stipulated in the earlier EC 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 (including expansion of OHCU & MS Quality Improvement Project) will not exceed 1466 kg/hr.	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
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 Geonkhali Water Supply Scheme.

iv	The ETP load should be within the design capacity of 540m^3/hr. The total quantity of effluent generation should not exceed 446 m^3/hr as indicated in the EMP of which 150m^3/hr treated effluent should be recycled and rest 296 m^3/hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	• Two ETPs in operation with total capacity of 1,250 m^3/hr (ETP-1: 650, ETP-2: 600). • Current load ranges between 900–1100 m^3/hr. • Treated water reused for TTP-RO, fire water, and cooling tower make-up. • Only TTP-RO reject discharged to Hooghly River after treatment as per norms. • Monthly average discharge data 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 recovered oil should be recycled. The residual oily sludge should be disposed off in the HDPE lined pits. The spent catalyst should be sent to supplier for metal recovery.	<u>Oily Sludge & Spent Catalyst Management:</u> • Mechanized recovery of slop oil from tank bottom sludge is carried out in melting pits; the recovered oil is recycled back into the system. • A thermo-mechanical sludge treatment unit has been commissioned to enhance oil recovery efficiency. • In-situ centrifuge systems are deployed for oily sludge generated from ETP to recover oil and minimize residual waste • Residual sludge is disposed through authorized co-processing cement plant and TSDF (M/s WBWML). • Spent catalysts with metals are e-auctioned via M/s MSTC. • Noble metal catalysts are sent to authorized recyclers for metal recovery.
vi	Oil spill response facilities should be in place, in accordance with OISD guidelines with regard to the likely risks associated with transportation of finished products by Hooghly-Sea route.	**Oil Spill Response (Tier-I Readiness):** • Facilities in place as per OISD and Indian Coast Guard guidelines. • Oil dispersants, containment booms available with Fire & Safety. • 2 Super Suckers and 3 MOSRUs deployed for monsoon operations. • Skimmers installed in open channels, ETP, and guard ponds. • Green Belt Canal isolatable using booms for oil recovery.

		• Regular mock drills and SOP ensure preparedness.
vii	Green belt of adequate width and density should be provided to mitigate the effects of fugitive emission all around the plant in consultation with the local DFO. The bio-sludge should be used as manure in the green belt development.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees **Bio-Sludge Management:** • Bio-Tower technology reduces biomass generation. • Sludge is dewatered using thickener and centrifuge for easier handling. • Utilized as manure in greenbelt development.
viii	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act and the West Bengal Factories Rules.	Haldia Refinery has an Occupational Health center with all facilities. Periodical health checkup schedule is being followed for target employees as per Factories Act and WB Factory Rules and records are being maintained.

B. GENERAL CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	STATUS
I	The project authorities must strictly adhere to the stipulations made by the West Bengal State Pollution Control Board and the State Government.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control Board and State Govt. and submitting necessary compliance Reports as per schedule.
ii	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Environmental clearance from MoEF & CC is always taken before any expansion or modernization in the plant.
iii	The company shall implement all recommendations made in the EMP and risk Analysis reports.	Recommendations from the EMP and Risk analysis reports are implemented at Haldia Refinery.
iv.	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the Units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	• Emissions from all stacks are continuously monitored and maintained well within the prescribed standards. • Online Continuous Emission Monitoring Systems (OCEMS) have been installed and are integrated with the CPCB server for real-time data transmission. • The six-month average SO_2 emission from refinery during Oct'24–Mar'25 was **697 kg/hr**, significantly below the **980 kg/hr** limit specified in the latest Environmental Clearance (EC) conditions. Refer **Annexure-6** • In the event of any malfunction in pollution control systems, affected units are immediately shut down and restarted only after restoration of required efficiency
v.	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 vis. 75 dBA (day time) and 70 dBA (night time).	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are

		in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
vi	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 as amended in 1994 and 2000. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained.	• Third-party Safety Audits under MSIHC Rules are conducted every year. • PESO approval was obtained prior to commissioning.

6.0 EC Reference No. & Issue Date: J13011/14/2006 IA. II (T); 5TH JAN 2007

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 By M/S Indian Oil Corporation Ltd.

A. SPECIFIC CONDITIONS

Sl. No.	STIPULATION BY MOE&F &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 West Bengal Pollution Control Board vide letter no. 334-2N-295/2005 dated 28.06.2006 have been duly complied with during implementation of GT-3.
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. No additional facilities will be created as part of this project.	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
v	A single stack of 60 m with exit velocity of 20 m/sec shall be provided with continuous online monitoring equipment's.	A 60 m stack with exit velocity of 20 m/sec has been provided, equipped with continuous online monitoring for SO_2, NOx, PM_{10}, and CO.
vi	NOx emission shall not exceed 100 ppm.	NOx emissions from GTs/HRSGs stacks are maintained within 25–40 ppm.
vii	The treated effluents conforming to the prescribed standards shall only be discharged in the river Hoogly.	Treated effluents conforming to MINAS are discharged to the river Hooghly. Quality is monitored daily at NABL-accredited and WBPCB-approved IOCL laboratory.
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

ix	A greenbelt shall be developed all along the plant.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
x	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First aid and sanitation facilities were provided at the worksite during construction.
xi	Leq of Noise level should be limited to 75 dBA and regular maintenance of equipment be undertaken. For people working in the high noise areas, personal protection devices should be provided.	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**

xii	Regular monitoring of the ambient air quality shall be carried out in and around the power plant and records maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry.	• Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. • Six-monthly air quality monitoring data is submitted to the MoEF&CC Regional Office (refer Annexure-1 for Oct'24-Mar'25 data). • Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed inside the refinery and are integrated with the CPCB server(refer **Annexure-7** for Oct'24-Mar'25 data).
xiii	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to this Ministry/ Regional Office/CPCB/SPCB.	Half-yearly reports on the implementation of stipulated conditions and environmental safeguards are submitted in June and December each year. The last report was submitted in December 2024.
xiv	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	The Regional Office of MoEF&CC visits Haldia Refinery to monitor the implementation of stipulated conditions. Additional information is submitted as required during their visits.
xv	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. This cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	• Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. • This fund is not diverted for any other purposes and is utilized solely for environmental compliance. • The funds are utilized for comprehensive activities including the operation and maintenance of pollution control systems (ETP, TTP-RO), greenbelt development, environmental monitoring, hazardous waste management, sludge oil recovery, consent/authorization fees,

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<td>awareness programs, and EIA/RA studies. These allocations are made from both recurring and non-recurring budgets as required, ensuring that all environmental obligations are fully met without any shortfall.

A summary of environmental expenditure over the last nine financial years is provided below:

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<td>xvi</td>
<td>Full cooperation should be extended to the Scientists/Officers from the Ministry/ Regional Office of the Ministry at Bhubaneswar/the CPCB/the SPCB who would be monitoring the compliance of environmental status.</td>
<td>Haldia Refinery is always extending full co-operation to the Scientists / Officers visiting the Refinery from the statutory bodies.</td>
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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 and installing a Gas Turbine of 20 MW capacity at Haldia refinery of M/S. IOCL in district Purba Medinipure (E), West Bengal.

A. SPECIFIC CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	STATUS
I	The gaseous emissions (SO2, NOx, HC, VOC and Benzene) from various process units shall be kept within limit as per standard prescribed by the concerned SPCB. All the measures detailed in the EMP shall be taken to control the point/stack and fugitive gaseous emissions from the proposed facilities, RFCCU, process and storage units etc. for ensuring that the ambient air quality around the Refinery due to the expansion is maintained at the predicted 24 hourly average maximum concentration levels and shall not exceed for the worst scenario predicted for SO2 (15.7 Micro gram/m3).	The revamping job of RFCCU was not pursued due to economic reasons. The emission level of SO2 remains unchanged.
II	There will be no increase in the pollution load of SO2 emission as augmentation of Flue Gas Scrubbing section will be undertaken to keep the SO2 emission levels within the existing levels. A new Sulphur Recovery Unit (SRU) with more than 99% of efficiency shall be installed under once through hydro-Cracker Unit to keep. SO2 emission levels within the existing levels.	• Only low sulphur fuel gas and oil are fired in the heaters. • Old Sulphur Recovery Units (SRUs) were commissioned in April/May 1994. • New SRUs were commissioned in 2010, and SRU-V was commissioned in 2020. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within

		the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
III	No additional stack is envisaged for the revamp of RFCCU. There will be no increase in emission levels of SO2 from the existing two stacks in the RFCCU of 100 and 60M attached to the regenerator and the heater.	There is no change in emission levels of SO_2 from existing RFCCU as revamping job was not done.
IV	The emission levels of the other pollutants shall also remain within the existing levels.	Emission level remains within limit and stack emission parameters is being monitored online.
V	Low Sulphur internal fuel oil will be fired in process heaters and boilers.	Low Sulphur fuel gas and Low Sulphur fuel oil are used in heaters and boilers. Sulphur content in Naphtha is maintained below 0.025%
VI	Regular Ambient Air Quality Monitoring shall be carried out. The location and results of existing monitoring stations will be reviewed in consultation with the concerned State Pollution Control Board based on the occurrence of maximum ground level concentration and downwind direction of wind. Additional Stations shall be set up, if required. It will be ensured that at least one monitoring station is set up in up-wind and in down-wind direction along with those in other directions.	• Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. • Six-monthly air quality monitoring data is submitted to the MoEF&CC Regional Office (refer **Annexure-1** for Oct'24-Mar'25 data). • Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed inside the refinery and are integrated with the CPCB server (refer **Annexure-7** for Oct'24-Mar'25 data).
VII	On-line data for air emissions shall be transferred to the CPCB and SPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated regularly. The monitoring protocol shall ensure continuous monitoring of all the parameters.	• Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed inside the refinery and are integrated with the CPCB server. Analyzers are calibrated regularly. Typical CAAQMS readings are provided in **Annexure-7**.
VIII	The practice of acoustic plant design shall be adapted to limit noise exposure for personnel to an 8 hr time weighted average of 90 db(A).	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989.

		• **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
IX	For control of fugitive emissions, all unsaturated hydrocarbons will be routed to the flare system. The flare system shall be designed for smokeless burning.	• Gaseous hydrocarbons are recovered through the flare gas recovery system and recycled to the fuel gas system. • The flare is designed for smokeless burning. • Storage tanks have floating roofs with secondary seals, and high-risk pumps are equipped with double mechanical seals to control fugitive emissions.
X	All the pumps and other equipment's where there is a likelihood of HC leakages shall be provided with LEL indicators. Provision for immediate isolation of such equipment, in case of a leakage will also be made. The company shall adopt Leak Detection and Repair (LDAR) program for quantification and control of fugitive emissions.	• HC detectors with LEL indicators are installed at key locations and integrated with DCS for immediate alerts. Regular calibration is ensured. • LDAR program is implemented through certified agencies to monitor and control fugitive emissions.
XI	The product loading gantry shall be connected to the product sphere in closed circuit through the vapour arm connected to the tanker. Data on fugitive emissions shall be regularly monitored and records will be maintained.	• During LPG loading, vapors from tank trucks are collected via a closed-loop vapor line connected to the product storage system. • Fugitive emissions (LDAR program) are regularly monitored and recorded by an authorized agency.
XII	The company shall ensure that no halogenated organic is sent to the flares. If any of the halogenated organic are present than the respective streams may be incinerated, if there are no technically feasible or economically viable reduction/ recovery options. Any stream containing organic carbon, other than halogenated shall be connected to proper flaring system, if not to a recovery device or an incinerator.	Flare gas recovery system is in operation to recover and reuse gases as fuel. A separate flare system is provided to incinerate any acid gas generated. No halogenated organics are sent to the flare.
XIII	All new standards/ norms that are being proposed by the CPCB for petrochemical	All new CPCB standards for petrochemical units are being complied with. VOC and HC

	plants shall be applicable for the proposed expansion unit. The company shall conform to the process vent standards for organic chemicals including non-VOCs and all possible VOCs i.e. TOCs standard and process vent standards for top priority chemicals. The company shall install online monitors for VOC measurements. Regular monitoring will be carried out for VOC and HC.	monitoring is conducted quarterly by a WBPCB-recognized lab.
XIV	No additional fresh water will be used for the expansion project. The requirement of 40 m3/hr of additional fresh water will be met from the existing facilities.	The revamping of RFCCU job was not done and freshwater consumption remains unchanged.
XV	Additional waste water generation from the expansion project will be around 5 m3/hr which will be treated in the existing ETP. Part of the treated effluent shall be recycled and remaining shall be disposed into the river Hoogly through closed pipeline.	The revamping of RFCCU job was not done and effluent generation rate remain unchanged.
XVI	An additional generation of 1.5 T/day of Spent Catalyst (including filter cake), will be disposed off through the common hazardous waste disposal site of WBIDC at Haldia. Oily sludge shall be sent to melting pit treatment for recovery of oil. The recovered oil shall be recycled into the refinery system. The residual sludge will be stored in HDPE line pit for disposal through bioremediation inside the 'refinery premises. Bio sludge will be stored in drying pit for natural weathering and then used as manure inside refinery premises. Remaining sludge will be incinerated in their own incinerator.	• The spent catalyst generated from existing RFCCU is being disposed to authorized CHWTSDF agency approved by WBPCB. • Oily sludge is processed through centrifuge to recover slop oil and the recovered slop oil is reprocessed in process units. • The residual sludge with low oil content (less than 10 vol%) is being disposed through SPCB authorized CHWTSDF agency & also disposed through authorized Co-processing Cement plant.
XVII	Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in a minimum of 33% of the plant area in consultation with DFO as per CPCB guidelines.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using

		the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last 3 years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
XVIII	The company shall strictly follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	All recommendations under the Charter on Corporate Responsibility for Environmental Protection (CREP) are being strictly followed by Haldia Refinery.
XIX	The Company must harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	• Haldia Refinery has implemented 9 rainwater harvesting projects since 2011–12 for storage and groundwater recharge. • Key initiatives during FY 2024-25 include a newly constructed stormwater reservoir named **'Neer Kund'**, with oil catchpits (capacity: 3800 m^3), enabling recycling of up to 200 m^3/hr of runoff for use in fire systems or ETP, conserving freshwater.
XX	Occupational Health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Haldia Refinery has its own Occupational Health center with all facilities. A periodical health checkup schedule is being followed for target employees as per the Factories Act and WB Factory Rules and records are being maintained.
XXI	The company shall implement all the recommendations made in the EIA / EMP report and risk assessment report.	All recommendations from the EIA, EMP, and risk assessment report have been implemented.

GENERAL CONDITIONS:

Sl.No	STIPULATION BY MOE&F & CC	STATUS
I	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control board and submitting necessary compliance Reports as per schedule.
II	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Environmental clearance from MoEF & CC shall be taken before any expansion or modernization in the plant.
III	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	• Emissions from all stacks are continuously monitored and maintained well within the prescribed standards. • Online Continuous Emission Monitoring Systems (OCEMS) have been installed and are integrated with the CPCB server for real-time data transmission. • The six-month average SO_2 emission from heater stacks during (Oct'24–Mar'25) was **697 kg/hr**, significantly below the **980 kg/hr** limit specified in the latest Environmental Clearance (EC) conditions. Refer **Annexure-6** • In the event of any malfunction in pollution control systems, affected units are immediately shut down and restarted only after restoration of required efficiency.
IV	Adequate number of influent and effluent quality monitoring stations shall be set up in consultation with the SPCB. Regular monitoring shall be carried out for relevant parameters.	• Water quality is monitored at ETP-1, ETP-2, and ELR outlet. Online analyzers continuously track pH, TSS, COD, and BOD, with real-time data sent to the CPCB server. • Daily MINAS parameters are tested at the in-house QC lab, and monthly analysis is conducted by WBPCB-approved third-party laboratories.

V	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	Waste effluent water generated from process units are collected into Influent sump through Oily Water Sewer (OWS) closed pipelines. This waste effluent water is treated in ETP-1 & ETP-2. The treated water from ETP-1 & ETP-2 is being re-used in Tertiary Treatment-RO plant, Cooling water and Fire water service.
VI	The overall noise levels in and around the plant area shall be limited within the prescribed standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
VII	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project.	• Third-party Safety Audits under MSIHC Rules are conducted every year. • PESO approval was obtained prior to commissioning.
VIII	Authorization from the SPCB must be obtained for collections/ treatment/ storage /disposal of hazardous wastes.	Hazardous Waste authorization for generation, handling, and disposal has been obtained from WBPCB and is valid up to 31.12.2025
IX	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Adequate recurring and non-recurring funds are allocated annually for implementing all stipulated environmental conditions, without any diversion for other purposes.
X	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to this Ministry/ Regional Office/CPCB/SPCB.	• Six-monthly reports on the implementation of stipulated conditions and environmental safeguards are submitted to

		MoEF&CC Regional Office and WBPCB every June and December. • The last report was submitted in Dec 2024
XI	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.	After receipt of Environmental clearance, application is placed before State pollution control board to obtain Consent to Establish (NOC). Also, the news of EC published in two local newspapers.
XII	The date of Financial Closure and final approval of the project by the concerned authorities and the date of commencing the land development work as well as the commissioning of the project will be informed to the Ministry and its Regional Office.	The revamping job of RFCCU was not pursued due to economic reasons.
XIII	Proper Housekeeping and adequate occupational health programs shall be taken up. Regular Occupational Health Surveillance Program for the relevant diseases shall be carried out and the records shall be maintained properly for at least 30-40 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other Hydrocarbons etc.	Proper housekeeping is maintained within the refinery. A dedicated Occupational Health Check-up (OHC) center conducts regular health check-ups for employees, with records maintained. Fugitive emission monitoring is done by a WBPCB-recognized lab, and exposure to emissions and hydrocarbons is minimized.
XIV	A separate environment management cell with full fledge laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	A dedicated Health, Safety & Environment (HS&E) department, headed by a Chief General Manager (CGM) reporting directly to the Head of the organization, 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.

8.0 EC Reference No & Issue date J-11011/904/2007-IA II (I) Dated 17TH MARCH 2009

Sl No	EC Reference No and Date	Project name	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, with a fresh Environmental Clearance granted. The DCU project is now named the Distillate Yield Improvement Project (DYIP).

9.0 EC Reference No & Issue date; J-11011/299/2013-IA II (I) DATED 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) at IOCL Haldia refinery, Purba Medinipur, WB.

Sl. No.	SPECIFIC CONDITIONS	STATUS
i)	Compliance to all the environmental conditions stipulated in the environmental clearance letter No. J-11011/39/96-IA II (I) dated 18th December, 1992, F. No. J-11011/99/96-IA II (I) dated 1st October, 1997 and J-11011/28/2000-IA (I) dated 21st August, 2000 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Bhubaneswar.	Environmental conditions stipulated in the Environmental Clearance are compiled and half yearly compliance status report is being submitted in the month of 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 notification under the Environment (Protection) Rules, 1986 vide 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.	• New analyzers for stack emission monitoring (SO_2, NO_x, CO, and PM) are installed, with online data linked to the CPCB server. • Low NO_x burners are installed in new heaters, and older systems are being retrofitted. All new furnaces feature staged combustion and low-NOx burners to ensure compliance with evolving NO_x norms.
iv	The process emissions [SO_2, NOx, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system (S) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.	The process emissions (SO2, NOx, HC - Methane & Non-methane), VOCs, and Benzene will comply with the standards under the Environment (Protection) Act. Emission levels will not exceed prescribed limits. In case of failure of pollution control systems, the unit will be shut down immediately and restarted only after restoring the system's efficiency. Emissions are regularly monitored by a WBPCB-approved laboratory. SOPs are in place for safe shutdown during process-

		related emergencies, ensuring continuous monitoring of pollution control devices.
v	Leak Detection and Repair program shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.	The Leak Detection and Repair (LDAR) program is implemented to control HC/VOC emissions. Preventive maintenance is conducted for pumps, valves, and pipelines, with emphasis on mechanical seals to avoid fugitive emissions. 1. LDAR program is followed, and VOC monitoring is done at critical locations. 2. Double mechanical seals are used on pumps handling hydrocarbons. 3. Floating roof storage tanks store volatile hydrocarbons. 4. Preventive maintenance is carried out for pumps, valves, and pipelines. 5. HC gas detectors are installed in process units and tank farms, with alarms routed to the control room. Calibration of detectors is done as per schedule.
vi	SO_2 emissions after expansion from the refinery shall not exceed 941 Kg/hr. Sulphur recovery units shall be installed for control of H_2S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.	SO2 emissions are maintained within permissible limits. • Monthly manual sampling for all heater stacks and data submitted biannually to MoEF&CC. • Stack emissions are within prescribed limits with continuous online monitoring linked to the CPCB server. • A new SRU with tail gas treating ensures >99.9% sulfur recovery efficiency was added under this project. • The six-month average SO_2 emission from heater stacks (Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
vii	As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur	Sulphur balance is maintained monthly at Haldia Refinery, tracking sulfur input from crude oil, output through products, byproducts, and emissions.

	input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.	• Monthly sulfur balance is calculated based on crude intake, sulfur 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 captures and reports sulfur emissions and trend analysis.
viii	Ambient air quality monitoring stations, [PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2S, mercaptan, non-methane-HC and Benzene] shall be set up in complex in consultation with West Bengal Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs and trend analysis w.r.t. past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	• Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. • Six-monthly air quality monitoring data is submitted to the MoEF&CC Regional Office (refer **Annexure-1** for Oct'24-Mar'25 data). • Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed inside the refinery and are integrated with the CPCB server (refer **Annexure-7** for Oct'24-Mar'25 data).
ix	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure / silencer shall be installed wherever noise levels exceed the limit.	No DG set installed in the subject DYIP project.
x	Fresh water requirement from Geonkhali Water Supply System and ground water sources (16 deep tube wells) will be 1270 m^3/hr.	Fresh water consumption is maintained within the limits as per EC directives.
xi	Industrial effluent generation shall not exceed 1150 m^3/hr. after expansions. Industrial effluent shall be treated in effluent treatment plant. Treated effluent shall be recycled / reused as make up for the raw water cooling tower and remaining treated effluent (262.5 m^3/hr) shall be discharged into surface water bodies.	• The refinery operates two ETPs with a combined treatment capacity of 1,250 m^3/hr (ETP-1: 650 m^3/hr; ETP-2: 600 m^3/hr). • The actual ETP load remains within 900–1100 m^3/hr. • Treated effluent is reused for TTP-RO feed, fire water, and cooling tower make-up. • Only TTP-RO reject is discharged into the Hooghly River after meeting prescribed standards.

		• The monthly average data of final treated effluent (last six months) is enclosed as **Annexure-2**.
xii	All the effluents after treatment shall be routed to a properly lined guard pond for equalization and final control. In the guard pond, automatic monitoring system for flow rate, pH and TOC shall be provided.	• Effluents are treated in 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
xiii	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme.	• Periodic water audits are carried out at Haldia Refinery. Several water conservation schemes have been implemented, with others in progress. • The latest water consumption study by M/s EIL was conducted in Feb'20. • With the implementation of recommendations and in-house water-saving schemes, Haldia Refinery has successfully reduced its water footprint over the years.
xiv	Automatic / online monitoring system (24 x 7) monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional Office of MoEF&CC and in the Company's website.	OCEMS data is transmitted to CPCB servers for continuous monitoring and compliance reporting.
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. If oil is detected, water is routed through the Storm Water Management System (SWMS) with API & TPI units (1000 m^3/hr capacity).

xvi	As proposed, spent catalyst shall be sent to the authorize recycler/re-processors. Oily sludge shall be treated in the sludge Centrifuge provided in the ETP and the cake generated from the centrifuge is further sent to bioremediation for disposal.	• The spent catalyst generated is being disposed to authorized CHWTSDF agency approved by WBPCB. • Oily sludge is processed through centrifuge to recover slop oil and the recovered slop oil is reprocessed in process units. • The residual sludge with low oil content (less than 10 vol%) is being disposed through SPCB authorized CHWTSDF agency & also disposed through authorized Co-processing Cement plant
xvii	The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (management, Handling and Trans-boundary Movement) rules, 2008 and amended time to time.	• Haldia Refinery complies with MSIHC Rules. • Hazardous waste is disposed of through WBPCB-authorized CHWTSDF. • Hydro-processing catalyst is handled via SPCB-authorized recyclers.
xviii	The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhubaneswar. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorize recyclers/re-processors.	• Haldia Refinery holds valid authorization for hazardous waste generation and disposal from WBPCB, valid up to 31.12.2025. • Haldia Refinery holds Membership of CHW-TSDF (WBWML) at Haldia vide No. **WBWML-HzZ/HLDA/I-001.**
xix	Proper oil spillage prevention management plan shall be prepared to avoid spillage/ leakage of oil/ petroleum products and ensure regular monitoring.	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. Haldia Refinery maintains Tier-I Oil Spill Response readiness for external spills, as per OISD and Indian Coast Guard guidelines. • Oil dispersants and containment booms are available with Fire & Safety. • 2 Super Suckers and 3 MOSRUs deployed during monsoon. • Skimmers installed in open channels, ETP, and guard ponds.

		• Green Belt Canal isolatable using booms for oil recovery. • Regular mock drills and SOPs ensure emergency preparedness.
xx	Acoustic enclosure/ silencer shall be installed wherever it is possible.	Acoustic enclosures/silencers are installed primarily at steam pressure reducing and de-superheater systems (PRDS) to control noise levels.
xxi	Occupational health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Occupational Health checkup for the employees is being carried out at periodic intervals and records are maintained at Occupational health centre.
xxii	The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.	• Haldia Refinery has a dedicated Fire & Safety department in place. 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 are conducted for each process unit, and all recommendations are implemented in a time-bound manner. Design and installation of process equipment are as per OISD standards to ensure compliance with fire and explosion prevention norms. Adequate separation distances and control of ignition sources are maintained as per regulatory requirements.
xxiii	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	All recommendations mentioned in Charter on CREP are being followed by Haldia Refinery.
xxiv	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	• All recommendations from the Rapid Risk Assessment and Disaster Management Plan (ERDMP) have been implemented. • The ERDMP is reviewed and updated every three years and is certified by a PNGRB-approved agency.

		• The current ERDMP is valid up to 31.08.2025.
xxv	As proposed, spent catalyst shall be sent to the authorized recycler/re-processors. Oily sludge shall be treated in the sludge Centrifuge provided in the ETP and the cake generated from centrifuge is further sent for bioremediation for disposal.	• The spent catalyst generated is being disposed to authorized CHWTSDF agency approved by WBPCB. • Oily sludge is processed through centrifuge to recover slop oil and the recovered slop oil is reprocessed in process units. • The residual sludge with low oil content (less than 10 vol%) is being disposed through SPCB authorized CHWTSDF agency & also disposed through authorized Co-processing Cement plant.
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 along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees

		• **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
xxvii	All the commitments made to the public during public hearing/public consultation meeting held on 12th September, 2014 shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	All commitments made to the public during public hearing meeting held for subject project on 12.09.2014 are implemented.
xxviii	At least 2.5% of the total cost of the project should be earmarked towards the corporate social responsibility and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneshwar. Implementation of such program should be ensured accordingly in a time bound manner.	Haldia Refinery has earmarked and allocated the stipulated 2.5% of the project cost towards Corporate Environment Responsibility (CER) for DYIP Haldia Refinery Project. The EC approved cost of the project stands at ₹3217 Cr, and accordingly, ₹80.43 Cr has been allocated as CER fund (2.5% of the project cost), as per the EC Certificate. As on date, ₹31.79 Cr has been utilized for various CER activities, and the balance ₹48.64 Cr remains earmarked for ongoing and planned initiatives. The activities undertaken under CER include healthcare, sanitation, skill development, urban infrastructure, and environmental conservation. **Key projects include:** 1. **Healthcare & Sanitation:** • **Mobile Road Sweeping Machine** for Haldia Municipality to address dust pollution – *Completed*. • **4 MLD Sewage Treatment Plant** at Haldia – *Work order issued; execution i/p* • **Modern Toilet at Mohana Market, Haldia Township** – *Completed*. 2. **Skill Development & Livelihood:** • **Water Hyacinth Handicraft Program** for underprivileged women – *Completed*.

		3. **Urban Infrastructure Development:** • **Central Bus Stand at Haldia** – *Completed*. • **Development of area adjacent to "Haldia Bhawan"** – *Completed*. • **Community Relief Centres** at Nayachar Island – *In Progress*. 4. **Environmental Conservation:** • **Tiger Conservation** at Sundarbans Tiger Reserve through patrol system upgrades – *In Progress*. • **Mangrove Plantation over 150 ha (Dakshinchara & Beliarychar)** with 6-year maintenance – *Under process; ₹8.17 Cr earmarked*. 5. **Public Safety & Surveillance:** • **Installation of CCTV Cameras** in Haldia Industrial Region – *Completed*. All activities have been finalized by the CER Committee and are either completed or in various stages of implementation.
xxix	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	No temporary labour housing was developed as the construction workforce is sourced from nearby villages and commutes daily. However, necessary facilities such as safe drinking water, mobile toilets, and first-aid medical support were provided at the project site during construction activities.
Sl. No.	**GENERAL CONTITIONS**	**STATUS**
i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	Haldia Refinery has been adhering to the stipulations made by the WBPCB and submitting necessary compliance Reports as per schedule.

ii	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & forests. In case of deviations or alternations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Environmental clearance from MoEF & CC is always taken before expansion or modernization of the existing plants.
iii	The project authorities must strictly comply with the rules and regulations under manufacture, Storage and Import of Hazardous chemicals rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety inspectorate etc. must be obtained, wherever applicable.	• MSIHC rules- 2000 (amended) is being followed by Haldia Refinery. • Third-party Safety Audits conducted as per MSIHC Rules every year. • PESO approvals obtained prior to commissioning.
iv	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time).	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA (day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
v	A separate Environmental management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	• A dedicated Health, Safety & Environment (HS&E) department comprising experienced personnel across all grades, headed by a Chief General Manager reporting to the Refinery Head, oversees environmental management at Haldia Refinery. • An in-house Quality Control Laboratory, NABL-accredited (**TC10599, valid till 01.05.2026**) and WBPCB-approved, is available for routine environmental monitoring, including water quality analysis.

<table>
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<td>vi</td>
<td>Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and forests as well as the State government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.</td>
<td>

Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities.
This fund is not diverted for any other purposes and is utilized solely for environmental compliance.
The funds are utilized for comprehensive activities including the operation and maintenance of pollution control systems (ETP, TTP-RO), greenbelt development, environmental monitoring, hazardous waste management, sludge oil recovery, consent/authorization fees, awareness programs, and EIA/RA studies. These allocations are made from both recurring and non-recurring budgets as required, ensuring that all environmental obligations are fully met without any shortfall.

A summary of environmental expenditure over the last nine financial years is provided below:
<table>
<tr><th>Year</th><th>Expenditure (₹ Crore)</th></tr>
<tr><td>2024–25</td><td>19.17</td></tr>
<tr><td>2023–24</td><td>17.84</td></tr>
<tr><td>2022–23</td><td>20.61</td></tr>
<tr><td>2021–22</td><td>23.86</td></tr>
<tr><td>2020–21</td><td>20.79</td></tr>
<tr><td>2019–20</td><td>20.58</td></tr>
<tr><td>2018–19</td><td>20.59</td></tr>
<tr><td>2017–18</td><td>15.07</td></tr>
<tr><td>2016–17</td><td>21.19</td></tr>
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<tr>
<td>vii</td>
<td>The Regional Office of this Ministry/Central Pollution control Board / State Pollution Control Board will monitor the stipulated conditions. A</td>
<td>

Six-monthly compliance reports are regularly submitted to

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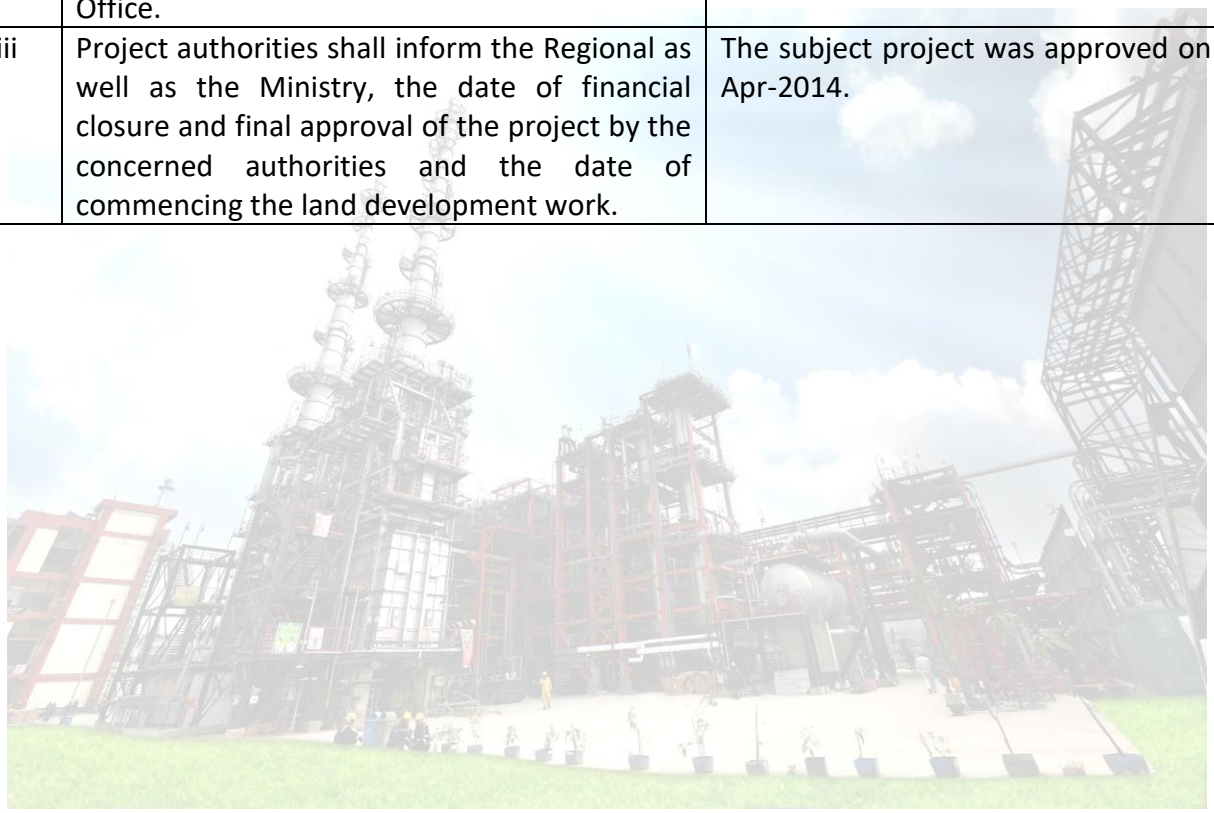
	six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	MoEF&CC Regional Office, CPCB, and WBPCB. • The last report was submitted in Dec 2024.
viii	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	The EC intimation is published in local two newspapers & also intimated to MoEF & CC regional office, SPCB, Factories Inspector & local Administration.
ix	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, $PM_{2.5,}$ SO_2, NOX, HC (Methane & Non- methane) VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	• Compliance status and monitored data are regularly uploaded on the IOCL website and shared with MoEF&CC Regional Office, CPCB, and WBPCB. • Criteria pollutant levels (ambient and stack) are continuously monitored and displayed publicly near the Refinery's main gate.
x	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions.	Six-monthly compliance reports are regularly submitted to MoEF&CC Regional Office, Bhubaneswar, CPCB, and WBPCB.
xi	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) rules, 1986, as amended subsequently, shall also be put on the web side of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	• Annual Environmental Statements in Form-V are submitted to WBPCB. • The last submission was made in September 2024. • The statement is also uploaded on the IOCL website .

xii	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office.	After receipt of Environmental clearance, application is being placed before State pollution control board and consent to establish is obtained. Also, the news of EC was published in two local newspapers. Consent to operate taken from WBPCB before commissioning of the project.
xiii	Project authorities shall inform the Regional as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	The subject project was approved on 20th Apr-2014.



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

Status of conditions imposed with respect to environmental clearance for "BS-VI Fuel Quality Upgradation Project (Phase-I) at Haldia Refinery, Haldia (West Bengal) by M/S Indian Oil Corporation Limited –Environmental Clearance-reg".

Sl. No.	SPECIFIC CONDITIONS	STATUS
(i)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	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 operates an advanced Effluent Treatment Plant (ETP) with integrated physical, chemical, biological, and tertiary treatment units. • 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, up from 90.5% in FY 2023–24. • Only the RO reject—meeting MINAS standards—is discharged to the Hooghly River, in accordance with the Consent to Operate (CTO) from WBPCB, which permits discharge up to 240 m^3/hr. • Regarding the ZLD commitment, IOCL–Haldia Refinery submitted a proposal to MoEF&CC requesting an amendment to the EC conditions, citing constraints such as land availability, salt management, and techno-economic challenges. • The matter was deliberated in the EAC meeting held on 10.01.2025, and as per the Minutes of Meeting (MoM) uploaded on the Parivesh Portal,

		EAC has suggested submission of a Techno-Economic Feasibility Study and impact assessment of treated effluent on the Hooghly River. • In compliance with the recommendations of the Expert Appraisal Committee (EAC), IOCL–Haldia Refinery is in the process of preparing a detailed Techno-Economic Feasibility Study in consultation with Engineers India Limited (EIL) for evaluating the implementation of the latest Zero Liquid Discharge (ZLD) technologies. The study will also include an impact assessment of the treated effluent on the Hooghly River. The report is being prepared as per the committed timeline and is expected to be completed by October 2025. Upon completion, the report along with relevant technical details will be submitted to MoEF&CC for further consideration, in line with the EAC's observations and directions
(iii)	Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.	Hazardous Waste (HW) Authorization is accorded by WBPCB & it is valid till 31.12.2025. Yearly Hazardous Waste return is being submitted to WBPCB every year before 30th June.
(iv)	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended from time to time shall be followed.	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 is not applicable.
(v)	To control source and the fugitive emissions, suitable pollution control devices shall be installed with different stacks (attached to DHDT, HGU-II-Revamp, Prime G-Revamp and Sulphuric Acid Plant) to minimize the	1. **Online Continuous Emission Monitoring Systems (OCEMS)** for SO_2, NO_x, CO, and PM have been installed on stacks associated with process units

	incremental concentrations (for PM_{10} & $PM_{2.5}$) in order to meet the prescribed norms/NAAQS. Sulphur content should not exceed 0.5% in the coal for use in coal fired boilers to control particulate emissions within permissible limits. The gaseous emissions shall be dispersed through of adequate height as per CPCB/SPCB guidelines.	such as DHDT, HGU-II Revamp, Prime-G Revamp, and Sulphuric Acid Plant. The data is transmitted in real-time to **CPCB servers** to ensure regulatory compliance and transparency. 2. **Adequate stack heights** have been provided for new heaters as per CPCB/SPCB guidelines to ensure proper dispersion of pollutants. 3. Only **low sulphur fuel gas and oil** are used for combustion across the refinery; there are **no coal-fired boilers** in operation. 4. **Low NO_x burners** and **staged combustion systems** have been installed in all new furnaces to comply with the latest NO_x emission norms. Existing furnaces are being progressively retrofitted with similar systems. 5. In addition to OCEMS, **manual stack emission testing** for critical parameters is conducted **monthly** to validate compliance.
(vi)	Total fresh water requirement shall not exceed 1395 cum/hr to be supplied by Haldia Development Authority. Necessary permission in this regard shall be obtained from the concerned regulatory authority. No ground water shall be used without prior permission from the CGWA.	**Fresh water consumption** remains well within the **stipulated limit of 1395 m^3/hr**. **Actual freshwater consumption**: • FY 2021–22: ~900 m^3/hr • FY 2022–23: ~800 m^3/hr • FY 2023–24: ~870 m^3/hr • FY 2024–25: ~800 m^3/hr
(vii)	Industrial/ trade effluent shall be segregated into High COD/TDS and Low COD/TDS effluent streams, if any. High TDS/COD shall be passed through stripper followed by MEE and ATFD (agitated thin film drier). Low TDS effluent stream shall be treated in ETP and then passed through RO system.	• All effluent generated inside the refinery are treated in existing ETPs, with online analyzers installed to monitor the quality of treated water and final river discharge. • Treated water from ETP is used in TTP-RO Plant to produce Permeate Water.

(viii)	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	• **Process effluent** is routed through **dedicated closed OWS pipelines** to ETP inlet—no mixing with storm water. • **Storm water** is collected in **guard ponds** connected via open surface drains. • Guard ponds are equipped with **oil catch pits** to arrest hydrocarbon traces. • **Storm water is reprocessed** through ETP or treated in **SWMS (1000 m^3/hr capacity)** during heavy rainfall. • Complete segregation of **process and storm water** is maintained.
(ix)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	• **Hazardous chemicals and hydrocarbons** are stored in **floating and fixed roof tanks** within designated tank farms. • **Flame arrestors** are installed on all **fixed roof tanks** as per safety standards. • **Solvent and chemical transfers** are carried out using **mechanized pump systems**—no manual handling. • Storage and transfer systems are designed in compliance with **OISD and MSIHC norms**.
(x)	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufacturers/ cement industry.	• The spent catalyst generated is being disposed to authorized CHWTSDF agency approved by WBPCB. • Oily sludge is processed through centrifuge to recover slop oil and the recovered slop oil is reprocessed in process units. • The residual sludge with low oil content (less than 10 vol%) is being disposed through SPCB authorized CHWTSDF agency & also disposed through

		authorized Co-processing Cement plant.
(xi)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended the time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	• MSIHC Rules, 1989 is being followed. • Safety audit as per MSIHC Rules being done annually.
(xii)	Fly ash should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust should be avoided.	No fly ash generation in Haldia refinery. Heaters are oil and gas fired.
(xiii)	The company shall undertake waste minimization measures as below:-	
	(a) Metering and control of quantities of active ingredients to minimize waste.	Flow meters are installed across process streams for precise metering and control.
	(b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	No by-products generated. Oily sludge generated is reprocessed to recover slop oil for reuse.
	(c) Use of automated filling to minimize spillage.	Automated filling systems are in place to minimize spillage.
	(d) Use of Close Feed system into batch reactors.	Close feed systems are adopted in operations.
	(e) Venting equipment through vapor recovery system.	• No venting to open atmosphere. • Flared gases routed to flare routed through Flare Gas Recovery System (FGRS).
	(f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.	High-pressure hoses are used for equipment cleaning to reduce wastewater generation.
(xiv)	The green belt of at least 10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downwards wind direction, and along roadsides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises.

		• **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
(xv)	At least 5% of the total project cost shall be allocated for Enterprise Social Commitment. The item-wise details in this regard along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	Haldia Refinery has earmarked and allocated the stipulated 5% of the project cost towards Corporate Environment Responsibility (CER) for **BS-VI Project.** The board-approved cost for the **BS-VI Project (RH-0757)** is **₹2934 Cr**, against which a **CER allocation of ₹129.86 Cr (5%)** has been made. Activities under CER have been finalized in consultation with District Authorities and the local community to address priority needs in education, healthcare, sanitation, green development, and skill building. A total of **29 projects** have been taken up, of which **23 have been completed** and **6 are in progress**. The cumulative **utilization till date is ₹35.93 Cr**, and the balance is committed and under execution in a time-bound manner.

		Key Completed Projects:
		• **Education:**
		  • Construction and renovation at **multiple government schools** across villages (e.g., Raj Nagar Ram Chandra Adarsh Vidyapeeth, Gopalpur Vivekananda Mission, Hariharpur Primary School).
		  • Establishment of **e-Classroom and desk bench facilities** at BMT High Secondary School.
		  • **Skill development project** with CIPET for 150 students (residential course).
		  • Providing **school computers**, **student desks (980 Nos)**, and infrastructure at Kendriya Vidyalaya and IndianOil Gyanodaya.
		  • **Shishu Aloy centers** under ICDS in Purba Medinipur district (5 units).
		• **Healthcare:**
		  • **Distribution of assistive kits** to Divyangjans through ALIMCO.
		  • **Ambulance support** to Trauma Care Center.
		  • Supply of **Covid management materials** to IOCL Haldia Refinery.
		• **Sanitation:**
		  • **Toilet construction** at multiple schools and public places.
		  • **Installation of dustbins** across Haldia and schools.
		• **Green Belt & Plantation:**

		• **Tree plantations** (including 35,200 trees at Balughata, community plantations, and school campuses).
		• Creation of a **Bio-Diversity Park at Digha** and **Miyawaki Forest** at Mahisadal.
		• **Mangrove plantation** at Beliary Char (ongoing).
		
		Key Ongoing Projects:
		• **Dedicated healthcare infrastructure** such as:
		  • **20-bed isolation ward** and **10-bed Caesarean ward** at district hospitals.
		  • **Burn ward** at Haldia Subdivision Hospital.
		• **Providing infrastructure to ITI Haldia** under education sector.
		• Deployment of **portable USG machines**.
		
		All projects have been duly approved by the CER Committee and relevant competent authorities. The implementation follows the stipulated action plan, with periodic reviews and updates submitted to the Ministry's Regional Office.

(xvi)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	No DG sets are installed under the project. Power requirements are met through in-house Gas Turbines (GTs), Steam Turbines (TGs), and import from WBSEDCL.
(xvii)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	• Haldia Refinery has a dedicated Fire & Safety department in place. • A comprehensive fire water network covers all process units and tank farms. • Multiple fire tenders and firefighting equipment are

		stationed for prompt emergency response.
(xviii)	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises. In case of the treated effluent to be utilized for irrigtation/ gardening, real time monitoring system shall be installed at the ETP outlet.	• **Online Continuous Emission Monitoring Systems (OCEMS)** for SO_2, NO_x, CO, and PM are installed on relevant stacks and are integrated with CPCB and WBPCB servers. • OCEMS for BOD, COD, TSS, and pH are operational at the ETP outlet and ELR discharge point to monitor treated effluent quality. • Web cameras with night vision and flow meters are installed at both the effluent inlet and outlet channels. • Also, periphery boundary cameras are installed to monitor the green belt channel around the refinery premises. • Treated water is reused in TTP-RO, cooling towers, and fire water systems.
(xix)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	• Haldia Refinery has its own fully equipped Occupational Health Centre. • 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 our database and available from medical portal.
(xx)	Wetland habitat shall be provided for migratory birds, at the reservoir and green belt areas.	Haldia Refinery, under its commitment to ecological stewardship, has undertaken key ecological initiatives to support migratory birds and biodiversity: • **Biodiversity Park at Digha**-A key initiative developed over a large area with native flora, water bodies, and open green spaces to attract and support

		migratory birds and coastal wildlife. • **Ecological Butterfly Park**: Located within refinery premises, it hosts diverse nectar plants and shelter zones to sustain butterfly species and other pollinators, enhancing local biodiversity.
(xxi)	Natural surface water bodies within 10 km study area shall be rejuvenated and developed as complete eco-system with the tree plantation development and growth using satellite imageries.	Haldia Refinery has implemented a **comprehensive ecological rejuvenation strategy**, focusing on the restoration and development of wetlands, canals, and water bodies within and also outside the 10 km radius. The refinery's sustained afforestation and wetland enhancement initiatives have led to a significant increase in green cover from **11% in 2019** to over **60% by FY 2024–25**. **<u>Key Initiatives(within 10 km):</u>** • **Tree Plantation at Water Reservoir – Durgachak** Green development around key freshwater assets to improve local hydrology and habitat. • **Maintenance of Saplings for Six Months** **Locations include:** • **Satish Samanta Trade Center** • **Trauma Care Center** • **Water Reservoir – Durgachak** • **Green Belt Canal** • **Tree Plantation in and around Haldia (Schools & Colleges)** Focused on building green awareness and enhancing campus ecosystems across educational institutions**.** • **Tree Plantation with 4-Year Maintenance:** • Green Belt Channel (in front

		of refinery) • Extension of HPL Link Road (City Centre to Balughata) • **Tree Plantation using Miyawaki Technique at Land of Southeastern Railways.** **<u>Key Initiatives (outside 10 km):</u>** • **Coastal Mangrove Plantation – Phase 1 (2021)** Planted **20 lakh mangroves** over **50 hectares at Beliary Char**, restoring coastal wetlands, improving biodiversity, and enhancing soil stability. • **Mangrove Plantation Drive 2.0 (2025-ongoing)** Launched as a flagship initiative, targeting **30 lakh mangroves** across **150 hectares (Beliary Char & Dakshinchara Shankarara)**, making it India's largest mangrove restoration project by any refinery. **<u>Monitoring and Impact Assessment:</u>** • All plantation and rejuvenation areas are being tracked through **satellite imagery and GIS tools**, in line with EC requirements. • Over **8 native and endangered mangrove species** included to build climate resilience and support a thriving wetland ecosystem • **Biodiversity enhancement**, carbon sequestration, and soil quality improvements are being periodically reported. • Community engagement and awareness drives are included as part of project sustainability.

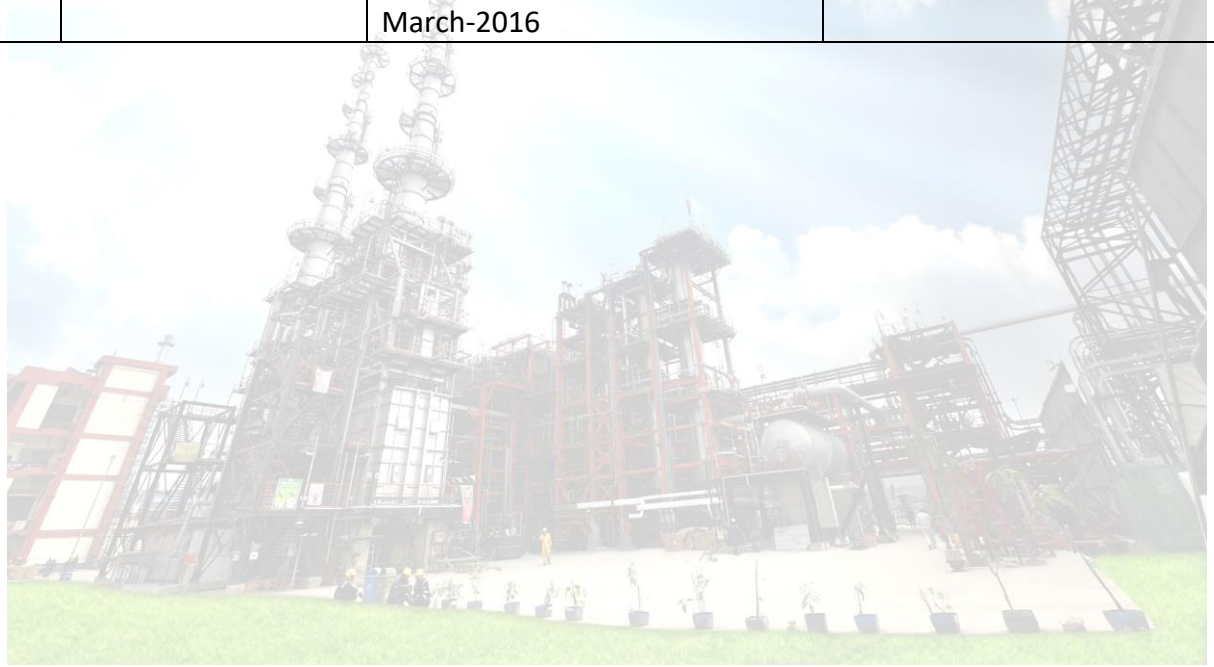
12.1	The grant of environmental clearance is subject to compliance of other general conditions, as under:-	
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.	Statutory stipulations are being complied.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Permission always taken from MoEF & CC and State pollution control board for every projects.
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	• Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed within Haldia Refinery premises, including new stations under the DYIP and BS-VI projects. These are located in consultation with SPCB, covering upwind, downwind, and maximum ground-level concentration zones. • All stations are integrated with the CPCB server for real-time data transmission and regulatory compliance.
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 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)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA**

	acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall be conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA(day time) and 70 dBA (night time).	**(day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**

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

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) at IOCL Haldia refinery- **Amendment in Environmental Clearance-reg**.

Sl. No.	EC detail	Existing EC conditions	Amendment in EC
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, Purba Medinipur, WB – EC-Amendment in EC 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 Ministries notification dated 23rd Nov 2016, para 7 (ii) (b), no requirement for amendment in the EC dated 4th-March-2016



12.0 EC Reference No. & Issue date: J11011/175/2016-IA -II (I) dated 05th January 2021

Status of conditions imposed with respect to environmental clearance for "Installation of 2nd Catalytic Iso-Dewaxing unit of capacity 270.0 TMTPA by M/s Haldia Refinery of IOCL located at East Medinipur, West Bengal- EC regarding".

Sl. No.	Specific Condition	Status
I	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the earlier EIA/EMP report and updated in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	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 operates an advanced Effluent Treatment Plant (ETP) with integrated physical, chemical, biological, and tertiary treatment units. • 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, up from 90.5% in FY 2023–24. • Only the RO reject—meeting MINAS standards—is discharged to the Hooghly River, in accordance with the Consent to Operate (CTO) from WBPCB, which permits discharge up to 240 m^3/hr. • Regarding the ZLD commitment, IOCL–Haldia Refinery submitted a proposal to MoEF&CC requesting an amendment to the EC conditions, citing constraints such as land availability, salt management, and techno-economic challenges. • The matter was deliberated in the EAC meeting held on 10.01.2025, and as per the

		Minutes of Meeting (MoM) uploaded on the Parivesh Portal, EAC has suggested submission of a Techno-Economic Feasibility Study and impact assessment of treated effluent on the Hooghly River. • In compliance with the recommendations of the Expert Appraisal Committee (EAC), IOCL–Haldia Refinery is in the process of preparing a detailed Techno-Economic Feasibility Study in consultation with Engineers India Limited (EIL) for evaluating the implementation of the latest Zero Liquid Discharge (ZLD) technologies. The study will also include an impact assessment of the treated effluent on the Hooghly River. The report is being prepared as per the committed timeline and is expected to be completed by October 2025. Upon completion, the report along with relevant technical details will be submitted to MoEF&CC for further consideration, in line with the EAC's observations and directions
III	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.	• **Online Continuous Emission Monitoring Systems (OCEMS)** for SO_2, NO_x, CO, and PM are installed on relevant stacks and are integrated with CPCB and WBPCB servers. • OCEMS for BOD, COD, TSS, and pH are operational at the ETP outlet and ELR discharge point to monitor treated effluent quality. • Web cameras with night vision and flow meters are installed at both the effluent inlet and outlet channels.

		• Also, periphery boundary cameras are installed to monitor the green belt channel around the refinery premises.
IV	The National Emission Standards for Petroleum Oil Refinery issued by the Ministry vide G.S.R. 186(E) dated 18th March, 2008 and G.S.R. 595(E) dated 21st August, 2009 as amended from time to time, shall be followed.	• 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	Volatile organic compounds (VOCs)/Fugitive emissions controlled at 99.997% with effective chillers/modern technology. For emission control and management, use of FG/NG in heater as fuel, adequate stack height, use of Low NOX burners in heater & boiler, continuous stack monitoring, Sulphur recovery plant, etc. shall be installed/ensured.	• Adequate stack height for new heaters will be provided. • Only low sulphur fuel gas and oil are fired in the heaters. • Low NO_x burners are installed in new heaters, and older systems are being retrofitted. • All new furnaces feature staged combustion and low-NOx burners to ensure compliance with evolving NO_x norms, Same has been implemented for CIDW-II. • Four nos. of Sulphur Recovery units with design capacity of 360 TPD are already installed at Haldia Refinery. • Additionally, the Wet Sulfuric Acid (WSA) Plant—first of its kind in IOCL with a capacity of 375 MTPD—was successfully commissioned at Haldia Refinery on 30th September 2022, converting H_2S-rich gas to H_2SO_4. • Stack emissions are well within prescribed limits. Continuous online stack monitoring systems are in place, and real-time data is linked to the CPCB server. • The six-month average SO_2 emission from heater stacks

		(Oct'24–Mar'25) was 697 kg/hr, which is well within the specified limit of 980 kg/hr as per latest EC condition. Refer **Annexure-6**
vi	Occupational health center for surveillance of the worker's heath shall be set up. The heath data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.	• Haldia Refinery has its own fully equipped Occupational Health Centre. • 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 our database and available from medical portal.
Vii	Process safety and risk assessment studies shall be carried out using advanced models in repeated intervals, and the mitigating measures shall be undertaken/ implemented accordingly.	• **Risk Analysis Reports** are submitted to the Ministry during EC processes. • **QRA, HAZOP, and SIL Studies** are conducted at 5-year intervals using the latest **PHAST and AR technologies** for advanced risk modeling. • **Mitigation measures** recommended by these studies are implemented and **externally audited by OISD**. • **Quarterly compliance status** of implementation is **regularly submitted to OISD** for review.
viii	The storage of toxic/hazardous raw material/products shall follow all the safety norms and best practices to avoid any leakage/explosion/emissions. The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire-fighting system shall be as per the norms.	• Lighter hydrocarbons are stored in **internal floating roof tanks** equipped with **rim seal fire protection systems**. • All storage and handling practices comply with **OISD, PESO**, and other statutory safety norms. • Adequate fire and explosion prevention systems are in place, with **firefighting systems designed as per prescribed standards** to mitigate any potential hazards.

ix	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Safety and visual reality training shall be provided to employees	• Regular training sessions are 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** are also made available on the company's internal web portal for continuous learning.
X	Total additional fresh water requirement shall not exceed 408 KLD proposed to be met from Haldia Development Authority. Necessary permission in this regard shall be obtained from the concerned regulatory authorities, and renewed from time to time.	**Fresh water consumption** of the refinery remains well within the **stipulated limit of 1395 m³/hr**. **Actual freshwater consumption**: • FY 2021–22: ~900 m³/hr • FY 2022–23: ~800 m³/hr • FY 2023–24: ~870 m³/hr • FY 2024–25: ~800 m³/hr
xi	Storm water from the roof top shall be channelized through pipes to the storage tank constructed for harvesting of rain water in the premises and harvested water shall be used for various industrial processes in the unit. No recharge shall be permitted within the premises. Process effluent/any wastewater shall not be allowed to mix with storm water.	• Haldia Refinery has implemented 9 rainwater harvesting projects since 2011–12 for storage and groundwater recharge. • Key initiatives during FY 2024-25 include a newly constructed stormwater reservoir named **'Neer Kund'**, with oil catchpits (capacity: 3800 m³), enabling recycling of up to 200 m³/hr of runoff for use in fire systems or ETP, conserving freshwater.
xii	The company shall undertake waste minimization measures as below (a) Metering and control of quantities of active ingredients to minimize waste. (b) Reuse of by products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of close Feed system into batch reactors. (e) Venting equipment through vapour recovery system. (f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.	(a) Flow meters are installed across process streams for precise metering and control. (b) No by-products generated. Oily sludge generated is reprocessed to recover slop oil for reuse. (c) Automated filling systems are in place to minimize spillage. (d) Close feed systems are adopted in operations. (e) No venting to open atmosphere. Flared gases routed to flare routed through Flare Gas Recovery System (FGRS).

		(f) High-pressure hoses are used for equipment cleaning to reduce wastewater generation.
xiii	The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area, mainly along the plant periphery. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department. Records of tree canopy shall be monitored through remote sensing map. The greenbelt shall be developed/planted within in 6 months and a compliance report needs to be submitted to RO MoEFCC.	Due to limited land availability, Haldia Refinery has developed greenbelt through MoUs with the Forest Department (GoWB) and HDA, achieving over **60% green cover by 2025**. **Key Initiatives:** • **Ecological Butterfly Park**: Developed to support pollinators and promote biodiversity within refinery premises. • **Miyawaki Plantation at Mahisadal**: Dense urban forest created using the Miyawaki method, known for fast growth and high biodiversity. • **Massive Plantation Drive at Balughata**: Targeted afforestation initiative covering degraded patches with native species. • **Coastal Mangrove Plantation at BeliaryChar:** Restoration of coastal ecosystems to enhance climate resilience and prevent soil erosion by plantation of 20 lakh mangrove. **Trees planted in last few years**: • **FY 2021–22**: ~20 lakh mangroves planted at Beliarychar Island (247 Ha) • **FY 2022–23**: 20,800 trees • **FY 2023–24**: 661 trees • **FY 2024-25:** 1739 trees
xiv	The activities and the action plan proposed by the project proponent to address the public hearing and socio-economic issues in the study area, shall be completed as per the schedule presented before the committee	• All public hearing commitments and socio-economic action plans are being implemented as per the timeline submitted to

	and as described in the EMP report in letter and spirit. All the commitments made during public hearing shall be satisfactorily implemented. Preference shall be given to local villagers for employment in the unit.	the EAC and detailed in the EMP report. • Preference is given to **local villagers for employment**, including in office, maintenance, and project-related roles, ensuring inclusive development.
xv	A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledge laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	• A dedicated Health, Safety & Environment (HS&E) department comprising experienced personnel across all grades, headed by a Chief General Manager reporting to the Refinery Head, oversees environmental management at Haldia Refinery. • An in-house Quality Control Laboratory, NABL-accredited (**TC10599, valid till 01.05.2026**) and WBPCB-approved, is available for routine environmental monitoring, including water quality analysis.
B	**General Conditions**	**Status**
i	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/ SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted. All expansions or modifications at Haldia Refinery are undertaken **only after obtaining prior Environmental Clearance** from MoEF&CC, in full adherence to the EIA Notification, 2006 and shall also be ensured in future.
(ii)	The energy source for lighting purpose shall be preferable LED based, or advanced having preference in energy conservation and environment betterment.	Haldia Refinery has already converted all conventional lights in refinery and township into LED.
iii)	The overall noise levels in and around the plant area shall be kept well within the standards by providing nose control	• Haldia Refinery ensures that noise levels remain within the prescribed limits of **<75 dBA**

	measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the environment (Protection) Act, 1986 Rules, 1989 viz. 75 DBA (day time) and 70 DBA (night time).	**(day)** and **<70 dBA (night)** as per EPA Rules, 1989. • **Noise monitoring is regularly conducted** both inside the plant and at boundary locations. • **Noise control measures** such as acoustic enclosures and silencers are in place, and **PPEs such as earplugs are mandated** in high-noise zones. **Monitoring data is attached as Annexure-5.**
(iv)	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Haldia Refinery has effectively implemented its CER/ESC commitments with a strong focus on education, healthcare, environment, and community welfare. Key initiatives include construction and upgradation of school infrastructure, establishment of isolation and burn wards in local hospitals, extensive mangrove and Miyawaki forest plantations for ecological restoration, and support for disaster relief and basic amenities in nearby villages. These activities have been executed in consultation with local administration, with budgets duly allocated and booked, ensuring affirmative and time-bound fulfillment of obligations as per project and regulatory requirements
(v)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the state Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	• Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. • This fund is not diverted for any other purposes and is utilized solely for environmental compliance. • The funds are utilized for comprehensive activities including the operation and maintenance of pollution control systems (ETP, TTP-RO), greenbelt development,

<table>
<tr><td></td><td></td><td>environmental monitoring, hazardous waste management, sludge oil recovery, consent/authorization fees, awareness programs, and EIA/RA studies. These allocations are made from both recurring and non-recurring budgets as required, ensuring that all environmental obligations are fully met without any shortfall.

A summary of environmental expenditure over the last nine financial years is provided below:

<table><tr><th>Year</th><th>Expenditure (₹ Crore)</th></tr><tr><td>2024–25</td><td>19.17</td></tr><tr><td>2023–24</td><td>17.84</td></tr><tr><td>2022–23</td><td>20.61</td></tr><tr><td>2021–22</td><td>23.86</td></tr><tr><td>2020–21</td><td>20.79</td></tr><tr><td>2019–20</td><td>20.58</td></tr><tr><td>2018–19</td><td>20.59</td></tr><tr><td>2017–18</td><td>15.07</td></tr><tr><td>2016–17</td><td>21.19</td></tr></table></td></tr>
<tr><td>(vi)</td><td>A copy of the clearance letter shall be sent by the project proponent to concerned Panchayet, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.</td><td>No suggestions or representations were received from any Panchayat, Zilla Parishad, Municipal Corporation, Urban Local Body, or NGO during the processing of the project; hence, no clearance letter dispatch was required.</td></tr>
<tr><td>(vii)</td><td>The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental clearance and six monthly compliance status reports shall be posted on the website of the company.</td><td>Six-monthly reports on the implementation of stipulated conditions and environmental safeguards are submitted to MoEF&CC Regional Office and WBPCB before 1st June & 1st Dec.
The last report was submitted in Dec 2024.</td></tr>
</table>

(viii)	The environmental statement of each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned state Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Officers of MoEF&CC by e-mail.	• Complied. • Annual Environmental Statement (Form-V) is submitted to WBPCB (last in Sept 2024) and uploaded on IOCL website. • Six-monthly EC compliance reports are submitted to MoEF&CC Regional Office (last in Dec 2024), fulfilling all regulatory requirements.
(ix)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at website of the Ministry and at https://parivesh,nic.in/. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	After receipt of Environmental clearance, the news of EC receipt is published in two local newspapers.
(x)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Shall be complied.
(xi)	This Environmental clearance is granted subject to final outcome of Hon'ble supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of law, if any, as may be applicable to this project.	Accepted.

13.0. EC Reference No. & Issue date: F.No.11/23/2023-IA.III dated 21.07.2023

Status of CRZ recommendation for the Proposal 'Sulphuric Acid Pipeline From IOCL, Haldia Refinery to Finger Jetty of Haldia Dock Complex, Shyama Prasad Mukherjee Port, Kolkata' at Haldia, Purba Medinipur District, West Bengal.

PART-A -SPECIFIC CONDITIONS:

S.l No.	Recommendations	Compliance
1	All construction shall be strictly in accordance with the provisions of the CRZ Notification, 2011, as amended from time to time	Noted for compliance. All construction activities are and shall be undertaken strictly in accordance with the provisions of the CRZ Notification, 2011, and subsequent amendments.
2	The pipeline where crossing of water body/ river/ creek areas should be laid through Horizontal Directional Drilling (HDD) method.	Horizontal Directional Drilling (HDD) method has been adopted.
3	Any temporary physical infrastructure setup and excavated material during laying of pipelines shall not be dumped in water bodies or adjacent areas and the site shall be restored to its original condition after completion of construction of work.	Shall be complied
4	No storage reservoir for sea water shall be permitted and only pipelines conveyance system shall be installed.	Noted for Compliance
5	No groundwater shall be extracted within the CRZ area to meet the water requirements during the construction and / or operation phase of the project.	Shall be complied
6	Permanent labour camp, machinery and material storage shall not be set up in the CRZ area.	Shall be complied
7	The project proponents will certify that there is no legal restriction on the proposed project activities at the proposed site	Noted for Compliance
8	The Project Proponent shall comply order/direction, if any, issued by Hon"b1e Court/tribunal on the project	Shall be complied
9	There will be no construction activity during the turtle nesting season, if any from 1st January to 30th April of every year	Shall be complied

S.l No.	Recommendations	Compliance
10	All the conditions stipulated by the West Bengal State Coastal Zone Management Authority for CRZ clearance under CRZ Notification, 2011 vide letter no. 103 EN/T-II-4/ 17/ 2022 dated 08/ 02/ 2023 and commitments made by the PP before the WBSCMA and EAC shall be followed in letter and spirit.	Shall be complied
11	As a part of EMP, Indian Institute of Science Education and Research (IISER) — Kolkata or Zoological Survey of India any such nationally and internationally reputed government or academic institute will be provided with state of art laboratory equipment that can be used for high quality academic and research purpose.	-
12	All necessary clearance from the concerns authority, as may be applicable should be obtained prior to commencement of project or activity	Shall be complied

PART-B-GENERAL CONDITIONS:

S.l No.	Recommendations	Compliance
1	Management of solid waste in accordance with the Solid Waste Management Rules, 2016 shall be strictly implem ented.	Noted for Compliance
2	'Consent to Establish' and/ or 'Consent to Operate' shall be obtained from State Pollution Control Board under the provisons of Air (Prevention and Control of Pollution) Act, 1981 and /or the Water (Prevention and Control of Pollution) Act, 1974, as may be applicable.	Consent to Establish Application has been obtained from WBPCB office. **CTE No.: WBPCB/5369661/2024 dated 02.12.2024**
3	Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of Competent Authority.	Shall be complied

S.l No.	Recommendations	Compliance
4	All liquid waste arising from the proposed development will be disposed of as per the norms prescribed by Central/ State Pollution Control Board. There shall not be any disposal of untreated effluent into the sea/ coastal water bodies. It shall be ensured that the waste water generated is treated in the STP as committed by the project proponent. The treated waste water shall be reused for landscaping, flushing and 'or HVAC cooling purposes etc. within the development. The project proponent should also make alternate arrangement for situation arising due to malfunctioning of STP. There shall be regular monitoring of standard parameters of the effluent discharge from STP under intimation to the SPCB.	Not applicable as the proposed project is only pipe laying job.
5	Any hazardous waste generated during com traction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board	Shall be complied
6	A copy of the clearance letter shall be uploaded on the website of the concerned State Coastal Zone Management Authority/ State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries Centre and Collector's Office/Tehsildar's office for 30 days.	Copy of the CRZ letter is available with the mentioned authorities.
7	A six-monthly monitoring report shall need to be submitted by the project proponent to the concerned Regional Office of this Ministry regarding the implementation of the stipulated conditions	Being be complied
8	The Ministry of Environment, Forest & Climate Change or any other Competent Authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted for Compliance

S.l No.	Recommendations	Compliance
9	Full co-operation shall be extended to the officials from the Regional Office of MoEF&CC, during monitoring of implementation of environmental safeguards stipulated. It shall be ensured that documents / data sought pertinent is made available to the monitoring team. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the concerned Regional Office of MoEF&CC.	Haldia Refinery is always extending full co-operation to the Scientists / Officers visiting the Refinery from the statutory bodies.
10	In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry	Noted for Compliance
11	The Ministry reserves the right to add additional safeguard measures subsequently, if considered necessary, and to take action to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner, including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, for non-compliance	Agreed
12	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponent from the respective Competent Authorities	Shall be Complied
13	The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board (SPCB) and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at https:/ /parivesh.nic .in/ . The advertisement	Complied

S.l No.	Recommendations	Compliance
	should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the concerned Regional Office of this Ministry.	
14	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal	No suggestions or representations were received from any Panchayat, Zilla Parishad, Municipal Corporation, Urban Local Body, or NGO during the processing of the project; hence, no clearance letter dispatch was required.
15	The proponent shall upload the status of compliance of the stipulated conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.	Six-monthly EC compliance reports including monitoring data are uploaded on IOCL website.
16	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the project proponent along with the status of compliance of clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.	• Complied. • Annual Environmental Statement (Form-V) is submitted to WBPCB (last in Sept 2024) and uploaded on IOCL website. • Six-monthly EC compliance reports are submitted to MoEF&CC Regional Office (last in Dec 2024), fulfilling all regulatory requirements.

Chairman & Director (Refinery) flagged off Mangrove Plantation Drive 2.0 during Haldia Refinery's Golden Jubilee celebration

Inauguration of Neerkund – A stormwater Storage facility

Neerkund - Constructed on a 46m x 23m footprint with an average depth of 6 meters, Neer Kund offers a net holding capacity of 3800 m^3.

Flagging off Ambient Air Quality Monitoring Van in presence of WBPCB

Ambient Air Quality Monitoring Van

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m³	9	**60**	40	45	56	52	48	41	54	52	36	44.50
	$PM_{2.5}$	µg/m³	9	**40**	19	22	30	25	23	19	26	25	18	21.88
	SO_2	µg/m³	9	**50**	14	16	21	17	17	14	23	20	13	16.38
	NO_2	µg/m³	9	**40**	21	24	30	25	24	21	31	31	20	26.25
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	20	21	23	27	BDL	28	24	20	22.50
	Lead (Pb)	µg/m³	9	**0.5**	0.05	0.07	0.11	0.09	0.09	0.08	0.11	0.10	0.07	0.08
	CO	mg/m³	9	**2 (8 hrs)**	0.7	0.8	0.7	0.9	0.7	0.6	0.7	0.8	0.5	0.66
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	24	24	29	BDL	26	27	20	22.83
	Benzene	µg/m³	9	**5**	0.6	0.7	0.9	1.1	0.9	BDL	1.1	0.9	0.5	0.64
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	$\mu g/m^3$	9	**60**	30	35	46	41	38	32	44	43	28	36.38
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	14	17	25	21	19	16	22	21	15	18.50
	SO_2	$\mu g/m^3$	9	**50**	9	11	17	14	14	9	19	18	10	13.75
	NO_2	$\mu g/m^3$	9	**40**	17	17	25	21	19	16	25	25	16	21.38
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	BDL	BDL	17	BDL	22	BDL	23	20	20	20.00
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	BDL	0.05	0.08	0.07	0.07	BDL	0.08	0.07	0.07	0.07
	CO	mg/m^3	9	**2 (8 hrs)**	0.6	0.5	0.6	0.7	0.6	0.5	0.6	0.7	0.4	0.51
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	BDL	BDL	20	BDL	23	BDL	21	22	22	22.00
	Benzene	$\mu g/m^3$	9	**5**	BDL	BDL	0.7	BDL	0.5	BDL	0.7	0.60	0.40	0.46
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
OM & S BLOCK	PM_{10}	µg/m³	9	**60**	36	41	53	49	45	38	52	51	33	42.00
	$PM_{2.5}$	µg/m³	9	**40**	20	20	29	24	22	20	26	26	16	20.88
	SO_2	µg/m³	9	**50**	12	14	20	16	16	13	22	18	12	15.25
	NO_2	µg/m³	9	**40**	23	21	29	24	22	19	30	29	19	24.25
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	23	22	25	BDL	27	23	22	22.50
	Lead (Pb)	µg/m³	9	**0.5**	0.05	0.07	0.10	0.09	0.08	BDL	0.11	0.11	0.07	0.08
	CO	mg/m³	9	**2 (8 hrs)**	0.5	0.7	0.9	0.9	0.7	0.6	0.8	0.80	0.50	0.63
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	23	23	27	BDL	25	26	21	22.40
	Benzene	µg/m³	9	**5**	BDL	0.5	0.5	0.8	0.6	BDL	0.8	0.70	0.50	0.62
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m³	9	**60**	30	32	45	39	37	31	44	42	29	35.38
	$PM_{2.5}$	µg/m³	9	**40**	14	17	25	20	18	16	22	22	13	17.88
	SO_2	µg/m³	9	**50**	11	9	16	13	13	8	17	18	10	13.13
	NO_2	µg/m³	9	**40**	17	21	25	20	18	14	25	24	16	20.63
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	22	BDL	BDL	BDL	23	20	20	20.00
	Lead (Pb)	µg/m³	9	**0.5**	BDL	BDL	0.08	0.06	BDL	BDL	0.08	0.08	0.06	0.07
	CO	mg/m³	9	**2 (8 hrs)**	0.5	0.6	0.6	0.7	0.7	0.5	0.7	0.70	0.40	0.51
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	23	BDL	22	BDL	21	22	22	22.00
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	0.7	0.5	BDL	0.6	0.50	0.40	0.45
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	µg/m³	9	**60**	38	36	48	43	40	35	47	46	31	38.13
	$PM_{2.5}$	µg/m³	9	**40**	18	17	23	20	19	18	22	24	17	19.88
	SO_2	µg/m³	9	**50**	12	11	18	14	14	9	19	20	11	14.25
	NO_2	µg/m³	9	**40**	19	23	27	22	21	16	27	27	18	21.88
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	22	20	BDL	BDL	24	22	20	21.00
	Lead (Pb)	µg/m³	9	**0.5**	BDL	BDL	0.08	BDL	0.07	BDL	0.08	0.09	0.05	0.07
	CO	mg/m³	9	**2 (8 hrs)**	0.7	0.7	0.6	0.8	0.8	0.4	0.7	0.70	0.40	0.54
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	21	21	24	BDL	22	24	20	22.00
	Benzene	µg/m³	9	**5**	BDL	BDL	0.4	0.8	BDL	BDL	0.7	0.50	0.40	0.43
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
SECTOR - 21	PM_{10}	$\mu g/m^3$	9	**60**	34	30	39	37	33	29	40	39	26	32.75
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	18	16	22	19	17	15	19	20	12	15.88
	SO_2	$\mu g/m^3$	9	**50**	7	BDL	6	5	BDL	BDL	6	7	4	5.33
	NO_2	$\mu g/m^3$	9	**40**	15	15	21	18	16	13	21	23	14	18.63
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	BDL	BDL	22	BDL	BDL	21	22	0	0	0.00
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	BDL	BDL	BDL	BDL	BDL	BDL	0.06	0.00	0.00	0.00
	CO	mg/m^3	9	**2 (8 hrs)**	0.5	0.6	0.5	0.7	0.5	0.4	0.6	0.60	0.30	0.45
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	BDL	BDL	BDL	20	22	BDL	BDL	0	0	0.00
	Benzene	$\mu g/m^3$	9	**5**	BDL	BDL	BDL	0.4	BDL	BDL	0.6	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : OCTOBER, 2024)							Monitored Value		
					03	07	14	17	21	24	28	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	$\mu g/m^3$	9	**60**	24	26	35	30	27	23	32	34	21	27.50
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	11	13	19	15	12	10	16	16	11	13.50
	SO_2	$\mu g/m^3$	9	**50**	BDL	BDL	4	BDL	BDL	BDL	5	4	4	4.00
	NO_2	$\mu g/m^3$	9	**40**	12	13	19	15	13	10	18	20	12	16.00
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	CO	mg/m^3	9	**2 (8 hrs)**	0.5	0.5	0.5	0.6	0.4	0.3	0.4	0.50	0.30	0.38
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Benzene	$\mu g/m^3$	9	**5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m³	9	**60**	56	49	52	58	54	59	52	63	63	49	55.38
	$PM_{2.5}$	µg/m³	9	**40**	29	26	28	29	26	29	25	32	32	25	28.00
	SO_2	µg/m³	9	**50**	22	17	20	19	21	25	23	28	28	17	21.88
	NO_2	µg/m³	9	**40**	34	30	33	37	36	40	35	47	47	30	36.50
	Ozone	µg/m³	9	**100 (8 hrs)**	28	22	20	21	25	29	22	27	29	20	24.25
	Lead (Pb)	µg/m³	9	**0.5**	0.11	0.09	0.08	0.09	0.09	0.12	0.09	0.12	0.12	0.08	0.10
	CO	mg/m³	9	**2 (8 hrs)**	1.0	0.9	1.1	1.2	0.9	1.1	0.9	1.1	1.2	0.9	1.03
	Ammonia(NH_3)	µg/m³	9	**100**	28	22	24	27	29	31	24	32	32	22	27.13
	Benzene	µg/m³	9	**5**	1.0	0.9	1.0	1.5	1.3	1.4	1.3	1.0	1.5	0.9	1.18
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	µg/m³	9	**60**	46	39	43	47	42	47	41	52	52	39	44.63
	$PM_{2.5}$	µg/m³	9	**40**	22	19	22	26	23	24	19	28	28	19	22.88
	SO_2	µg/m³	9	**50**	18	14	17	15	16	17	16	19	19	14	16.50
	NO_2	µg/m³	9	**40**	28	24	27	30	28	36	32	35	36	24	30.00
	Ozone	µg/m³	9	**100 (8 hrs)**	23	21	22	24	21	23	20	22	24	20	22.00
	Lead (Pb)	µg/m³	9	**0.5**	0.06	0.05	0.06	0.08	0.06	0.08	0.06	0.09	0.09	0.05	0.07
	CO	mg/m³	9	**2 (8 hrs)**	0.8	0.7	0.7	1.0	0.7	0.8	0.6	0.7	1.0	0.6	0.75
	Ammonia(NH_3)	µg/m³	9	**100**	22	20	21	23	25	21	23	20	25	20	21.88
	Benzene	µg/m³	9	**5**	0.7	0.5	0.6	0.8	0.7	0.9	0.6	0.7	0.90	0.50	0.69
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
OM & S BLOCK	PM_{10}	µg/m³	9	**60**	53	46	49	54	52	55	49	58	58	46	52.00
	$PM_{2.5}$	µg/m³	9	**40**	28	23	24	29	24	25	26	28	29	23	25.88
	SO_2	µg/m³	9	**50**	21	16	18	21	22	20	24	25	25	16	20.88
	NO_2	µg/m³	9	**40**	29	31	30	34	37	35	39	45	45	29	35.00
	Ozone	µg/m³	9	**100 (8 hrs)**	24	23	23	21	25	27	24	26	27	21	24.13
	Lead (Pb)	µg/m³	9	**0.5**	0.09	0.07	0.08	0.09	0.08	0.09	0.08	0.10	0.10	0.07	0.09
	CO	mg/m³	9	**2 (8 hrs)**	1.0	0.8	0.9	0.8	0.9	1.1	0.8	1.1	1.10	0.80	0.93
	Ammonia (NH_3)	µg/m³	9	**100**	25	20	21	25	26	28	20	29	29	20	24.25
	Benzene	µg/m³	9	**5**	0.8	0.7	0.8	1.1	0.9	1.1	0.8	1.2	1.20	0.70	0.93
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m³	9	**60**	45	38	41	47	43	46	41	50	50	38	43.88
	$PM_{2.5}$	µg/m³	9	**40**	24	18	19	21	22	24	22	25	25	18	21.88
	SO_2	µg/m³	9	**50**	13	15	16	15	14	17	16	19	19	13	15.63
	NO_2	µg/m³	9	**40**	27	29	26	30	29	31	33	35	35	26	30.00
	Ozone	µg/m³	9	**100 (8 hrs)**	23	21	22	21	20	23	21	22	23	20	21.63
	Lead (Pb)	µg/m³	9	**0.5**	0.07	0.06	0.05	0.07	0.08	0.09	0.07	0.09	0.09	0.05	0.07
	CO	mg/m³	9	**2 (8 hrs)**	0.9	0.7	0.7	0.9	0.9	0.7	0.8	0.8	0.90	0.70	0.80
	Ammonia(NH_3)	µg/m³	9	**100**	26	BDL	BDL	21	26	23	21	25	26	21	23.67
	Benzene	µg/m³	9	**5**	0.7	BDL	0.5	0.6	0.5	0.8	0.6	0.7	0.80	0.50	0.63
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	$\mu g/m^3$	9	**60**	47	42	46	51	44	50	47	53	53	42	47.50
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	25	23	24	26	22	25	26	25	26	22	24.50
	SO_2	$\mu g/m^3$	9	**50**	18	14	18	16	17	19	22	22	22	14	18.25
	NO_2	$\mu g/m^3$	9	**40**	29	26	29	31	29	35	32	37	37	26	31.00
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	24	BDL	22	21	21	25	22	23	25	21	22.57
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.08	0.06	0.06	0.08	0.07	0.09	0.06	0.07	0.09	0.06	0.07
	CO	mg/m^3	9	**2 (8 hrs)**	0.9	0.8	0.8	1.0	0.9	0.8	0.9	0.8	1.00	0.80	0.86
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	27	22	21	24	27	31	24	27	31	21	25.38
	Benzene	$\mu g/m^3$	9	**5**	0.7	0.6	0.8	0.9	0.6	0.8	0.9	0.9	0.90	0.60	0.78
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
SECTOR - 21	PM_{10}	$\mu g/m^3$	9	**60**	39	34	37	43	38	43	39	46	46	34	39.88
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	18	15	17	23	18	21	20	23	23	15	19.38
	SO_2	$\mu g/m^3$	9	**50**	6	4	4	6	5	7	7	8	8	4	5.88
	NO_2	$\mu g/m^3$	9	**40**	24	21	23	29	26	30	28	32	32	21	26.63
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	BDL	BDL	BDL	20	BDL	21	BDL	22	22	20	21.00
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.05	BDL	BDL	0.07	BDL	0.06	0.05	0.06	0.07	0.05	0.06
	CO	mg/m^3	9	**2 (8 hrs)**	0.5	0.7	0.7	0.8	0.6	0.9	0.7	0.7	0.90	0.50	0.70
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	23	BDL	BDL	22	25	22	21	23	25	21	22.67
	Benzene	$\mu g/m^3$	9	**5**	BDL	0.6	0.5	0.5	BDL	0.7	BDL	0.7	0.70	0.50	0.60
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : NOVEMBER, 2024)								Monitored Value		
					04	07	11	14	18	21	25	28	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	µg/m³	9	**60**	34	30	32	35	33	36	32	39	34	21	27.50
	$PM_{2.5}$	µg/m³	9	**40**	16	14	15	19	16	19	17	19	16	11	13.50
	SO_2	µg/m³	9	**50**	5	BDL	BDL	4	BDL	5	4	6	4	4	4.00
	NO_2	µg/m³	9	**40**	19	18	20	23	22	27	23	26	20	12	16.00
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	20	0	0	0.00
	Lead (Pb)	µg/m³	9	**0.5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	CO	mg/m³	9	**2 (8 hrs)**	0.4	0.5	0.4	0.4	0.5	0.6	0.5	0.6	0.50	0.30	0.38
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m³	9	**60**	56	63	71	65	79	62	76	84	91	91	56	71.89
	$PM_{2.5}$	µg/m³	9	**40**	30	34	39	34	40	34	36	46	42	46	30	37.22
	SO_2	µg/m³	9	**50**	19	23	26	21	28	21	32	31	29	32	19	25.56
	NO_2	µg/m³	9	**40**	36	34	41	39	49	42	55	53	58	58	34	45.22
	Ozone	µg/m³	9	**100 (8 hrs)**	28	24	26	29	33	30	27	32	30	33	24	28.78
	Lead (Pb)	µg/m³	9	**0.5**	0.13	0.15	0.16	0.14	0.20	0.17	0.16	0.27	0.22	0.27	0.13	0.18
	CO	mg/m³	9	**2 (8 hrs)**	1.0	1.1	1.2	1.3	1.5	1.1	1.3	1.4	1.3	1.5	1.0	1.24
	Ammonia (NH_3)	µg/m³	9	**100**	27	24	27	25	32	31	26	36	30	36	24	28.67
	Benzene	µg/m³	9	**5**	1.4	1.2	1.4	1.7	2.4	1.7	2.2	2.7	2.9	2.9	1.2	1.96
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m³	9	**6**	BDL	BDL	0.6	BDL	0.8	BDL	BDL	0.9	1.1	1.10	0.60	0.85
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	21	BDL	20	24	21	24.00	20.00	21.50

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	$\mu g/m^3$	9	**60**	47	53	55	52	61	50	59	66	72	72	47	57.22
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	22	27	28	25	29	23	27	36	38	38	22	28.33
	SO_2	$\mu g/m^3$	9	**50**	16	19	20	17	22	17	25	24	23	25	16	20.33
	NO_2	$\mu g/m^3$	9	**40**	31	29	30	32	38	32	43	42	46	46	29	35.89
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	24	20	20	24	29	24	21	28	24	29	20	23.78
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.07	0.09	0.08	0.08	0.11	0.08	0.11	0.14	0.13	0.14	0.07	0.10
	CO	mg/m^3	9	**2 (8 hrs)**	0.8	0.9	0.9	1.1	1.2	0.9	0.9	1.1	1.0	1.2	0.8	0.98
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	23	20	20	21	25	22	20	28	24	28	20	22.56
	Benzene	$\mu g/m^3$	9	**5**	0.8	0.7	0.8	0.8	1.2	0.9	1.2	1.6	1.4	1.60	0.70	1.04
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.6	0.60	0.60	0.60
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	18	18.00	18.00	18.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
OM & S BLOCK	PM_{10}	µg/m³	9	**60**	53	60	67	62	74	59	73	78	87	87	53	68.11
	$PM_{2.5}$	µg/m³	9	**40**	24	29	34	31	40	28	38	42	40	42	24	34.00
	SO_2	µg/m³	9	**50**	18	22	24	20	27	20	31	29	28	31	18	24.33
	NO_2	µg/m³	9	**40**	34	32	36	37	47	38	53	49	56	56	32	42.44
	Ozone	µg/m³	9	**100 (8 hrs)**	26	23	24	28	31	29	26	33	29	33	23	27.67
	Lead (Pb)	µg/m³	9	**0.5**	0.09	0.13	0.11	0.13	0.18	0.14	0.16	0.20	0.18	0.20	0.09	0.15
	CO	mg/m³	9	**2 (8 hrs)**	1.1	0.9	1.1	1.2	1.4	1.0	1.2	1.3	1.2	1.40	0.90	1.16
	Ammonia (NH_3)	µg/m³	9	**100**	25	23	24	24	30	22	25	33	29	33	22	26.11
	Benzene	µg/m³	9	**5**	0.8	1.2	1.1	1.3	1.6	1.3	1.7	2.1	1.8	2.10	0.80	1.43
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	0.6	BDL	BDL	0.7	0.8	0.80	0.60	0.70
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	19	21	21.00	19.00	20.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m³	9	**60**	45	50	56	51	60	49	60	66	72	72	45	56.56
	$PM_{2.5}$	µg/m³	9	**40**	21	27	28	27	29	26	28	30	34	34	21	27.78
	SO_2	µg/m³	9	**50**	15	18	20	17	21	17	25	24	23	25	15	20.00
	NO_2	µg/m³	9	**40**	29	27	30	31	38	32	43	41	46	46	27	35.22
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	20	23	24	21	BDL	22	24	24	20	22.33
	Lead (Pb)	µg/m³	9	**0.5**	0.08	0.11	0.10	0.09	0.14	0.08	0.11	0.15	0.13	0.15	0.08	0.11
	CO	mg/m³	9	**2 (8 hrs)**	0.8	0.8	0.9	1.0	1.4	1.1	1.3	1.1	1.0	1.40	0.80	1.04
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	21	20	25	BDL	20	24	21	25	20	21.83
	Benzene	µg/m³	9	**5**	0.7	0.8	0.9	1.1	1.3	0.8	1.3	0.9	1.4	1.40	0.70	1.02
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	$\mu g/m^3$	9	**60**	49	51	59	54	68	53	63	72	79	79	49	60.89
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	27	25	31	26	37	29	32	33	40	40	25	31.11
	SO_2	$\mu g/m^3$	9	**50**	17	18	21	18	24	18	27	27	26	27	17	21.78
	NO_2	$\mu g/m^3$	9	**40**	31	29	34	32	43	34	44	42	49	49	29	37.56
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	24	23	21	25	29	26	22	26	26	29	21	24.67
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.09	0.1	0.11	0.09	0.17	0.11	0.12	0.16	0.13	0.17	0.09	0.12
	CO	mg/m^3	9	**2 (8 hrs)**	0.8	0.9	0.8	1.1	1.7	1.2	1.3	1.2	1.1	1.70	0.80	1.12
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	23	20	21	20	25	22	21	26	22	26	20	22.22
	Benzene	$\mu g/m^3$	9	**5**	0.7	1.1	0.8	1.2	1.5	1.2	1.5	1.8	1.5	1.80	0.70	1.26
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.7	0.8	0.80	0.70	0.75
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	18	18.00	18.00	18.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
SECTOR - 21	PM_{10}	µg/m³	9	**60**	41	45	53	48	56	43	53	62	66	66	41	51.89
	$PM_{2.5}$	µg/m³	9	**40**	22	24	28	24	28	21	25	33	34	34	21	26.56
	SO_2	µg/m³	9	**50**	5	6	7	6	9	7	8	11	9	11	5	7.56
	NO_2	µg/m³	9	**40**	28	25	27	29	34	30	37	36	40	40	25	31.78
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	22	BDL	21	BDL	23	25	24	25	21	23.00
	Lead (Pb)	µg/m³	9	**0.5**	BDL	BDL	0.08	BDL	0.11	BDL	0.08	0.13	0.11	0.13	0.08	0.10
	CO	mg/m³	9	**2 (8 hrs)**	0.7	0.8	0.9	0.9	1.2	0.9	1.1	0.9	0.9	1.20	0.70	0.92
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	BDL	BDL	21	BDL	BDL	23	21	23	21	21.67
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : DECEMBER, 2024)									Monitored Value		
					02	05	09	12	16	19	23	26	30	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	µg/m³	9	**60**	35	37	43	37	45	41	47	49	53	53	35	43.00
	$PM_{2.5}$	µg/m³	9	**40**	17	19	20	18	23	20	26	23	25	26	17	21.22
	SO_2	µg/m³	9	**50**	4	6	7	4	5	5	6	7	6	7	4	5.56
	NO_2	µg/m³	9	**40**	24	22	29	24	30	26	34	31	34	34	22	28.22
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	BDL	20	BDL	21	BDL	BDL	22	21	22	20	21.00
	Lead (Pb)	µg/m³	9	**0.5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	CO	mg/m³	9	**2 (8 hrs)**	0.6	0.5	0.7	0.5	0.7	0.6	0.7	0.7	0.8	0.80	0.50	0.64
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m³	9	**60**	89	78	92	109	94	103	87	118	94	118	78	96.00
	$PM_{2.5}$	µg/m³	9	**40**	45	41	45	58	45	53	46	62	51	62	41	49.56
	SO_2	µg/m³	9	**50**	26	21	25	32	25	28	24	30	26	32	21	26.33
	NO_2	µg/m³	9	**40**	54	49	51	63	52	59	50	64	54	64	49	55.11
	Ozone	µg/m³	9	**100 (8 hrs)**	30	24	29	28	26	37	29	31	30	37	24	29.33
	Lead (Pb)	µg/m³	9	**0.5**	0.19	0.14	0.19	0.25	0.16	0.24	0.20	0.23	0.18	0.25	0.14	0.20
	CO	mg/m³	9	**2 (8 hrs)**	1.4	1.1	1.4	1.8	1.3	1.9	1.1	1.8	1.3	1.9	1.1	1.46
	Ammonia (NH_3)	µg/m³	9	**100**	30	25	37	39	30	36	27	34	32	39	25	32.22
	Benzene	µg/m³	9	**5**	2.3	2.2	1.9	2.3	2.8	3.2	2.0	3.8	2.7	3.8	1.9	2.58
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	0.9	BDL	BDL	BDL	0.8	BDL	0.90	0.80	0.85
	Arsenic (As)	ng/m³	9	**6**	0.6	BDL	1.1	1.8	0.8	1.4	0.8	1.6	1.1	1.80	0.60	1.15
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	$\mu g/m^3$	9	**60**	73	64	75	88	74	70	78	93	84	93	64	77.67
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	37	30	38	41	36	33	41	46	43	46	30	38.33
	SO_2	$\mu g/m^3$	9	**50**	21	17	20	26	20	19	22	24	22	26	17	21.22
	NO_2	$\mu g/m^3$	9	**40**	43	38	41	50	44	41	44	50	45	50	38	44.00
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	25	20	23	23	21	23	25	24	30	30	20	23.78
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.13	0.09	0.13	0.15	0.1	0.12	0.12	0.15	0.16	0.16	0.09	0.13
	CO	mg/m^3	9	**2 (8 hrs)**	0.9	0.8	1.1	1.3	1.0	0.8	1.1	1.2	0.9	1.3	0.8	1.01
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	25	21	30	32	26	24	27	27	29	32	21	26.78
	Benzene	$\mu g/m^3$	9	**5**	1.7	1.6	1.4	1.7	2.1	1.4	1.6	2.3	2.1	2.30	1.40	1.77
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	0.6	BDL	BDL	0.6	0.9	0.7	0.90	0.60	0.70
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
OM & S BLOCK	PM_{10}	µg/m³	9	**60**	74	79	82	101	93	82	89	108	92	108	74	88.89
	$PM_{2.5}$	µg/m³	9	**40**	38	41	40	51	46	44	48	59	45	59	38	45.78
	SO_2	µg/m³	9	**50**	21	24	23	31	26	23	25	29	27	31	21	25.44
	NO_2	µg/m³	9	**40**	48	50	46	57	53	46	55	62	50	62	46	51.89
	Ozone	µg/m³	9	**100 (8 hrs)**	25	28	27	28	34	28	29	31	25	34	25	28.33
	Lead (Pb)	µg/m³	9	**0.5**	0.12	0.17	0.17	0.21	0.22	0.19	0.18	0.23	0.15	0.23	0.12	0.18
	CO	mg/m³	9	**2 (8 hrs)**	1.1	1.3	1.2	1.7	1.4	1.1	1.2	1.8	1.4	1.80	1.10	1.36
	Ammonia (NH_3)	µg/m³	9	**100**	23	28	34	37	33	29	30	32	31	37	23	30.78
	Benzene	µg/m³	9	**5**	1.8	1.9	1.6	3.4	2.6	1.7	2.2	3.1	2.3	3.40	1.60	2.29
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.8	BDL	0.80	0.80	0.80
	Arsenic(As)	ng/m³	9	**6**	0.6	0.8	0.9	1.2	0.8	0.7	BDL	1.1	0.8	1.20	0.60	0.86
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m³	9	**60**	67	60	69	81	70	66	72	85	78	85	60	72.00
	$PM_{2.5}$	µg/m³	9	**40**	35	31	36	40	34	32	39	45	38	45	31	36.67
	SO_2	µg/m³	9	**50**	19	16	18	20	18	16	20	22	19	22	16	18.67
	NO_2	µg/m³	9	**40**	42	35	41	46	37	36	43	48	44	48	35	41.33
	Ozone	µg/m³	9	**100 (8 hrs)**	23	21	22	24	20	22	23	25	28	28	20	23.11
	Lead (Pb)	µg/m³	9	**0.5**	0.11	0.08	0.12	0.14	0.09	0.08	0.11	0.14	0.13	0.14	0.08	0.11
	CO	mg/m³	9	**2 (8 hrs)**	1.1	0.8	0.8	1.1	1.2	1.1	0.9	1.2	0.9	1.20	0.80	1.01
	Ammonia(NH_3)	µg/m³	9	**100**	23	21	27	29	22	23	25	23	27	29	21	24.44
	Benzene	µg/m³	9	**5**	1.1	0.8	0.9	1.2	1.3	0.9	0.9	1.2	1.4	1.40	0.80	1.08
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	0.6	BDL	BDL	BDL	0.7	BDL	0.70	0.60	0.65
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	$\mu g/m^3$	9	**60**	75	63	77	92	76	71	89	93	75	93	63	79.00
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	37	31	35	43	39	35	48	47	40	48	31	39.44
	SO_2	$\mu g/m^3$	9	**50**	22	17	21	27	21	19	24	24	20	27	17	21.67
	NO_2	$\mu g/m^3$	9	**40**	42	45	48	52	46	41	48	50	46	52	41	46.44
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	25	20	25	24	21	24	32	25	24	32	20	24.44
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.13	0.10	0.12	0.15	0.11	0.13	0.17	0.16	0.13	0.17	0.10	0.13
	CO	mg/m^3	9	**2 (8 hrs)**	1.1	0.9	1.2	1.6	1.3	1.1	1.6	1.4	1.1	1.60	0.90	1.26
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	25	21	31	34	24	25	31	27	26	34	21	27.11
	Benzene	$\mu g/m^3$	9	**5**	1.8	1.4	1.6	2.2	1.6	1.3	2.5	2.1	1.8	2.50	1.30	1.81
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	0.7	0.6	BDL	0.9	0.9	0.6	0.90	0.60	0.74
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
SECTOR - 21	PM_{10}	µg/m³	9	**60**	60	57	61	58	75	64	60	72	67	75	57	63.78
	$PM_{2.5}$	µg/m³	9	**40**	32	25	31	28	38	33	29	38	33	38	25	31.89
	SO_2	µg/m³	9	**50**	11	7	10	9	14	10	9	12	11	14	7	10.33
	NO_2	µg/m³	9	**40**	38	35	32	30	43	36	38	41	37	43	30	36.67
	Ozone	µg/m³	9	**100 (8 hrs)**	21	22	24	BDL	26	25	21	28	24	28	21	23.88
	Lead (Pb)	µg/m³	9	**0.5**	BDL	0.06	0.06	0.05	0.07	0.06	BDL	0.07	0.06	0.07	0.05	0.06
	CO	mg/m³	9	**2 (8 hrs)**	0.8	0.7	0.9	0.7	0.9	0.9	0.7	0.8	0.8	0.90	0.70	0.80
	Ammonia(NH_3)	µg/m³	9	**100**	21	BDL	24	22	22	25	BDL	25	23	25	21	23.14
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	BDL	0.8	0.6	BDL	0.7	0.6	0.80	0.60	0.68
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : JANUARY, 2025)									Monitored Value		
					02	06	09	13	16	20	23	27	30	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	µg/m³	9	**60**	46	53	57	66	58	67	49	60	52	67	46	56.44
	$PM_{2.5}$	µg/m³	9	**40**	22	29	30	32	28	32	24	32	25	32	22	28.22
	SO_2	µg/m³	9	**50**	5	6	5	7	7	6	4	7	6	7	4	5.89
	NO_2	µg/m³	9	**40**	27	32	33	38	33	37	31	36	34	38	27	33.44
	Ozone	µg/m³	9	**100 (8 hrs)**	BDL	22	23	21	BDL	22	22	27	23	27	21	22.86
	Lead (Pb)	µg/m³	9	**0.5**	BDL	0.06	BDL	0.06	BDL	0.07	BDL	0.05	BDL	0.07	0.05	0.06
	CO	mg/m³	9	**2 (8 hrs)**	0.6	0.7	0.8	0.8	0.6	0.7	0.5	0.7	0.6	0.80	0.50	0.67
	Ammonia(NH_3)	µg/m³	9	**100**	BDL	BDL	21	23	BDL	20	BDL	22	20	23	20	21.20
	Benzene	µg/m³	9	**5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m³	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m³	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. Kolkata 700107

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m^3	9	**60**	80	76	70	78	73	67	62	58	80	58	70.50
	$PM_{2.5}$	µg/m^3	9	**40**	43	39	36	39	36	34	30	29	43	29	35.75
	SO_2	µg/m^3	9	**50**	28	26	23	27	24	22	26	21	28	21	24.63
	NO_2	µg/m^3	9	**40**	56	49	44	53	46	43	50	45	56	43	48.25
	Ozone	µg/m^3	9	**100 (8 hrs)**	30	27	34	32	26	35	31	28	35	26	30.38
	Lead (Pb)	µg/m^3	9	**0.5**	0.12	0.09	0.08	0.10	0.11	0.08	0.07	0.07	0.12	0.07	0.09
	CO	mg/m^3	9	**2 (8 hrs)**	1.3	1.1	1.2	1.5	1.2	0.9	1.1	1.2	1.5	0.9	1.19
	Ammonia(NH_3)	µg/m^3	9	**100**	29	27	30	32	28	26	24	27	32	24	27.88
	Benzene	µg/m^3	9	**5**	1.9	2.1	1.4	1.8	2.1	1.5	1.9	1.6	2.1	1.4	1.79
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	0.9	0.8	BDL	0.9	0.7	BDL	BDL	BDL	0.90	0.70	0.83
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	$\mu g/m^3$	9	**60**	65	60	57	66	60	56	51	48	66	48	57.88
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	33	29	29	36	30	29	24	25	36	24	29.38
	SO_2	$\mu g/m^3$	9	**50**	23	19	18	22	20	18	16	17	23	16	19.13
	NO_2	$\mu g/m^3$	9	**40**	46	39	36	45	41	36	41	37	46	36	40.13
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	25	22	28	27	21	30	25	23	30	21	25.13
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.07	0.06	0.05	0.07	BDL	0.06	BDL	BDL	0.07	0.05	0.06
	CO	mg/m^3	9	**2 (8 hrs)**	1.1	0.8	0.9	1.0	0.8	0.7	0.8	0.7	1.1	0.7	0.85
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	28	26	25	27	24	25	24	25	28	24	25.50
	Benzene	$\mu g/m^3$	9	**5**	0.9	1.1	0.7	0.8	1.1	0.8	1	0.8	1.10	0.70	0.90
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	0.6	0.5	BDL	0.6	BDL	BDL	BDL	BDL	0.60	0.50	0.57
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
OM & S BLOCK	PM_{10}	µg/m^3	9	**60**	75	70	65	73	64	70	59	55	75	55	66.38
	$PM_{2.5}$	µg/m^3	9	**40**	36	34	34	38	31	35	30	28	38	28	33.25
	SO_2	µg/m^3	9	**50**	26	23	22	26	21	22	19	20	26	19	22.38
	NO_2	µg/m^3	9	**40**	54	46	41	50	41	44	47	42	54	41	45.63
	Ozone	µg/m^3	9	**100 (8 hrs)**	29	25	32	30	34	25	29	26	34	25	28.75
	Lead (Pb)	µg/m^3	9	**0.5**	0.09	0.07	0.07	0.08	0.07	0.06	0.06	0.05	0.09	0.05	0.07
	CO	mg/m^3	9	**2 (8 hrs)**	1.2	0.9	1.0	1.1	0.8	1.0	0.8	0.7	1.20	0.70	0.94
	Ammonia (NH_3)	µg/m^3	9	**100**	28	25	26	28	25	29	23	22	29	22	25.75
	Benzene	µg/m^3	9	**5**	1.8	1.6	1.2	1.6	1.3	1.9	1.6	1.3	1.90	1.20	1.54
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	0.8	0.6	BDL	0.7	BDL	BDL	BDL	BDL	0.80	0.60	0.70
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m^3	9	**60**	59	57	51	63	56	51	49	46	63	46	54.00
	$PM_{2.5}$	µg/m^3	9	**40**	27	28	24	33	30	26	25	21	33	21	26.75
	SO_2	µg/m^3	9	**50**	18	16	14	19	15	14	13	14	19	13	15.38
	NO_2	µg/m^3	9	**40**	42	37	33	42	35	33	39	35	42	33	37.00
	Ozone	µg/m^3	9	**100 (8 hrs)**	23	25	26	25	23	26	25	22	26	22	24.38
	Lead (Pb)	µg/m^3	9	**0.5**	0.06	0.05	BDL	0.07	0.05	BDL	BDL	BDL	0.07	0.05	0.06
	CO	mg/m^3	9	**2 (8 hrs)**	0.9	0.7	0.8	0.9	0.8	0.8	0.7	0.6	0.90	0.60	0.78
	Ammonia(NH_3)	µg/m^3	9	**100**	22	20	22	23	BDL	20	BDL	BDL	23	20	21.40
	Benzene	µg/m^3	9	**5**	1.2	1.2	0.9	0.9	0.8	0.9	1.2	0.9	1.20	0.80	1.00
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	µg/m^3	9	**60**	65	62	57	62	65	56	51	58	65	51	59.50
	$PM_{2.5}$	µg/m^3	9	**40**	31	29	31	30	33	27	26	28	33	26	29.38
	SO_2	µg/m^3	9	**50**	23	20	19	21	19	18	17	20	23	17	19.63
	NO_2	µg/m^3	9	**40**	45	40	36	42	46	39	41	44	46	36	41.63
	Ozone	µg/m^3	9	**100 (8 hrs)**	25	22	29	26	22	28	25	27	29	22	25.50
	Lead (Pb)	µg/m^3	9	**0.5**	0.07	0.05	0.07	0.05	0.05	BDL	BDL	0.06	0.07	0.05	0.06
	CO	mg/m^3	9	**2 (8 hrs)**	1.0	0.8	0.9	1.0	1.1	0.9	0.7	0.9	1.10	0.70	0.91
	Ammonia(NH_3)	µg/m^3	9	**100**	27	23	25	26	23	22	21	26	27	21	24.13
	Benzene	µg/m^3	9	**5**	1.5	1.5	1.2	1.1	1.6	1.1	1.3	1.3	1.60	1.10	1.33
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	0.6	BDL	BDL	0.5	0.7	BDL	BDL	BDL	0.70	0.50	0.60
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
SECTOR - 21	PM_{10}	$\mu g/m^3$	9	**60**	57	54	50	53	56	50	47	45	57	45	51.50
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	28	26	24	27	29	24	22	23	29	22	25.38
	SO_2	$\mu g/m^3$	9	**50**	8	7	6	6	7	5	5	7	8	5	6.38
	NO_2	$\mu g/m^3$	9	**40**	37	31	28	31	29	28	33	30	37	28	30.88
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	20	20	22	23	BDL	26	23	BDL	26	20	22.33
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.05	0.05	0.05
	CO	mg/m^3	9	**2 (8 hrs)**	0.7	0.6	0.7	0.8	0.8	0.7	0.6	0.5	0.80	0.50	0.68
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Benzene	$\mu g/m^3$	9	**5**	0.8	0.8	0.6	0.5	0.8	0.5	0.7	0.6	0.80	0.50	0.66
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : FEBRUARY, 2025)								Monitored Value		
					03	06	10	13	17	20	24	27	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	$\mu g/m^3$	9	**60**	45	48	42	47	41	37	42	35	48	35	42.13
	$PM_{2.5}$	$\mu g/m^3$	9	**40**	22	25	22	22	25	21	19	18	25	18	21.75
	SO_2	$\mu g/m^3$	9	**50**	6	5	5	6	5	5	4	5	6	4	5.13
	NO_2	$\mu g/m^3$	9	**40**	28	29	26	29	27	25	30	27	30	25	27.63
	Ozone	$\mu g/m^3$	9	**100 (8 hrs)**	21	20	24	22	18	26	23	20	26	18	21.75
	Lead (Pb)	$\mu g/m^3$	9	**0.5**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	CO	mg/m^3	9	**2 (8 hrs)**	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.70	0.50	0.59
	Ammonia(NH_3)	$\mu g/m^3$	9	**100**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	0	0.00
	Benzene	$\mu g/m^3$	9	**5**	0.7	0.7	0.4	0.5	0.8	0.5	0.7	0.5	0.80	0.40	0.60
	Benzo(a)Pyrene (BaP)	ng/m^3	9	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic(As)	ng/m^3	9	**6**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	9	**20**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

ENVIROTECH EAST PVT. LTD. 100, Kalikapur, Madurdaha Kolkata 700107

TABLE - 1 A : Ambient Air Quality Results

MONITORING LOCATION : IOCL MAIN GATE

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
IOCL MAIN GATE	PM_{10}	µg/m³	8	**100**	74	69	60	67	62	55	66	59	74	55	64.00
	$PM_{2.5}$	µg/m³	8	**60**	40	38	29	35	32	30	34	32	40	29	33.75
	SO_2	µg/m³	8	**80**	25	22	18	23	20	18	24	21	25	18	21.38
	NO_2	µg/m³	8	**80**	47	43	38	41	36	39	48	42	48	36	41.75
	Ozone	µg/m³	8	**100 (8 hrs)**	25	31	27	25	25	26	30	26	31	25	26.88
	Lead (Pb)	µg/m³	8	**1**	0.08	0.09	0.07	0.08	0.07	0.06	0.09	0.08	0.09	0.06	0.08
	CO	mg/m³	8	**2 (8 hrs)**	1.2	1.0	1.0	1.3	1.0	0.7	1.2	1.2	1.3	0.7	1.08
	Ammonia (NH_3)	µg/m³	8	**400**	27	25	26	28	24	21	23	28	28	21	25.25
	Benzene	µg/m³	8	**5 (Annual)**	2.9	3.2	2.0	2.6	3.0	2.1	3.4	2.7	3.4	2.0	2.74
	Benzo(a)Pyrene (BaP)	ng/m³	8	**1 (Annual)**	0.9	BDL	BDL	0.8	BDL	BDL	BDL	BDL	0.90	0.80	0.85
	Arsenic (As)	ng/m³	8	**6 (Annual)**	0.6	BDL	BDL	0.6	BDL	BDL	BDL	BDL	0.60	0.60	0.60
	Nickel (Ni)	ng/m³	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 B : Ambient Air Quality Results

MONITORING LOCATION : QUALITY CONTROL LAB

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
QUALITY CONTROL LAB	PM_{10}	µg/m^3	8	**100**	61	58	50	56	51	45	55	50	61	45	53.25
	$PM_{2.5}$	µg/m^3	8	**60**	29	27	27	26	27	24	28	24	29	24	26.50
	SO_2	µg/m^3	8	**80**	20	18	15	17	16	13	21	16	21	13	17.00
	NO_2	µg/m^3	8	**80**	39	34	28	34	30	26	40	35	40	26	33.25
	Ozone	µg/m^3	8	**100 (8 hrs)**	21	26	22	21	21	21	25	22	26	21	22.38
	Lead (Pb)	µg/m^3	8	**1**	0.06	0.05	BDL	0.05	0.05	BDL	0.07	BDL	0.07	0.05	0.06
	CO	mg/m^3	8	**2 (8 hrs)**	1.0	0.8	0.8	0.9	0.8	0.6	0.9	0.8	1.0	0.6	0.83
	Ammonia (NH_3)	µg/m^3	8	**400**	22	21	22	23	20	BDL	BDL	24	24	20	22.00
	Benzene	µg/m^3	8	**5 (Annual)**	1.5	1.2	0.9	1.3	1.6	0.8	1.3	1.5	1.60	0.80	1.26
	Benzo(a)Pyrene (BaP)	ng/m^3	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m^3	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 C : Ambient Air Quality Results

MONITORING LOCATION : OM & S BLOCK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
OM & S BLOCK	PM_{10}	$\mu g/m^3$	8	**100**	65	70	56	63	58	52	63	55	75	55	66.38
	$PM_{2.5}$	$\mu g/m^3$	8	**60**	36	33	29	34	30	26	33	27	38	28	33.25
	SO_2	$\mu g/m^3$	8	**80**	21	23	17	20	18	15	24	18	26	19	22.38
	NO_2	$\mu g/m^3$	8	**80**	39	45	32	39	33	30	46	39	54	41	45.63
	Ozone	$\mu g/m^3$	8	**100 (8 hrs)**	29	24	25	24	23	24	29	24	34	25	28.75
	Lead (Pb)	$\mu g/m^3$	8	**1**	0.08	0.08	0.07	0.08	0.07	0.06	0.09	0.07	0.09	0.05	0.07
	CO	mg/m^3	8	**2 (8 hrs)**	0.9	1.1	0.9	1.2	0.9	0.7	1.2	1.1	1.20	0.70	0.94
	Ammonia (NH_3)	$\mu g/m^3$	8	**400**	24	26	24	26	22	20	22	26	29	22	25.75
	Benzene	$\mu g/m^3$	8	**5 (Annual)**	2.4	2.2	1.5	2.0	2.2	1.6	2.6	2.1	1.90	1.20	1.54
	Benzo(a)Pyrene (BaP)	ng/m^3	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m^3	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.80	0.60	0.70
	Nickel (Ni)	ng/m^3	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 D : Ambient Air Quality Results

MONITORING LOCATION : BITUMEN FILLING STATION

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
BITUMEN FILLING STATION	PM_{10}	µg/m³	8	**100**	57	53	47	52	49	41	50	46	57	41	49.38
	$PM_{2.5}$	µg/m³	8	**60**	27	28	24	24	23	21	23	22	28	21	24.00
	SO_2	µg/m³	8	**80**	18	17	14	16	15	12	19	15	19	12	15.75
	NO_2	µg/m³	8	**80**	36	32	27	32	28	24	37	32	37	24	31.00
	Ozone	µg/m³	8	**100 (8 hrs)**	19	23	21	20	21	19	23	20	23	19	20.75
	Lead (Pb)	µg/m³	8	**1**	0.06	0.06	BDL	0.05	BDL	BDL	0.05	BDL	0.06	0.05	0.06
	CO	mg/m³	8	**2 (8 hrs)**	1.0	0.7	0.8	1.1	0.9	0.7	1.1	1.0	1.10	0.70	0.91
	Ammonia (NH_3)	µg/m³	8	**400**	21	BDL	20	22	BDL	BDL	BDL	22	22	20	21.25
	Benzene	µg/m³	8	**5 (Annual)**	1.3	1.5	0.9	1.2	1.5	0.9	1.2	0.8	1.50	0.80	1.16
	Benzo(a)Pyrene (BaP)	ng/m³	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m³	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 E : Ambient Air Quality Results

MONITORING LOCATION : TUBE WELL 4A, NEAR MCO TANK

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
TUBE WELL 4A, NEAR MCO TANK	PM_{10}	µg/m^3	8	**100**	59	56	49	57	50	53	45	50	59	45	52.38
	$PM_{2.5}$	µg/m^3	8	**60**	30	27	27	26	23	29	23	25	30	23	26.25
	SO_2	µg/m^3	8	**80**	19	17	15	22	16	18	13	17	22	13	17.13
	NO_2	µg/m^3	8	**80**	37	34	28	41	30	33	26	35	41	26	33.00
	Ozone	µg/m^3	8	**100 (8 hrs)**	20	25	22	26	20	22	BDL	21	26	20	22.29
	Lead (Pb)	µg/m^3	8	**1**	0.06	0.07	BDL	0.07	BDL	0.06	BDL	0.06	0.07	0.06	0.06
	CO	mg/m^3	8	**2 (8 hrs)**	1.0	0.9	0.7	1.2	1.0	1.0	0.8	1.0	1.20	0.70	0.95
	Ammonia (NH_3)	µg/m^3	8	**400**	23	21	21	20	20	22	BDL	23	23	20	21.43
	Benzene	µg/m^3	8	**5 (Annual)**	1.4	1.2	1.1	1.6	1.2	1.3	1.2	1.5	1.60	1.10	1.31
	Benzo(a)Pyrene (BaP)	ng/m^3	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m^3	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m^3	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 F : Ambient Air Quality Results

MONITORING LOCATION : SECTOR - 21

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
SECTOR - 21	PM_{10}	µg/m³	8	**100**	48	46	51	44	41	52	47	42	52	41	46.38
	$PM_{2.5}$	µg/m³	8	**60**	25	22	26	23	20	25	22	21	26	20	23.00
	SO_2	µg/m³	8	**80**	7	7	8	6	5	6	6	5	8	5	6.25
	NO_2	µg/m³	8	**80**	29	26	32	26	24	29	32	28	32	24	28.25
	Ozone	µg/m³	8	**100 (8 hrs)**	21	BDL	24	BDL	BDL	20	22	BDL	24	20	21.75
	Lead (Pb)	µg/m³	8	**1**	0.05	BDL	0.05	BDL	BDL	BDL	0.06	BDL	0.06	0.05	0.05
	CO	mg/m³	8	**2 (8 hrs)**	0.7	0.6	0.7	0.9	0.7	0.6	1.0	0.8	1.00	0.60	0.75
	Ammonia (NH_3)	µg/m³	8	**400**	23	BDL	BDL	22	BDL	BDL	21	BDL	23	21	22.00
	Benzene	µg/m³	8	**5 (Annual)**	0.6	BDL	0.8	BDL	0.5	BDL	0.7	BDL	0.80	0.50	0.65
	Benzo(a)Pyrene (BaP)	ng/m³	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m³	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

TABLE - 1 G : Ambient Air Quality Results

MONITORING LOCATION : REFINERY HOSPITAL

Location	Pollutants Monitored	Unit	No. of Samples analysed	Statutory Stipulation (Annual)	Date of Monitoring (Period : MARCH, 2025)								Monitored Value		
					03	06	10	12	17	20	24	27	Max	Min	Avg.
REFINERY HOSPITAL	PM_{10}	µg/m³	8	**100**	44	39	41	45	38	34	40	35	45	34	39.50
	$PM_{2.5}$	µg/m³	8	**60**	21	18	20	22	18	16	21	19	22	16	19.38
	SO_2	µg/m³	8	**80**	5	4	4	6	5	4	6	5	6	4	4.88
	NO_2	µg/m³	8	**80**	26	25	20	26	22	24	29	25	29	20	24.63
	Ozone	µg/m³	8	**100 (8 hrs)**	21	24	BDL	22	BDL	BDL	23	20	24	20	22.00
	Lead (Pb)	µg/m³	8	**1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	CO	mg/m³	8	**2 (8 hrs)**	0.7	0.6	0.6	0.7	0.6	0.4	0.7	0.6	0.70	0.40	0.61
	Ammonia (NH_3)	µg/m³	8	**400**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzene	µg/m³	8	**5 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Benzo(a)Pyrene (BaP)	ng/m³	8	**1 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Arsenic (As)	ng/m³	8	**6 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00
	Nickel (Ni)	ng/m³	8	**20 (Annual)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.00	0.00	0.00

N.B.- * BDL- Below Detectable Limit

Annexure-2

Average Final Treated Effluent Discharge Quality- Monthwise Inhouse QC anaysis report

Test Parameters	UOM	MINAS limits	April'2024	May'2024	June'2024	July'2024	Aug'2024	Sept'2024
pH	-	6-8.5	7.34	7.44	7.28	7.33	7.45	7.56
Phenol	ppm	0.35 ppm	0.204	0.222	0.234	0.237	0.248	0.222
Sulphide	ppm	0.5 ppm	<0.1	<0.1	0.400	<0.1	<0.1	0.250
Oil Cont	ppm	5.0 ppm	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TSS	ppm	20 ppm	7.64	8.04	7.68	9.35	9.95	9.00
COD	ppm	125 ppm	87.44	89.76	84.16	80.89	78.53	64.33
BOD	ppm	15 ppm	9.50	9.83	7.81	9.84	6.80	7.31
CN	ppm	0.2 ppm	0.0356	0.0362	0.0347	0.0336	0.0308	0.0305
NH3	ppm	15 ppm	1.143	1.000	1.263	1.348	3.111	1.000
PO4	ppm	3 ppm	0.500	0.500	<0.03	<0.03	<0.03	<0.03

Average Final Treated Effluent Discharge Quality- Monthwise Inhouse QC anaysis report

Test Parameters	UOM	MINAS limits	Oct'2024	Nov'2024	Dec'2024	Jan'2025	Feb'2025	Mar'2025
pH	-	6-8.5	7.53	7.42	7.43	7.43	7.35	7.42
Phenol	ppm	0.35 ppm	0.254	0.237	0.240	0.236	0.259	0.254
Sulphide	ppm	0.5 ppm	0.333	0.250	0.200	0.200	3.760	0.300
Oil Cont	ppm	5.0 ppm	<0.3	<0.4	<0.5	<0.6	<0.7	<0.8
TSS	ppm	20 ppm	7.48	6.60	7.52	8.35	11.18	7.04
COD	ppm	125 ppm	51.91	79.04	78.56	80.92	104.18	79.17
BOD	ppm	15 ppm	5.38	6.03	5.60	5.63	6.98	5.24
CN	ppm	0.2 ppm	0.0236	0.0239	0.0333	0.0314	0.0300	0.0690
NH3	ppm	15 ppm	3.429	3.040	2.125	2.167	2.667	2.083
PO4	ppm	3 ppm	<0.04	<0.05	<0.06	<0.07	<0.08	<0.09

TEST REPORT

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

Report No. : MSKGL/ED/2024-25/005478
Date: :12.11.2024
Sample No. MSKGL/ED/2024-25/10/01659
Sample Description : Ground Water
Sampling Location : Tube Well No-4
Sample Drawn on : 24.10.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	7.48	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	32	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1120	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.03	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	121.20	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	548.63	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.25	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	0.44	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	43.63	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	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	0.80	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	30.8	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	484.80	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	235.2	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/100ml	1400	IS 1622 : 1981 (RA 2019)

Report Prepared By

for Mitra S. K. Private Limited

Authorised Signatory

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.*

TEST REPORT

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

Report No. : MSKGL/ED/2024-25/006862
Date: :17.12.2024
Sample No. MSKGL/ED/2024-25/11/01589
Sample Description : Ground Water
Sampling Location : Manjushree Hospital More (Haldia)
Sample Drawn on : 26.11.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	8.10	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	6.4	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	260	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.1	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	32.17	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	58.78	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	<0.2	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	<0.05	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	12.21	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	0.82	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	10.2	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	131	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	104	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/100ml	70	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/2024-25/006863
Date: :17.12.2024
Sample No. MSKGL/ED/2024-25/11/01590
Sample Description : Ground Water
Sampling Location : Durgachak Railway Station
Sample Drawn on : 26.11.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	8.37	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	6.5	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	270	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.15	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	25.45	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	44.09	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.28	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	<0.05	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	12.08	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	0.78	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	7.80	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	114	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	93.6	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/100ml	350	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/2024-25/006864
Date: :17.12.2024
Sample No. MSKGL/ED/2024-25/11/01591
Sample Description : Ground Water
Sampling Location : Mohana Market (IOCL Haldia)
Sample Drawn on : 26.11.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	8.30	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	2.3	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	290	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.14	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	32.51	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	58.78	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.28	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	<0.05	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	12.25	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	0.98	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	10.6	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	132	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	114.4	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/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/2024-25/006865
Date: :17.12.2024
Sample No. MSKGL/ED/2024-25/11/01592
Sample Description : Ground Water
Sampling Location : Sector No-17 (IOCL Haldia)
Sample Drawn on : 26.11.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	8.36	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	3.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	270	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.17	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	27.68	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	44.09	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	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	<0.05	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	12.17	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	0.84	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	9.84	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	120	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	104	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/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/2024-25/006866
Date: :17.12.2024
Sample No. MSKGL/ED/2024-25/11/01593
Sample Description : Ground Water
Sampling Location : Tube Well No-4 (IOCL)
Sample Drawn on : 26.11.2024

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	7.78	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	68	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1490	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	0.04	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	90.75	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	685	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.35	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	0.06	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	42.77	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<0.01	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO_3)	mg/l	1.02	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	<0.005	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	36.5	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	405	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.001	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.02	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.005	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	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	291.2	APHA 23rd Edtn-2017, 2320B
31	Total coliform	MPN/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/2024-25/009746
Date: :28.02.2025
Sample No. MSKGL/ED/2024-25/02/00465
Sample Description : Ground Water
Sampling Location : TW-9
Sample Drawn on : 13.02.2025

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	7.25	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	6.2	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1340	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	198.2	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	514.6	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	<0.2	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	0.24	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	34.07	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	1.55	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	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	10.2	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	637	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	0.03	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.01	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.02	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr^{+6})	mg/l	<0.01	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as $CaCO_3$)	mg/l	404	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	Detected	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/2024-25/009754
Date: :28.02.2025
Sample No. MSKGL/ED/2024-25/02/00466
Sample Description : Ground Water
Sampling Location : TW-4
Sample Drawn on : 13.02.2025

Reference No.& Date: 29376997, dtd-08.11.2024

ANALYSIS RESULT

Sl No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<5.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 25 ^{0}C	---	7.52	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1480	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	122	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	653.20	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	0.28	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	42.86	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.13	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	2.24	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C_6H_5OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	0.01	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO_4)	mg/l	25.2	APHA (23rd Edition) 4500-SO4 E 2017
21	Total Hardness (as $CaCO_3$)	mg/l	514.8	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	424.2	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	Detected	IS 1622 : 1981 (RA 2019)

for Mitra S. K. Private Limited

Report Prepared By

Authorised Signatory

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Annexure-4

Environmental expenditure incurred in FY-2024-25 by IOCL Haldia Refinery

S No	Item description	2024-25 Expenditure (Rs. Lakhs)				
		Quarter-1	Quarter-2	Quarter-3	Quarter-4	Annual
Revenue						
O&M contracts (Operation of ETP/STP/RO/TSDF/Oily Sludge Treatment/Biomethanation plant/Mobile Ambient Air/ Bio Medical Waste Handling etc.						
1	**Operation of ETP**	75.00	75.00	75.00	75.0	300.00
2	**O & M Contracts for TTP-RO**	49.40	47.60	49.40	51.4	197.78
3	**Oily Sludge Treatment for recovery of Slop Oil**	174.85	145.90	174.85	218.94	714.54
One Time Expenditure (ETP Chemicals, activated Carbon etc./ Bioremediation of oily Sludge/Disposal of Haz. Wastes, Spent Catalyst / Storage Tank Cleaning/ Tree Plantation etc.)						
1	**ETP Chemicals like ACF & PSF**	5.00	5.00	5.00	5.00	20.00
2	**Disposal of Hazardous waste to TSDF through authorized agency**	50.0	64.2	50.0	37.0	201.21
3	**Disposal of Residual Oily Sludge to TSDF through authorized agency**	54.66	60.00	75.00	75.04	264.70
4	**Tree Plantation**	0.00	1.00	0.00	0.00	1.00
Fees payable towards Statutoty authorities (for Consents, Authorisation/Water Cess/ Effluent Discharge etc.)						
1	**Consent to Operate for Refinery**	50.00	0.00	0.00	0	50.00
2	**Pubic Hearing fees for New projects**	0.00	0.00	0.00	0	0.00
3	**Consent to Operate/ Establishment for before commissioning of new project plants**	0.00	0.00	7.13	19.77	26.90
4	**Pre-Commissioning Safety Audit by OISD**	0.00	0.00	0.00	0	0.00
5	**ETP Treated effluent & Effluent discharge monitoring by WBPCB**	0.38	0.38	0.38	0.38	1.52
6	**Quarterly Stack emission monitoring by WBPCB**	0.23	0.23	0.23	0.26	0.95
AMC jobs (Online Stack/Treated Effluent / Ambient Air Monitoring)						
1	**Chemical Treatment of ETP treated effluent water for using at Cooling tower & Fire water**	17.56	15.69	17.56	14.55	65.36
Audit / Study / Consultancy jobs (Water Pinch Study/Audits; ISO Audits; Audits by External Agencies etc.						
1	**ISO Audit + ISO Document updation job**	0	0	0.5	0	0.50
2	**QRA Study**	0.00	0.00	0.00	7	7.00
5	**Safety Audit as per MSIHC rules**	0.00	0.00	0.00	9.22	9.22
6	**GHG Audit**	0.00	0.00	2.72	0	2.72
7	**ETP Adequacy Study Job by EIL**	0.00	0.00	0.00	0	0.00
Monitoring jobs (Ground water, soil, stack emissions, ambient air, fugitive emissions (LDAR) etc.						
1	**Environmental Monitoring job**	2.90	2.90	2.90	2.90	11.60
2	**Ambient Air Quality Monitoring**	3.77	3.77	3.77	3.77	15.08
Other Jobs (WED Celebrations/ Awareness & Training Programs/ Process Modifications/ Green Belt Development						
1	**WED Celebration/ Awareness program**	10.00	0.00	0.00	0.0	10.00
A	**Total Revenue expenditure**	**493.8**	**421.7**	**464.4**	**520.2**	**1900.1**
Capital Expenditure						
(ETP Modernisation/RO Plant/EIA&RA Studies/ Rainwater						
1	**Ambient Air Quality Mobile van procurement**	17	0	0	0	17.00
2	**LED Lights & Solar PV system**	0	0	0	0	0.00
3	**EIA & RA study for new projects**	0	0	0	0	0.00
B	**Total Capital expenditure**	**0**	**0**	**0**	**0**	**17.00**
		Q1	**Q2**	**Q3**	**Q4**	**Annual**
	Total Expenditure Rs lakhs	**493.8**	**421.68**	**464.44**	**520.21**	**1917.08**
	Amounts in Rs. Crore	**4.9**	**4.22**	**4.64**	**5.20**	**19.17**

Annexure-5

MSK TESTING • INSPECTION

TEST REPORT

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

Report No. : MSKGL/ED/2024-25/005181
Date: :09.09.2024
Sample No. MSKGL/ED/2024-25/08/01459-61
1621-22, MSKGL/ED/2024-25/09/00429-30
Sample Description : Noise

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

ANALYSIS RESULT

Sl No.	Sampling Location	Sampling Date	Leq dB(A) day	Leq dB(A) night
1	East of Tank No-113	21.08.2024 to 22.08.2024	67.8	57.8
2	East of SRU-5 Unit	21.08.2024 to 22.08.2024	68.8	56.3
3	Near DYTP Cooling Water	21.08.2024 to 22.08.2024	66.9	59.2
4	East of Tank No-109 (Crude LS) Boundary Area	22.08.2024 to 23.08.2024	66.8	58.6
5	East of LPG Horton Sphere (Boundary Area)	22.08.2024 to 23.08.2024	70.7	66.0
6	South East of LPG Balk Loading Area (Boundary Area)	29.08.2024 to 30.08.2024	70.6	63.3
7	Delayed Coker unit South Side (Boundary Area)	29.08.2024 to 30.08.2024	68.9	60.7

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/2024-25/005188
Date: :08.10.2024
Sample No. MSKGL/ED/2024-25/09/00475-76
471-74,651-52
Sample Description : Noise

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

ANALYSIS RESULT

Sl No.	Sampling Location	Sampling Date	Leq dB(A) day	Leq dB(A) night
1	North of Tank No-111 (Boundary Area)	04.09.2024 to 05.09.2024	64.9	57.4
2	DHDS Colling Tower (Boundary Area)	04.09.2024 to 05.09.2024	70.3	64.5
3	Near TTL Out Gate No-4 Road-A (Boundary Area)	05.09.2024 to 06.09.2024	65.0	57.0
4	South Corner of TTL Out Gate No-4 (Boundary Area)	05.09.2024 to 06.09.2024	69.1	62.3
5	West ETP Control Road-A (Boundary Area)	06.09.2024 to 07.09.2024	63.5	56.0
6	Near Lube Oil Dram Storage Area	06.09.2024 to 07.09.2024	65.3	56.2
7	North West Corner of OHCU Plant Area Road A	09.09.2024 to 10.09.2024	63.2	56.0
8	Near New Flare Area	09.09.2024 to 10.09.2024	70.4	63.5

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/2024-25/005196
Date: :30.10.2024
Sample No. MSKGL/ED/2024-25/10/01065-1071
MSKGL/ED/2024-25/10/01297-1306
Sample Description : Noise

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

ANALYSIS RESULT

Sl No.	Sampling Location	Sampling Date	Result Average dB(A)
1	FPU Furnace (Unit-105 FPU Unit)	17.10.2024	78.0
2	105 PM-08A (Unit-105 FPU unit)		83.1
3	105 PM-07A (Unit-105 FPU unit)		84.9
4	105 PM-04B (Unit-105 FPU unit)		86.9
5	OHCU Furnace (Unit-91)		73.1
6	91-PM-25B (Unit-91-OHCU)		87.4
7	91-PM-04A (Unit-91-OHCU)		91.5
8	OHCU Control Room Outside	19.10.2024	68.2
9	OHCU Field Area		63.5
10	OHCU Control Room Inside		59.1
11	OHCU Field Room		68.7
12	Battery Limit (U-92) PDS		79.0
13	92 P 16 A (U-92) PDS		80.6
14	HGU PDS (U-92) PDS		63.5
15	92 PM 11B (U-92) PDS		86.9
16	92 PM 01 (U-92) PDS		82.4
17	92 P 12 A (U-92) PDS		81.4

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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/2024-25/005203
Date: :30.10.2024
Sample No. MSKGL/ED/2024-25/10/01072-1081
Sample Description : Noise

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

ANALYSIS RESULT

Sl No.	Sampling Location	Sampling Date	Result Average dB(A)
1	91-PM-09A (Unit-91-OHCU)	17.10.2024	79.6
2	91-PM-20B (Unit-91-OHCU)		82.4
3	91-PM-08B (Unit-91-OHCU)		84.4
4	MCC Room N2 Plant (HGU-2 Reformer U-92)		79.6
5	96 KM-01 (ii) C Air Compressor (HGU-2 U-92)		88.6
6	92 ED-11A (HGU-2 Reformer U-92)		82.0
7	96 KM-02 (115) B (HGU-2 Reformer U-92)		88.7
8	96 KM-01-9 (ii) A (HGU-2 Reformer-U-92)		88.9
9	HGU Reformer Furnace (HGU-2 U-92)		70.3
10	Battery limit (HGU-2 Reformer U-92)		73.7

Report Prepared 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/2024-25/006893
Date: :16.01.2025
Sample No. MSKGL/ED/2024-25/01/00556-74
Sample Description : Noise

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

ANALYSIS RESULT

Sl No.	Sampling Location	Sampling Date	Average dB(A)
1	CDU-1 and Trim Heater (U-II FOB Area)	07.01.2025	74.3
2	CDU-1 Furnace (U-II FOB Area)		77.0
3	11-PM-127 B (U-II FOB Area)		80.9
4	11-PM-102 A (U-II FOB Area)		92.5
5	11-PM-03 A (U-II FOB Area)		90.8
6	CDU-I Battery Limit (U-II FOB Area)		78.7
7	CRU Battery Limit Unit 21 and 22 CRU		75.9
8	CRU Funnace Unit-21 and 22 CRU		82.3
9	22 PM-02 A Unit-21 and 22 CRU		83.3
10	22 PM-01 C Unit 21 and 22 CRU		88.7
11	21 K-101 A Unit-21 and 22 CRU		75.4
12	FOB Control Room Inside		53.8
13	FOB Control Room Outside		59.4
14	Battery Limit (U-16-FOB)		71.7
15	16 PM- 107 B (U-16-FOB)		88.6
16	16 PM- 109 A		89.2
17	16 PM- 03 A (U-16-FOB)		87.9
18	CDU-11 Furnace (U-16-FOB)		75.9
19	CDU-11 and Trim Heater (U-16-FOB)		74.5

Report Prepared By

for Mitra S. K. Private Limited

MITRA S. K. PRIVATE LTD.

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Annexure-6

Month-wise Total SO2 emission	
MONTH	SO2 EMISSION in kg/hr
Apr-24	785
May-24	757
Jun-24	738
Jul-24	732
Aug-24	642
Sep-24	527
Oct-24	615
Nov-24	672
Dec-24	795
Jan-25	792
Feb-25	735
Mar-25	767
Average	713.1
MAX. LIMIT	980

ANNEXURE-7

Average Report	
Industry(ies)	IOCL HALDIA
Station(s)	**AAQMS_1**
Parameter(s)	(SO2), (NOX), (CO), (NO2), (PM10), (NH3), (PM2.5), (O3), (Benzene)
Avg Period	Daily Avg
Date	**From: 01-Oct-2024 To: 31-Oct-2024**

Continuous Ambient Air Quality Monitoring Data

	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1	AAQMS_1
Date & Time	**(SO2(ug/m3)**	**(NOX(ug/m3)**	**(CO(mg/m3)**	**(NO2(ug/m3)**	**(PM10(ug/m3)**	**(NH3(ug/m3)**	**(PM2.5(ug/m3)**	**(O3(ug/m3)**	**(Benzene(ug/m3)**
01/10/2024	11.75	23.61	0.67	16.05	51.15	12.82	25.06	16.93	0.86
02/10/2024	10.21	23.32	0.72	15.96	49.06	11.25	25.3	17.08	0.94
03/10/2024	11.49	22.43	0.68	15.62	50.9	10.94	26.37	19.11	0.9
04/10/2024	10.83	21.02	0.72	14.84	46.28	10.99	25.11	17.75	1.29
05/10/2024	10.75	19.6	0.66	13.91	46.62	10.99	24.62	15.02	2.75
06/10/2024	0	0	0	0	0	0	0	0	0
07/10/2024	0	0	0	0	0	0	0	0	0
08/10/2024	0	0	0	0	0	0	0	0	0
09/10/2024	11.34	20.97	0.77	14.75	45.52	11.12	23.03	16.39	1.06
10/10/2024	12.86	20.77	0	-29.83	46.54	9.13	1.71	15.1	0.11
11/10/2024	0	0	0	0	0	0	0	0	0
12/10/2024	0	0	0	0	0	0	0	0	0
13/10/2024	0	22.01	0	15.36	44.64	11.77	22.43	16.32	0.57
14/10/2024	9.98	20.77	0.74	14.71	51.33	11.5	26.53	16.74	1.2
15/10/2024	12.44	20.25	0.64	14.49	55.72	11.53	29.24	16.77	1.3
16/10/2024	12.39	20.37	0.66	14.53	52.42	11.21	27.07	17.22	1.13
17/10/2024	12.47	19.93	0.63	14.27	48.07	11.44	25.47	17.97	1.09
18/10/2024	12.15	19.52	0.66	14.02	44.39	11.41	22.23	16.65	1.15
19/10/2024	12.06	19.3	0.72	13.88	44.34	11.4	23.8	16.37	0.71
20/10/2024	12.47	18.38	0.59	13.28	49.47	11.66	27.67	18.04	2.65
21/10/2024	13.59	17.72	0.68	12.94	54.44	11.47	35.01	18.76	1.65
22/10/2024	19.72	0	0.7	0	55.3	0	27.99	13.82	0.9
23/10/2024	11.9	0	0.69	0	49.24	0	26.96	16.37	1.41
24/10/2024	0	0	0	0	0	0	0	0	0
25/10/2024	0	0	0	0	0	0	0	0	0
27/10/2024	0	17.72	0.98	12.8	45.58	12.81	23.54	14.64	0.7
28/10/2024	15.33	0	0.7	0	0	0	30.67	0	1.22
29/10/2024	12.72	0	0.69	0	216.83	0	24.74	0	1.06
30/10/2024	13.52	17.96	0.64	12.97	43.66	12.25	24.65	15.09	1.31
31/10/2024	11.91	17.79	0.57	12.85	43.02	11.87	23.74	14.1	1.36

AVERAGE	**12.470**	**20.181**	**0.691**	**14.291**	**56.115**	**11.451**	**24.910**	**16.488**	**1.188**
LIMIT (24 hrs)	**80**	**80**	**2 (8 hrs)**	**80**	**100**	**400**	**60**	**100 (8 hrs)**	**5 (Annual)**

** CAAQMS-1 DATA WAS OFFLINE DURING THIS PERIOD

Annexure-8

Total plant area	**610**	**acre**
Green belt Area	**417.82**	**acre**
% green coverage	**68.49%**	

Years	Activities	No of trees	Green belt Area (acre)	Green belt Area (Hectare)	MoU Date
till 2016-17	Trees planted	68000	48	19.42	
2016-17	Trees planted	5200	5.2	2.10	
2017-18	Trees planted	3820	3.82	1.55	
2018-19	Trees planted	5000	5	2.02	
2019-20	Trees planted	6425	6.42	2.60	
2020-21	Tree planttaion in school and colleages	25925	6.44	2.61	
2020-21	Tree plantation in Geonkhali Water Treatment Plant	3750	14.82	6.00	09.11.2020
2020-21	Tree planttaion in Chaitanyapur Water Treatment Plant	2000	7.9	3.20	09.11.2020
2021-22	Miyawaki process tree planttaion in Mahishadal Rajbari	19200	1.58	0.64	30.07.2021
2021-22	Miyawaki process tree planttaion at Haldia Refinery and KV School	13000	1.7	0.69	
2021-22	Tree plantation in Greenbelt channel infront of Haldia Refinery	253	1	0.40	
2021-22	Tree plantation in Greenbelt channel infront of Haldia Refinery	1496	5.91	2.39	
2021-22	Along extn of HPL link road from City centre to Balughata along a stretch of 9800 mt	1000	3.95	1.60	09.11.2020
2021-22	CSB Tree plantation in Balughata Beat (Forest Land)	35200	54.34	21.99	05.07.2021
2021-22	Creation of Mangrove plantation at Beliarychar island	2000000	247.1	100.00	01.10.2021
2022-23	Miyawaki process tree planttaion near Haldia rly station	24000	2.22	0.90	
2023-24	Trees planted inside Township	661	0.67	0.27	
2024-25	Trees planted inside Township	1739	1.75	0.71	
		2216669	**417.82**	**169.08**	