



KR.HSE.ENV.05. HSSE.HECCR/01/2026/ J-11011/341/2011-IA-II (I)
30.06.2026

To

The Additional Principal Chief conservator of Forests (C)
Ministry of Environment, Forest & Climate Change
4th Floor, E&F Wings, Kendriya sadan, Koramangala
Bangalore-560 034

Dear Sir,

Sub: Submission of Half yearly compliance report on Environmental Clearance issued by the Ministry of Environment, Forests and Climate Change (MoEF & CC)

Ref: EC Nos.J-11011/341/2011-IA-II (I) dated 22.11.2012; and Amendment dated 23.05.2014 issued to the "Integrated Refinery Expansion Project (IREP) of M/s Bharat Petroleum Corporation Ltd, Kochi at Ambalamugal".

Please find enclosed the compliance reports on the various conditions laid down by MoEF & CC, pertaining to the half year period from 1st October 2025 to 31st March 2026 for the said project.

Thanking you,

Very truly yours

For BPCL Kochi Refinery.

Suresh K S

Dy. General Manager (HSE) - Environment

Encl: 1. Six Monthly Compliance Report with supporting / monitoring documents

CC:

1.

The Member Secretary
Central Pollution Control Board
Parivesh Bhawan
East Arjun Nagar, New Delhi- 110032

2.

The Member Secretary
Kerala State Pollution Control Board
Plamoodu Junction
Pattom Palace, Thiruvananthapuram - 695 004

पोस्ट बैग नं: 2, अम्बलमुगल - 682 302, एरणाकुलम जिला, केरल, दूरभाष: 0484 - 2722061 - 69 फैक्स: 0484 - 2720961 / 2721094
पंजीकृत कार्यालय: भारत भवन, 4 & 6, कुरीम्भोय रोड, बेलार्ड इस्टेट, पी. बी. नं. 688 मुंबई - 400 001

Compliance Status of Environmental Clearance conditions for installation of “Integrated Refinery Expansion Project (IREP) at BPCL – Kochi Refinery project accorded by J-11011/341/2011-IA-II (I) dated 22.11.2012; and Amendment dated 23.05.2014.

Status of the project: Project commissioned in 2016		
	COMMENTS	Compliance Status as on 31.03.2026
SPECIFIC CONDITIONS:		
i	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos. J-11011/32/90-IA. II dated 20 th August 1991 J-11011/78/1996-IA. II (I) dated 5 th March 1997 shall be satisfactorily implemented and compliance reports submitted to the Ministry’s Regional Office at Bangalore.	1. J-11011/32/90-IA. II dated 20th August 1991 [CDU 2 project] 2. J-11011/78/1996-IA. II (I) dated 5th March 1997 [DHDS project] Compliance reports are being submitted to the Ministry’s Regional Office at Bangalore.
ii	M/s BPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186 (E) dated 18 th March 2008.	BPCL Kochi Refinery complies with the environmental standards applicable to the Oil Refinery Industry notified under the Environment (Protection) Rules, 1986, vide G.S.R. 186(E) dated 18th March 2008. All applicable pollution control systems and environmental monitoring facilities are operated and maintained effectively to ensure compliance with the prescribed standards. Continuous and periodic monitoring of emissions, effluents, ambient air quality, and other environmental parameters is carried out, and the reports are being submitted to KSPCB monthly basis.
iii	Adequate stack height shall be provided to heaters, furnaces, VGO, HSD and Utility boilers as per CPCB / Kerala State Pollution Control Board (KSPCB) guidelines to disperse gases emissions into the atmosphere. Low NOx burners shall be provided to Heaters/furnaces with on-line analysers. Low sulphur fuel shall be used.	Adequate stack heights have been provided for all heaters, furnaces, VGO, HSD, and utility boilers as per CPCB/KSPCB guidelines. Low-NOx burners have been installed in the applicable process heaters and furnaces, and online Continuous Emission Monitoring Systems (CEMS) are in operation for continuous monitoring of stack emissions. Treated Refinery fuel gas with very low sulphur content and low-sulphur fuels like RLNG are being used to minimize SO ₂ emissions.
iv	Continuous on-line stack monitoring for SO ₂ , NOx and CO of all the stacks shall be carried out.	Complied. Online continuous monitoring facilities are provided for SO_x, NO_x, CO & SPM on all operational stacks.

		BPCL KR has an Annual Rate Contract with NABL accredited lab for the manual sampling and analysis of stack emission parameters like SO₂, CO, NO_x, PM, H₂S and Ni/Vanadium. BPCL Kochi Refinery is using de-sulfurized fuel gas and low sulphur fuel oil (Sulphur content less than 1%) in old heaters and less than 0.5% in newly installed heaters boilers.
v	The process emissions [SO₂ NO_x, 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.	Complied. Total SO₂ emission from the refinery is within the limit. The allowable limit as per latest CTO is 1579 kg/hr; maintaining well below this value. Fugitive emission survey is being conducted regularly.
vi	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.	Complied. PM schedule is being followed for all equipment. Quarterly based fugitive emission monitoring and maintenance system (LDAR) has been followed and is being attended any identified emissions / leaks Total 926 No's of Hydrocarbon (HC) detectors, 267 No's of Hydrogen sulphide (H₂S) detectors and 42 No's of Hydrogen (H₂) detectors are installed at different locations of refinery including product loading, storage tank farms and process plants etc. Most of sensors are made up of M/s Honeywell. HC sensors belong to Infra-red type and H₂S/H₂ sensors belong to electrochemical type. Hydrocarbon detectors are provided as per requirement. Proper maintenance of equipment (including preventive maintenance) is carried out on a regular basis.
vii	SO₂ emissions after expansion from the plant shall not exceed 1518 kg/hr and further efforts shall be made for reduction of SO₂ load through use of low sulphur fuel. Sulphur recovery units shall be	Complied. Now the total SO_x emission limit has been revised to 1579 kg/hr. as per latest MSB Project EC.

	installed for control of H₂S emissions. The overall sulphur recovery efficiency of Sulphur Recovery Unit with tail gas treating shall not be less than 99.9%. (The SO₂ emission was reduced from 1582 Kg/Hr. to 1518 Kg/Hr. based on the EC amendment dated 23.05.2014).	Maintaining well below this value. For reducing the sulphur content of fuel gas used in heaters, Sulphur recovery unit (SRU) of capacity 680 TPD, has been installed as part of IREP (Integrated Refinery Expansion Project). Heaters and boilers installed as part of IREP are provided with low NO_x burners.
viii	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 includes sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, by-product (elemental sulphur), atmospheric emissions etc.	A monthly Sulphur Balance is prepared and maintained as part of the refinery's environmental management system. It includes sulphur input through crude oil/feedstock and sulphur output through petroleum products.
ix	Flare gas recovery system shall be installed.	Flare Gas recovery system is installed as part of IREP and commissioned in December 2017.
x	Ambient air quality monitoring stations [PM₁₀, PM_{2.5}, SO₂, NO_x, H₂S, Mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Kerala State 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 modelling exercise to represent short term GLCs.	Complied. 6 No's of ambient air quality monitoring stations (AAQMS) are installed at the peripheries of the refinery to enable close monitoring of ambient air quality near the refinery area. Ambient air quality information is also communicated to public through an electronic display board.
xi	Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry on 16th November 2009 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.	Complied. Ambient Air Quality Monitoring is being carried out at the designated monitoring locations in accordance with the National Ambient Air Quality Standards (NAAQS), 2009, notified by the Ministry on 16th November 2009, through a NABL-accredited laboratory. The monitoring results indicate that the ambient air quality is generally within the prescribed standards.
xii	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	Complied. DG sets, wherever installed, are provided with stacks of adequate height as per CPCB guidelines and are housed in acoustic enclosures. Acoustic silencers and other noise control measures are

	shall be installed wherever noise levels exceed the limit.	provided, wherever necessary, to ensure compliance with the prescribed noise standards.
xiii	Total water requirement from River Periyar after expansion shall not exceed 3083.3 m³/hr. and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 1400 m³/hr and treated in the effluent treatment plant. Treated effluent shall be recycled/reused within the factory premises and remaining treated effluent shall be discharged into Chitrapuzha River after conforming to the standards prescribed for the effluent discharge and obtaining permission from the KSPCB, which shall not exceed 410 m³/hr. Domestic sewage shall be treated in sewage treatment plant (STP).	Complied. Steam condensate in the process plants is being recycled back to the boilers as feed water for the steam generation, thereby resulting in reduction in the freshwater consumption. Approximately 130-150 m³/hr. steam condensate is being recycled to steam boilers in the refinery. The stripped water generated from the Stripped Water Units is recycled as make-up water to the crude unit desalter. Through this reuse, approximately 150 m³/hr of liquid effluent generation is avoided, thereby contributing to conservation of freshwater resources and reduction in effluent load to the ETP. Treated effluent water from the wastewater treatment plants are recycled in RO plant
xiv	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.	Complied. Quality of treated effluent water discharged to the Chitrapuzha river is being analysed and monitored on continuous & regular basis manually lab analysis to ensure the stipulated standards. The river water intake to refinery is located at Periyar river and the quality of the same is also monitored.
xv	Oil catchers /oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Oil catchers/oil traps have been installed at all potential locations in the storm water drainage network, including process units, tank farms, loading/unloading areas, and other hydrocarbon handling facilities. These systems are regularly inspected, cleaned, and maintained to prevent any carryover of oil into the storm water drainage system and to avoid contamination of nearby water bodies.
xvi	A study shall be conducted to identify the source of odour and remedial measures to control the odour problem shall be taken. Study report shall be submitted to the Ministry's Regional office at Bangalore within 6 months from the date of issue of this letter.	Complied. A comprehensive odour source identification study was carried out by Sustainable Systems Private Ltd., Thrissur in May 2013. The study report was submitted to the Regional Office of the Ministry of Environment, Forest and Climate Change (then MoEF), Bengaluru,



		within the stipulated period. The recommendations made in the study have been implemented
xvii	Improvement in the sludge handling area is required and scheme for final disposal of sludge shall be prepared and submitted to the Ministry's Regional office at Bangalore.	Sludge handling area housekeeping improved and Final sludge disposal scheme submitted.
xviii	Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.	Complied. Oily sludge is processed in Delayed Coker Unit (DCU) to produce value added products like Pet-coke and other distillates. Records of oily sludge generation and disposal are maintained on a regular basis, and the annual statement of oily sludge generation and disposal is submitted to the Regional Office of MoEF&CC as per the Environmental Clearance conditions.
xix	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.	The refinery complies with the provisions of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended from time to time. Hazardous chemicals are handled and stored with appropriate safety measures, and on-site/off-site emergency plans are maintained. Hazardous and Other Wastes generated from the refinery are collected, stored, transported, and disposed of through Kerala Enviro Infrastructure Limited (KEIL) – [TSDF] and other CPCB/KSPCB-authorized recyclers / reprocessors, as applicable, in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time.
xx	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 Bangalore. 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.	BPCL-KR has entered a waste disposal annual Rate Contract with M/s Kerala Enviro Infrastructure Limited to dispose hazardous waste. Spent catalyst is being sent to authorized recyclers/re-processors / disposal agencies.

xxi	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	An Oil Spill Prevention and Management Plan is in place and is implemented across the refinery to prevent the spillage and leakage of crude oil and petroleum products. Preventive maintenance and regular inspection of hydrocarbon handling facilities, including tanks, pipelines, pumps, and loading/unloading systems, are carried out to minimize the risk of leaks. All operating personnel are trained, periodic mock drills are conducted, and regular monitoring is undertaken to ensure prompt detection, containment, and mitigation of any accidental oil spill.
xxii	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental protection (CREP).	The refinery has implemented the applicable recommendations under the Charter on Corporate Responsibility for Environmental Protection (CREP) for the petroleum refining sector. Pollution control systems are operated and maintained effectively, Continuous Emission Monitoring Systems (CEMS) and Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are in operation, fugitive emissions are controlled through the LDAR programme, wastewater is treated in the Effluent Treatment Plants before discharge/reuse, hazardous wastes are managed as per statutory requirements, and environmental performance is monitored periodically to ensure continued compliance with the CREP guidelines.
xxiii	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.	Complied as per OISD guidelines. The refinery has implemented comprehensive fire and explosion prevention measures. Potential ignition sources are minimized through hazardous area classification, intrinsically safe / explosion-proof electrical equipment, permit-to-work procedures, gas detection systems, and preventive maintenance. Adequate separation distances between ignition sources and flammable materials

		are maintained as per applicable standards.
xxiv	Green belt shall be developed at least in 33% of the plant area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick green belt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.	BPCL-KR is having a total area of 1336.05 acres of land (including the new projects MSBP / PDPP). A green belt has been developed and is being maintained over more than 33% of the refinery area, in accordance with the Environmental Clearance conditions. Thick plantations comprising suitable native and pollution-tolerant species have been established along the refinery boundary, internal roads, and other available open areas to mitigate fugitive emissions and enhance the local environment.
xxv	Company shall prepare project specific environmental manual, and a copy shall be made available at the project site for the compliance.	A project-specific Environmental Management Manual has been prepared and implemented as part of the refinery's Environmental Management System (EMS). The manual incorporates environmental policies, operational controls, monitoring protocols, emergency preparedness, waste management procedures, and statutory compliance requirements
xxvi	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	The recommendations of the Rapid Risk Assessment (RRA) Report, Disaster Management Plan (DMP), and applicable safety guidelines have been implemented and are reviewed periodically. The refinery maintains comprehensive emergency preparedness and response systems, including fire protection facilities, gas detection systems, emergency shutdown systems, permit-to-work procedures, and on-site emergency plans.
xxvii	All the issues raised and commitment made during the public hearing/consultation meeting held on 14 th February 2012	All the commitments made during the Public Hearing held on 14 th February 2012 have been complied with. The action taken against each commitment is being monitored, and the status is maintained as part of the Environmental Clearance compliance report.

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xxviii	Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11013/41/2006-IA.II (I) dated 26 th April, 2011 and implemented.	BPCL has adopted and implemented a Corporate Environment Policy in accordance with the Ministry's O.M. No. J-11013/41/2006 - IA.II (I) daIA. II6th April 2011. The policy is integrated into the refinery's Environmental Management System and emphasizes compliance with statutory requirements, pollution prevention, resource conservation, energy efficiency, environmental monitoring, and continual improvement
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.	Complied. During the construction phase, temporary accommodation for construction workers was provided within/near the project site with the necessary infrastructure and facilities, including safe drinking water, sanitation, mobile toilets, cooking fuel, medical facilities, and other welfare amenities, as applicable. The temporary facilities were dismantled after completion of the construction activities, and the site was restored.

GENERAL CONDITIONS:

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.	Complied. All the stipulations and conditions prescribed by the Kerala State Pollution Control Board (KSPCB), State Government, and other applicable statutory authorities are being complied with. The project is operated in accordance with the applicable statutory approvals, environmental regulations, and consent conditions.
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 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.	Complied. No expansion or modification requiring prior Environmental Clearance has been undertaken without obtaining the requisite approval from MoEF&CC. All expansion and other modernization projects are implemented only after obtaining the necessary statutory clearances.

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iii	The project authorities must strictly comply with the rules and regulations under manufacture, Storage and import of Hazardous Chemical 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.	Complied. The BPCL KR complies with the provisions of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended from time to time. All hazardous chemicals are manufactured, stored, and handled in accordance with the applicable statutory requirements. Necessary approvals, licences, and No Objection Certificates (NOCs), wherever applicable, have been obtained from the Chief Inspector of Factories & Boilers, Petroleum and Explosives Safety Organization (PESO) (formerly Chief Controller of Explosives), Fire & Rescue Services Department, and other concerned statutory authorities. Compliance with the applicable provisions is reviewed periodically to ensure continued adherence to the statutory requirements.
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, 1986 viz. 75 dBA (daytime) and 70 dBA (night time).	Complied. Noise control measures, including acoustic enclosures, silencers, acoustic hoods, and vibration isolation systems, have been provided for major noise-generating equipment. Periodic maintenance of equipment is carried out to ensure effective noise control. Ambient noise monitoring is conducted regularly at different locations within the refinery premises. The monitored ambient noise levels are maintained within the standards prescribed under the Environment (Protection) Rules, 1986, as amended, for industrial areas.
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.	BPCL-KR is having a separate Environment Management cell to carry out environmental management and monitoring functions. We have well equipped Centralized Quality Control Laboratory also to support monitoring.
vi	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	BPCL-KR has earmarked adequate funds for environment pollution control measures.

	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.	
vii	The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly compliance reports are being submitted by BPCL-KR as per the requirement.
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.	BPCL-KR has complied with this condition.
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; PM10, PM2.5, SO2, NOx, HC (Methane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectorial 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.	Six monthly compliance reports are being submitted by BPCL-KR after receipt of the Environmental Clearance for the IREP project. The same will be sent to the Regional Office of MoEF &CC and also uploaded in the website. The criteria pollutant levels namely; PM10, PM2.5, SO2, NOx, HC (Methane / Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectorial 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.
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 being submitted by BPCL-KR after receipt of the Environmental Clearance for the IREP project. The same will be sent to the Regional Office of MoEF&CC and also uploaded in the website.
xi	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the Project proponent to the concerned State Pollution Control Board as	Complied. Complied. The Environmental Statement (Form-V) for FY 2025-26 is being submitted to the Kerala State Pollution

	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 conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	Control Board (KSPCB) within the prescribed time of Sept 30 th every year. The Environmental Statement and the status of compliance of the Environmental Clearance conditions have also been uploaded on the company's website and forwarded to the Regional Office of MoEF&CC through e-mail.
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 the copy of the same shall be forwarded to the Regional Office.	BPCL-KR has complied with this condition.
xiii	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 commencing the land development work.	The Board approval for pre-project activities for the IREP project was obtained on 31.01.2011 and capital approval was obtained by the Board on 31.03.2012. Land development work commenced in line with the above approval.


30.06.2026

**CORPORATE RESPONSIBILITY FOR ENVIRONMENTAL PROTECTION (CREP)
PROGRESS REPORT ON ACTION POINT**

Sl. No.	Task	Remarks/Status
1	All the refineries provide on-line emission and effluent monitoring systems and give linkages to SPCB and CPCB server and detailed note shall be submitted by individual refineries indicating number of sensors, make and type etc.	Complied. Online Continuous Emission Monitoring Systems (CEMS) for major stacks and Online Continuous Effluent Quality Monitoring Systems (OCEMS) for the treated effluent discharge have been installed and are in operation. The systems are integrated with the Kerala State Pollution Control Board (KSPCB) and Central Pollution Control Board (CPCB) servers for real-time data transmission. Details of the monitoring systems, including the number of analysers/sensors, make, model, monitored parameters, and connectivity status, have been submitted to the statutory authorities as required and are updated periodically.
2	The refineries shall submit action plan to achieve zero discharge (except once through cooling water in coastal region) within three months.	As part of integrated Refinery cum expansion project (IREP), an integrated ETP has been setup and the treated effluent is routed to RO plant for further processing and recycling water as DM water. Water conservation measures are continuously undertaken to optimize freshwater consumption and increase reuse of treated wastewater. The discharging quantity is well within the permitted quantity.
3	The HSE department of refineries shall co-ordinate with marketing divisions for submission of note on evaporation during loading, leakage possibilities, steps taken for fire safety, management of oily sludge.	HSE department of BPCL has initiated coordination and various measures to control evaporation during loading, leakage, fire safety, management of oily sludge etc. It includes vapor recovery system, bottom loading, fugitive emission survey, LDAR etc. Separate scheme is adopted for the management of oily sludge which includes centrifuging, oil recovery and bioremediation.
4	The refineries who have not completed the task of providing low NOx burners shall complete within six month and submit completion note without further delay.	All the heaters under CEMP phase-II/IREP have been provided with low NOx burners.



1. Air Pollution Management		
a)	All the Refineries located in the critically polluted areas, identified by CPCB, will submit an action plan for phase wise reduction of SO ₂ emission from the present level:	BPCL Kochi Refinery comes under severely polluted cluster. The allowable limit as per latest CTO is 1579 kg/hr: maintaining well below this value of 488 kg/hr. during this reported period. It contributes to net reduction in SO₂ emission by producing Euro- VI MS and Diesel. Following steps are taken to reduce SO₂ emissions from the refinery. • Plant fuel replaced with RLNG firing. • Amine treatment of fuel gas • Sulfur Recovery Units with 99.9% efficiency as part of IREP with inclusion of TGTU (Tail Gas Treating Unit) • Low Pressure Amine treatment of vacuum column vent. • Employing Biturox technology for Bitumen production, where off gas is incinerated and further treated.
b)	Future Refineries will have sulphur recovery with minimum 99% efficiency	SRUs have more than 99% efficiency. New SRU have 99.9% efficiency.
c)	Road map to improve the efficiency of SRU:	BPCL Kochi refinery has been explored the possibility of Oxygen enrichment technology for enhancing the efficiency of SRU and the same commissioned. WSA project is also under progress.
d)	With regard to NO _x emission, the new Refineries / process units will install low NO _x burners. For retrofitting of low NO _x burners in existing units the same expert committee will suggest the strategies and action plan within six months:	The expert committee, during their visit to Kochi Refinery, had suggested replacing the burners in heaters with more than 10 million Kcal/hr duty with low NO _x type burners. We have installed low NO _x burners for ten heaters in the existing Refinery. Moreover, all the new process heaters and steam boilers (total six numbers) installed as part of capacity expansion cum modernization project, CEMP - Phase II and all IREP units have been provided with low NO _x burners.
e)	The Expert Committee will also suggest an action plan, within 6 months, for control and monitoring of hydrocarbon loss and VOC emissions, leak detection and repair (LDAR) program and vapor recovery systems (for loading and unloading operations within Refineries only):	Following provisions exists for VOC control a) Provision of mechanical seals on pumps for leak free operation. b) Use of submerged filling in product loading gantries. c) Closed blow down system for process plants. d) Floating roof tanks for volatile product storage. e) Conversion of floating roof tanks to double seal arrangement. f) Closed loop sampling system in process plants. g) Covered facility for oily effluent storage. h) VOC control system is in place in new ETPs for treatment of VOCs generated during in the effluent treatment area. i) 926 No's of HC detectors, 267 No's of H₂S detectors and 42 No's of H₂ detectors are installed at different

		locations of refinery including product loading, storage tank farms and process plants etc. j) Benzene monitoring is carried out using “dragger” chip technique in the Aromatic recovery unit on regular basis and Continuous ambient air sampling and analysis from nine identified locations are carried out using gas chromatography (GC) based analysers. k) Six ambient air quality monitoring stations (AAQMS) are working online to monitor the ambient air quality on continuous basis. They provide eleven ambient air quality parameters, including hydrocarbons and the data is transferred online to CPCB/KSPCB. l) Vapor recovery system implemented for Benzene & Toluene truck loading area.
f)	The flare losses to be minimized and monitored regularly	Flare losses are monitored continuously through flare meters installed in the process units on a daily basis and are reviewed at the senior management level Further, the fuel gas flow to the pilot burner is maintained at the minimum level required to sustain the pilot flame. Various process schemes are implemented to reduce flaring. Advanced process control (APC) system was implemented in hydrogen network for decreasing hydrogen flaring. Flare Gas recovery system is installed as part of IREP project and commissioned in December 2017.
g)	Refineries will install continuous emission monitoring systems for SO ₂ and NO _x in major stacks. Action plan for this will be submitted within six months.	Kochi Refinery has provided continuous SO ₂ and NO _x analyzing system for all the heater/boiler stacks and is connected to the CPCB server system.
h)	Refineries will also monitor total HC and Benzene in the premises (particularly in loading / unloading operations and ETP). The status and action plan will be submitted within six months	18 No's of HC detectors are installed in the truck loading/wagon loading area. 2 No's of HC detectors and 2 No's of H₂S detectors are installed in ETP-V area. Benzene monitoring is carried out using “dragger” chip technique in the aromatic recovery unit daily. 6 No's of ambient air quality monitoring stations (AAQMS) are installed at the peripheries of the refinery to enable close monitoring of ambient air quality near the refinery. The ambient air quality information is also communicated to public through an electronic display board.
2. Wastewater Management:		
a)	Refineries will prepare an action plan for conservation of water resources and	The discharge of treated water from Kochi refinery is 0.14 m ³ /MT of crude processed.

	maximizing reuse / recycle of treated effluent within six months. The treated effluent discharge quantity will be limited to 0.4 m ³ /tons (for 90% of time) except for the monsoon season:	Steam condensate in the process plants is being recycled back to the boilers as feed water for the steam generation, there by resulting in reduction in the freshwater consumption. Approximately 130-150 m³/hr. steam condensate is being recycled to steam boilers in the refinery. The stripped water from the stripped water units is recycled as make up water to the desalting process in the crude unit. Treated effluent water from the wastewater treatment plants are recycled in RO DM plant.
3	Oil spill response facilities at Coastal Refineries will be in position within two years:	Oil spill response (OSR) facility at Cochin port is already in place. Additionally, BPCL Kochi refinery has procured oil containment booms as part of SBM facilities commissioning to augment the capabilities of oil spill response related facilities. We have also conducted a mock drill to build confidence for the safe operation of SBM facilities with the help of port trust/coast guard personnel.
3. Solid Waste Management: Refineries will explore new technologies for reduction in the generation of oily sludge. Strategy and action plan for liquidation of existing sludge will be submitted within six months		
• BPCL Kochi Refinery has implemented a comprehensive solid waste management programme in line with the CREP recommendations. • Use side entry mixers in the crude oil tank for minimization of sludge accumulation. • Oil recovery from oily sludge is maximized through the Delayed Coker Unit (DCU), thereby reducing the quantity of sludge requiring final disposal. • Hazardous wastes are disposed of only through authorized recyclers/reprocessors or the authorized TSDF (KEIL), while non-hazardous recyclable wastes are sent to authorized recyclers. • Hazardous and other wastes are stored, handled, transported, and disposed of through CPCB/KSPCB-authorized recyclers, reprocessors, or Treatment, Storage and Disposal Facilities (TSDFs), as applicable, in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. • Records of waste generation, storage, utilization, and disposal are maintained, and statutory returns are submitted to the regulatory authorities.		
4. Refineries will carry out monitoring and surveys to assess HC loss and concentration of VOC in Ambient Air / Wastewater Treatment Plant.		
1. BPCL Kochi refinery has implemented leak detection and repair (LDAR) program using portable hydrocarbon detection instrument. These programs are carried out on continuous basis on many valves, flanges etc.in all process units and offsite areas. The leaks identified are attended by maintenance crew immediately and are monitored on regular basis. 2. Secondary seals have been provided in 53 storage tanks storing volatile hydrocarbons to reduce fugitive hydrocarbon emissions. 3. HC detectors are installed in sufficient numbers at the storage tank farm areas, process plants, product loading areas and LPG bottling plants to identify any hydrocarbon leaks immediately.		

- Six ambient air quality monitoring stations (AAQMS) are working online to monitor the ambient air quality on continuous basis. Ambient air quality information is also communicated to public through an electronic display board. - Pressure relief valves for columns and vessels are routed to flares to avoid fugitive emission during emergencies. - Two continuous Noise monitoring stations have been installed.
5. Refineries will assess the quantity of flare gas (install the measurement system if the same is not possible)
- At BPCL Kochi refinery, flare losses are monitored continuously from different process units and are reviewed at the senior management level on regular / daily basis. Flare meters are installed in the process units for this purpose. - Further, the fuel gas flow to the pilot burner is maintained at the minimum level required to sustain the pilot flame. - Various process schemes implemented to reduce flaring - Advanced process control (APC) system was implemented in Hydrogen network for decreasing hydrogen flaring. - Flare gas recovery system is installed as part of IREP project, and the recovered flare gas utilizing in fuel gas system.
6. Assessment of Potential leakages from petroleum storage tanks
- Inspection of petroleum storage tanks is being carried out by following API 653 standard, OISD standard 129 and other relevant standards. Maintenance work is carried out as per the standard procedure when tank is taken for the outage. - Routine inspections of tank shells, roofs, bottoms, valves, flanges, and associated pipelines are undertaken to identify any signs of leakage or deterioration - Total 49 No's of bore wells have been constructed at various locations inside the refinery in order to monitor the ground water for any hydrocarbon leakages from the refinery storage tanks and processing plants. The ground water samples from the bore wells are tested periodically for presence of hydrocarbons.
7. Cleaner Technology options and information to be provided to CPCB
<u>Clean technologies adopted to combat Air Pollution includes:</u> - BPCL Kochi refinery has consistently met all deadlines for up gradation of auto fuel quality, set by the Government of India. KR is producing MS and HSD of BS VI norms. - Hydro desulphurization of feed stock to fluid catalytic cracking unit (FCCU) - Modifications in plant fuel systems with RLNG has been introduced many heaters and boilers, to reduce sulfur dioxide emissions. - Amine treatment of fuel gas for removal hydrogen sulfide to produce sweet fuel gas. - Installation five trains of sulfur recovery unit with more than 99.9% recovery. - Low pressure amine treatment of vacuum column vent gas. This is a unique environmental protection technology developed by BPCL KR for removing toxic hydrogen sulfide gas produced during vacuum distillation process. This technology has been developed exclusively with in-house expertise. The

uniqueness of technology lies in the fact that the process for hydrogen sulfide removal is carried out under extremely low pressure drop conditions.

7. Installed total 12.9 MW capacity of solar energy plant during the last year.
8. Reduction furnace for conversion of ammonia stream to nitrogen to reduce NO_x emissions.
9. State of the art Biturox Technology has been adopted for production of Bitumen without any harmful emission. Unlike the traditional Bitumen blowing technology, this technology helps with no odor or pollutants emissions. The off gases generated are subjected to incineration and caustic scrubbing in this technique. The wastewater stream generated is also oxidized, thereby resulting in zero BOD for effluent. The freshwater consumption is also significantly reduced by the adoption of this technique.
10. An electrostatic precipitator has been installed downstream of CO boiler for minimizing particulate matter emission from FCCU regenerator flue gases. As part of PFCCU (part of IREP project) we have installed a tertiary cyclone separator and another ESP (Electrostatic precipitator) for particulate capture.
11. Closed loop sampling system in process plants.
12. Flare gas recovery system is installed as part of IREP project to recover flare gas.
13. The MSW based Compressed Biogas (CBG) plant with a capacity of 5.6 TPD under construction at final stage.

Clean technologies adopted to improve effluent water quality:

14. Total 3 number of effluent treatment plants catering to the different process units.
15. Installation of 5 numbers of sour water strippers and recycling of stripped water in process units.
16. Provision of two stage API oil separation system for effluent streams.
17. Spent caustic treatment utilizing H₂O₂ and air oxidation methods for treatment in an environment friendly way.
18. Closed drainage system for tank farm drains.
19. Two stage biological treatment systems for effluent streams include tricking filter and activated sludge process, automated Chemostat Treatment and sequential batch reactor. (SBR)
20. Hydrogen Peroxide is utilized in our ETP's instead of FeCl₃ to avoid chemical sludge formation.
21. Chemical de-contamination techniques are being adopted at BPCL KR during turnarounds. The vessels, columns etc. are decontaminated using specially formulated chemicals, which is environmentally friendly, non-hazardous and fully biodegradable. The Hydrocarbons are recovered in the form of slop after de-emulsification process.

c) Clean technologies implemented for optimal solid waste management

Mechanical oil recovery system for oil recovery from oily sludge. Post IREP ETP sludge is processed in DCU.

22. In-situ recovery of oil from crude tank bottom sludge.
23. BPCL Kochi refinery constructed two secured landfills for the safe disposal of hazardous solid wastes as per the standard norms laid down by CPCB. The first landfill pit has a capacity of 590m³ and is dedicated to the disposal of FCC catalyst fines and spent molecular sieves. The second land fill pit with a capacity of 390 m³ is dedicated for the disposal of sludge from effluent treatment plants.
24. The MSW based Compressed Biogas (CBG) plant with a capacity of 5.6 TPD under construction at final stage.
25. We have an Annual Rate Contract with KEIL (Kerala Enviro Infrastructure Limited) for disposing solid hazardous wastes at their TSDF facility.
26. Wherever possible, spent catalyst containing recoverable metals are disposed /sold to authorized recyclers.

Sustainable Development Projects and Activities added during 1st April 2025 to 30th Sept. 2025

Bharat Petroleum Corporation Limited - Kochi Refinery				
Sl. No.	Process Unit	Scheme	Energy Savings	GHG Emission Saved (MT/Year)
			Fuel (MT/Year)	
1	DHDS	Improving DHDS RGC extraction	571	1770
2	PFCCU	Scheme to route Fractionator Naphtha bypassing NSU to MS tank	9273	29915
3	MSBP	In MSBP, study the feasibility of reducing HO reboiling load by increasing utilization of NHT splitter O/H vapors in DIH bottom reboiling and reducing AFC load of splitter column while plant in FGH production mode	4010	12768
4	FCCU-ISOM	Routing of FCCU Sour water as WGC wash water (Savings: DM water 20TPH, LP steam 2TPH, Power 22kW)	2461	7773
5	Offsites	Phase 1A - Scope Change line - FO transfer line	304	942
6	DHDT	LSD Pump IG-P-112 A/B Power Optimization by including VFD Load in DMC	0	184
7	VGOHDT	Replacement of one of the Fractionator bottom pump IV-P-204 with High-capacity pump to prevent the running of both pumps.	0	809
8	DCU	Optimisation of E-125 air fins logic to save power	0	464
9	DCU	DCU WGC extraction remote set point and DMC control	1817	5633
10	DCU	Increasing Heater-B Combustion air preheat from 250 to 270 Deg C via DMC strategy optimization resulting in reduced FG consumption	422	1308
11	Offsites	Phase II - Electrical heat tracing project in 6 lines (3 VGO lines, 2 Fuel gas and 1 acid gas lines)	5240	16244
12	SRU	Scheme to route NHT 1 sour water to SWS1	400	1240
13	SRU	Scheme to route MSBP sour water from SWS2 to SWS1	1141	3537
14	Utility	Auto stopping of CT fans based on DT of CWS and CWR in IREP Fans	0	103
15	Utility	Isolation of FO line to CEMP area Process units and its tracing	856	2654
16	VGOHDT	Increasing product LSVGO rundown temperature to 100degC to reduce tempered water flow and steam requirement in LSVGO tanks 32 & 33	169	524
Total savings			26664	85870

GREEN INITIATIVES or RENEWABLE ENERGY Projects

- 3.37 MW floating Solar plant installed Rainwater Harvesting Pond inside BPCL KR.
- 6.0 MWp Ground mounted Solar plant commissioned near to CISF Colony area.
- 3.83 MWp floating solar plant installed at Shore Tank Farm, Puthuvypu, Kochi.
- 18TPD Green Hydrogen Plant commissioned near to CIAL Nedumbassery. Kochi Airport.
- MSW based Compressed Bio-Gas project for Kochi Municipal Corporation.

GREEN COVER AT KOCHI REFINERY: Total green cover area at BPCL, Kochi Refinery is around 441.26 acres.

BPCL, Kochi Refinery has always given highest preference towards care for environment and their protection. The company has already incorporated pollution control measures in their design itself and has also grown an extensive green cover on its periphery and within for which the refinery goes by the name **BPCL Green Kochi Refinery**. Recognizing the company's commitment towards environment care and protection, it has been certified for ISO 14001, which was first in the state of Kerala.

Kochi Refinery maintains an Eco- Park and many theme based parks such as Rainbow Park, Amrutha Sarass, Varshodyan, Kalpkodyan, Herbal Park, Bamboo Park, Miyawaki Forests etc. These were developed as a part of Greenbelt initiatives, and they blend with the nature and is inhabited with diverse trees, flowering plants, herbal trees, and fruit bearing trees. Three number of Butterfly parks were set up towards enhancement of Biodiversity. As part of PDP Project green belt development, we have planted more than 20,000 saplings this year to make greenery in Petrochemical complex. A Mini Miyawaki forest was developed near coke dome and PDP Project area. Further, Kochi Refinery has other dense vegetation in the form of plantation and natural growth which constitutes to the green cover. The diversified green belt within the Refinery has drawn attention from even seasonal migratory birds.

With the reference of Environmental clearance for the project of Integrated Refinery Expansion Project (IREP)), as committed in the EIA/EMP report, the BPCL – KR has done environmental protection measures and community development activities.

Environment Protection Measures:

BPCL Kochi Refinery has made significant investments in environmental protection and pollution control in accordance with the commitments made in the approved Environmental Management Plan (EMP). The major environmental protection measures implemented are:

1. **Wastewater Treatment System:** Advanced Effluent Treatment Plants (ETPs) have been established to ensure effective treatment of wastewater and compliance with the prescribed effluent discharge standards.
2. **Tall Stacks:** Adequate stack heights have been provided for process units and utility boilers to facilitate effective dispersion of gaseous emissions in accordance with CPCB/MoEF&CC guidelines.
3. **Closed Automated Coke Handling System:** A fully enclosed and automated coke conveying and handling system has been implemented to minimize dust emissions while enhancing environmental protection, operational efficiency, and occupational safety. **Online**
4. **Stack Emission Monitoring:** Continuous Emission Monitoring Systems (CEMS) have been installed on all stacks for real-time monitoring of emission parameters and transmission of data to CPCB and KSPCB servers.
5. **Green Belt Development:** Extensive green belt has been developed and is being maintained within and around the refinery premises to mitigate fugitive emissions, improve the local microclimate, and enhance biodiversity.



Air Quality data for the period 1st APRIL 2025 to 30th SEPTEMBER 2025

AAQMS - CISF Quarters (Old W/L) area

Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	16.0	2.1	39.6	28.4	0.9	0.0	0.0	0.0	52.5	32.3
May 2025	13.4	2.2	49.8	36.6	1.0	0.0	0.0	0.0	38.2	22.1
June 2025	15.6	1.6	38.4	27.7	1.3	0.0	0.0	0.0	43.0	16.9
July 2025	21.2	1.773	18.9	19.9	1.0	0.0	0.02	0.5	42.1	19.3
Aug 2025	5.23	0.99	11.59	9.63	0.39	0.00	0.00	0.03	45.41	21.91
Sept 2025	4.2	1.2	22.7	0.1	1.7	0.0	0.0	1.1	46.9	23.2

AAQMS - Jwalagiri Colony area

Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	35.2	0.3	14.1	2.7	0.9	0.0	0.0	0.0	71.6	29.5
May 2025	29.2	0.2	14.0	2.5	1.0	0.0	0.0	0.0	32.9	21.8
June 2025	10.8	0.6	16.5	4.1	1.1	0.0	0.003	0.0	26.4	17.6
July 2025	25.3	0.70	15.3	10.5	1.1	NA	0.02	0.0	27.3	25.3
Aug 2025	19.16	2.82	17.30	8.12	1.01	NA	0.02	0.00	28.90	19.60
Sept 2025	22.6	3.2	15.8	4.3	1.6	0.0	0.0	0.0	33.4	22.3

AAQMS - DHDS Chalikkara Gate

Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	39.7	14.4	22.2	0.0	0.8	0.0	0.0	0.0	42.5	30.1
May 2025	16.1	1.8	4.3	0.1	0.7	0.0	0.0	0.0	38.8	21.6
June 2025	22.3	3.9	10.2	0.8	0.8	0.0	0.0	0.0	29.5	16.3
July 2025	27.6	7.09	4.6	0.1	1.2	NA	0.02	0.0	30.8	17.3
Aug 2025	28.31	10.59	16.55	1.76	0.40	0.22	0.00	1.04	35.21	19.51
Sept 2025	12.01	21.46	22.9	8.02	0.47	0.013	0.01	0.013	41.98	19.8


30.06.2026

Air Quality data for the period 1 st APRIL 2025 to 30 th SEPTEMBER 2025										
AAQMS - Marketing Office area										
Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	32.0	1.6	27.0	4.7	1.0	0.0	0.0	0.0	54.9	22.8
May 2025	34.5	2.4	23.2	6.0	1.2	0.0	0.0	Faulty	23.2	23.2
June 2025	35.7	3.2	24.4	6.8	2.1	0.0	0.0	0.0	31.0	22.0
July 2025	28.5	1.98	22.8	4.8	1.0	0.0	0.0	0.0	31.9	22.9
Aug 2025	25.3	4.79	21.8	8.8	0.3	0.0	0.0	0.0	34.0	21.9
Sept 2025	20.6	5.1	19.0	9.5	0.4	0.0	0.0	0.0	36.0	20.4
AAQMS - NHT CCR - 01 South side										
Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	5.6	1.4	0.65	0.10	0.18	NA	0.0	0.90	51.6	27.3
May 2025	5.0	2.1	7.9	1.5	0.0	NA	0.0	1.3	67.1	12.8
June 2025	4.6	1.9	0.7	0.1	0.20	NA	0.0	0.7	53.6	23.6
July 2025	6.21	2.72	30.1	1.89	0.46	NA	1.47	0.32	38.31	16.42
Aug 2025	6.10	2.20	26.2	1.23	0.32	NA	0.37	0.45	33.20	18.20
Sept 2025	6.1	2.7	0.0	0.0	0.40	NA	1.3	0.20	42.1	26.3
AAQMS - PDPP side										
Parameter	SO2	H2S	NOx	NH3	CO	Benzene	Methane	NMHC	PM 10	PM 2.5
Units	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	PPM	PPM	µg/m3	µg/m3
Limit	Daily 80 Annual 50	No limits are prescribed	Daily 80 Annual 40	Daily 400 Annual 100	8 hrs - 2 4 hrs - 4	Daily 05 Annual 05	No limits are prescribed		Daily 100 Annual 60	Daily 60 Annual 40
Apr 2025	18.5	0.0	10.9	0.32	1.6	0.0	0.0	0.0	24.9	41.1
May 2025	17.4	0.0	8.2	3.3	1.1	0.0	0.0	0.0	31.5	18.2
June 2025	19.5	0.0	3.7	7.0	1.6	0.0	0.019	0.0	19.8	12.6
July 2025	23.0	0.71	68.9	4.6	1.4	0.0	0.02	0.0	33.8	18.3
Aug 2025	27.2	0.00	10.1	3.3	0.8	0.0	0.02	0.0	31.7	16.9
Sept 2025	34.1	0.0	7.3	2.4	0.8	0.0	0.0	0.0	27.2	9.2


30.06.2026

Water discharge Quality data for the period 1st APRIL 2025 to 30th SEPTEMBER 2025

Parameter	pH	BOD	COD	Oil & Grease	Sulphide	TSS	Phenol
Spec. Limit	6-8.5	15	125	5	0.5	20	0.35
Unit	**	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
April - 2025	7.34	14.2	43.53	3.16	0.40	16.97	0.17
May – 2025	7.4	11.6	35	3.1	0.40	13	19.3
June - 2025	7.3	11.5	35	2.99	0.40	16.1	0.13
July - 2025	7.3	12	36	2.95	0.40	15	0.13
Aug - 2025	7.36	11.45	34.32	2.89	0.40	13.4	0.13
Sept - 2025	7.36	11.15	34.33	2.86	0.40	16.3	0.13

 30.06.2026



**Bharat Petroleum Corporation Limited
Kochi Refinery**

FORM 4

[See rules 6(5), 13(8), 16(6) and 20(2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

Statement for the Period 2025 -26

1. Name and address of facility	BPCL Kochi Refinery Post Bag No.2, Ambalamugal, Kochi, Kerala
2. Authorisation No. (CTO) and date of Issue	1. PCB/HO/EKM-II/ICO-R/03/2022 dated 05.02.2022, for the IREP units. 2. PCB/HO/EKM-2/ICO-R/07/2023 dated 08.08.2023, for the Old Refinery units 3. KSPCB/ER1/ICO/10039049/2023 dated 23/09/2023 for the Shore Tank Farm project. 4. KSPCB/ER2/ICO/10034459/2023 dated 18/10/2023 for Heat Traced Pipeline project. 5. PCB/HO/EKM-II/ICO-R/05/2022, dated 31/03/2022 for PDPP 6. PCB/HO/EKM-II/ICO-R/06/2022 dated 07/04/2022 for Motor Spirit Block project.
7. Name of the occupier / authorised person and full address with telephone no., fax number and e-mail	Chacko. M Jose Executive Director - BPCL Kochi Refinery Post Bag No.2, Ambalamugal, Kochi Ph: 0484-2722061 Extn: 1102 Fax: 0484 2721095
8. Production during the year (product wise), wherever applicable:	Total Feed charge 17656031 MT



**Bharat Petroleum Corporation Limited
Kochi Refinery**

Part A - To be filled by hazardous waste generators.

Part - A	To be filled by Hazardous category wise		
1	Total quantity Generated: Waste Category wise		
Sl. No:	Hazardous Waste item	Schedule & Category	Quantity in (MT)
1	PFCCU / FCCU Cat. Fines (On wet basis)	1-4.2	533.05
2	Oily Sludge: (Tank sludge) / shutdown sludge	1-4.1	578.885
3	Spent Charcoal	1- 4.2	28.38
4	Spent catalyst & Alumina Balls	1-4.2	81.51
5	Spent Resin from DM plant	**	12.47
6	FCCU & ARU spent clay	1-4.5	264.19
7	Contaminated Insulation wool	1-5.2	351.98
8	Soiled Sulphur waste	III- H4.1	344.55
9	Sulphur Guard N HGU / Chloride Guard	1-4.2	17.6
10	Poly propylene / poly Amide Filter element	1-22.2	31.03
11	Empty Chemical bags / drums	1-33.1	56.49
12	Non -Spec Acrylic Acid Polymer	1-22.2	228.55
13	Flue gas Contaminated Refractory Material	1-4.2	19.53
14	Bio-remediated sludge	**	92.77
15	Chemical / Oil Sludge from ETP	1-35.3	8373.82
Total (MT)			11014.805

** Not Classified as Hazardous waste



**Bharat Petroleum Corporation Limited
Kochi Refinery**

Part - A (2)	Quantity Dispatched		
	To Disposal Facility (TSDF)		
Sl. No:	Hazardous Waste item	Schedule & Category	Quantity in MT
1	PFCCU / FCCU Cat. Fines (On wet basis)	1-4.2	533.05
2	Oily Sludge: (Tank sludge) / shutdown sludge	1-4.1	578.885
3	Spent Charcoal	1- 4.2	28.38
4	Spent catalyst & Alumina Balls	1-4.2	81.51
5	Spent Resin from DM plant	**	12.47
6	FCCU & ARU spent clay	1-4.5	264.19
7	Contaminated Insulation wool	1-5.2	351.98
8	Soiled Sulphur waste	III- H4.1	344.55
9	Sulphur Guard N HGU / Chloride Guard	1-4.2	17.6
10	Poly propylene / poly Amide Filter element	I-22.2	31.03
11	Empty Chemical bags / drums	I-33.1	56.49
12	Non -Spec Acrylic Acid Polymer	I-22.2	228.55
13	Flue gas Contaminated Refractory Material	1-4.2	19.53
14	Bio-remediated sludge	**	92.77
	TOTAL		2640.985

Part - A (3)	Quantity Dispatched		
	To Recycler or Re-processor		
Sl. No:	Hazardous Waste item	Schedule & Category	Quantity in (MT)
1	NIL	N A	0.00
	TOTAL		0.00



**Bharat Petroleum Corporation Limited
Kochi Refinery**

Part - A	Quantity Dispatched		
(4)	To Others		
Sl. No:	Hazardous Waste item	Schedule & Category	Quantity in (MT)
1	NIL	N A	0
TOTAL			0

Part - A	Quantity Dispatched		
(5)	Consumed in-house / Storage		
Sl. No:	Hazardous Waste item: Re-processed in-house	Schedule & Category	Quantity in MT
1	Chemical / Oil Sludge from ETP to Delayed Coker Unit (DCU)	1-35.3	8373.82
TOTAL			8373.82
1	Quantity in storage at the end of the year	NA	0

Part B.

To be filled by Treatment, storage, and disposal facility operators -----N. A

1. Total quantity received -
2. Quantity in stock at the beginning of the year -
3. Quantity treated -
4. Quantity disposed in landfills as such and after treatment -
5. Quantity incinerated (if applicable) -
6. Quantity processed other than specified above -
7. Quantity in storage at the end of the year -

Part C.

To be filled by recyclers or co-processors or other users. -----N. A

1. Quantity of waste received during the year -
 - a. Domestic sources
 - b. imported (if applicable)
2. Quantity in stock at the beginning of the year -
3. Quantity recycled or co-processed or used -
4. Quantity of products dispatched (wherever applicable) -

5. Quantity of waste generated -
 6. Quantity of waste disposed -
 7. Quantity re-exported (wherever applicable)
 8. Quantity in storage at the end of the year
-

Signature of the Occupier or Authorized person of the Organization



Suresh K S

Dy. General Manager – HSE (Environment)

Date : 29.06.2026

Place : Ambalamugal



QUALITY CONTROL DEPARTMENT
BPCL-KOCHI REFINERY, AMBALAMUGAL

BOREWELL WATER TEST REPORT

Bore well Water-16

Date of Sample: 10.02.2026

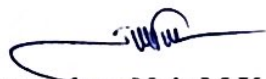
Date of Testing: 13.02.2026

KR. TECH.QC.26. BWEL.WATR

SI No	Test Parameters	Unit	Method	Result	Acceptable limit
1	pH	-	IS 3025 (P:11)	7.3	6.5 – 8.5
2	Oil	mg/L	IS 3025 (P:39)	Nil	nil
Metals					
3	Silver (as Ag)	mg/L	IS13428 Annex J	BDL (MDL=0.005)	0.1 (Max)
4	Aluminium (as Al)	mg/L	IS 3025 (P:55)	BDL(MDL=0.002)	0.03 (Max)
5	Boron (as B)	mg/L	IS 3025 (P:57)	BDL(MDL=0.01)	0.5 (Max)
6	Barium (as Ba)	mg/L	IS13428 Annex F	BDL(MDL=0.01)	0.7 (Max)
7	Calcium (as Ca)	mg/L	IS 3025 (P:40)	19	75 (Max)
8	Cadmium (as Cd)	mg/L	IS 3025 (P:41)	BDL(MDL=0.001)	0.003 (Max)
9	Chromium (as Cr)	mg/L	IS 3025 (P:52)	BDL(MDL=0.01)	0.05 (Max)
10	Copper (as Cu)	mg/L	IS 3025 (P:42)	BDL(MDL=0.01)	0.05 (Max)
11	Iron (as Fe)	mg/L	IS 3025 (P:53)	0.09	0.3 (Max)
12	Magnesium (as Mg)	mg/L	IS 3025 (P:46)	2.9	30 (Max)
26	Manganese (as Mn)	mg/L	IS 3025 (P:59)	BDL(MDL=0.01)	0.1 (Max)
13	Nickel (as Ni)	mg/L	IS 3025 (P:54)	BDL(MDL=0.01)	0.02 (Max)
14	Molybdenum (as Mo)	mg/L	IS 3025 (P:02)	BDL (MDL=0.002)	0.07 (Max)
15	Lead (as Pb)	mg/L	IS 3025 (P:47)	BDL(MDL=0.01)	0.01 (Max)
16	Zinc (as Zn)	mg/L	IS 3025 (P:49)	0.02	5 (Max)
17	Arsenic (as As)	mg/L	IS 3025 (P:37)	BDL(MDL0.005)	0.01 (Max)
18	Mercury (as Hg)	mg/L	IS 3025 (P:48)	BDL(MDL0.0001)	0.001(Max)
19	Selenium (as Se)	mg/L	IS 3025 (P:56)	BDL(MDL=0.001)	0.1 (Max)
20	Antimony (as Sb)	mg/L	APHA:3113B	BDL(MDL=0.001)	Max0.1

BDL: Below Detection Limit

MDL: Minimum Detection Limit


Jayendran Nair M K
Manager (Quality Control)



QUALITY CONTROL DEPARTMENT
BPCL-KOCHI REFINERY, AMBALAMUGAL

BOREWELL WATER TEST REPORT

Bore well Water-26

Date of Sample: 09.01.2026

Date of Testing: 12.01.2026

KR. TECH.QC.26. BWEL.WATR

Sl No	Test Parameters	Unit	Method	Result	Acceptable limit
1	pH	-	IS 3025 (P:11)	7.2	6.5 – 8.5
2	Oil	mg/L	IS 3025 (P:39)	Nil	nil
Metals					
3	Silver (as Ag)	mg/L	IS13428 Annex J	BDL (MDL=0.005)	0.1 (Max)
4	Aluminium (as Al)	mg/L	IS 3025 (P:55)	BDL(MDL=0.002)	0.03 (Max)
5	Boron (as B)	mg/L	IS 3025 (P:57)	BDL(MDL=0.01)	0.5 (Max)
6	Barium (as Ba)	mg/L	IS13428 Annex F	BDL(MDL=0.01)	0.7 (Max)
7	Calcium (as Ca)	mg/L	IS 3025 (P:40)	24	75 (Max)
8	Cadmium (as Cd)	mg/L	IS 3025 (P:41)	BDL(MDL=0.001)	0.003 (Max)
9	Chromium (as Cr)	mg/L	IS 3025 (P:52)	BDL(MDL=0.01)	0.05 (Max)
10	Copper (as Cu)	mg/L	IS 3025 (P:42)	BDL(MDL=0.01)	0.05 (Max)
11	Iron (as Fe)	mg/L	IS 3025 (P:53)	0.14	0.3 (Max)
12	Magnesium (as Mg)	mg/L	IS 3025 (P:46)	2.7	30 (Max)
26	Manganese (as Mn)	mg/L	IS 3025 (P:59)	BDL(MDL=0.01)	0.1 (Max)
13	Nickel (as Ni)	mg/L	IS 3025 (P:54)	BDL(MDL=0.01)	0.02 (Max)
14	Molybdenum (as Mo)	mg/L	IS 3025 (P:02)	BDL (MDL=0.002)	0.07 (Max)
15	Lead (as Pb)	mg/L	IS 3025 (P:47)	BDL(MDL=0.01)	0.01 (Max)
16	Zinc (as Zn)	mg/L	IS 3025 (P:49)	0.03	5 (Max)
17	Arsenic (as As)	mg/L	IS 3025 (P:37)	BDL(MDL0.005)	0.01 (Max)
18	Mercury (as Hg)	mg/L	IS 3025 (P:48)	BDL(MDL0.0001)	0.001(Max)
19	Selenium (as Se)	mg/L	IS 3025 (P:56)	BDL(MDL=0.001)	0.1 (Max)
20	Antimony (as Sb)	mg/L	APHA:3113B	BDL(MDL=0.001)	Max0.1

BDL: Below Detection Limit

MDL: Minimum Detection Limit


Jayendran Nair M K
Manager (Quality Control)



QUALITY CONTROL DEPARTMENT
BPCL-KOCHI REFINERY, AMBALAMUGAL

BOREWELL WATER TEST REPORT

Bore well Water-12

Date of Sample: 28.01.2026

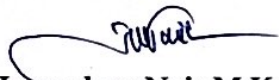
Date of Testing: 31.01.2026

KR. TECH.QC.26. BWEL.WATR

Sl No	Test Parameters	Unit	Method	Result	Acceptable limit
1	pH	-	IS 3025 (P:11)	6.9	6.5 – 8.5
2	Oil	mg/L	IS 3025 (P:39)	Nil	nil
Metals					
3	Silver (as Ag)	mg/L	IS13428 Annex J	BDL (MDL=0.005)	0.1 (Max)
4	Aluminium (as Al)	mg/L	IS 3025 (P:55)	BDL(MDL=0.002)	0.03 (Max)
5	Boron (as B)	mg/L	IS 3025 (P:57)	BDL(MDL=0.01)	0.5 (Max)
6	Barium (as Ba)	mg/L	IS13428 Annex F	BDL(MDL=0.01)	0.7 (Max)
7	Calcium (as Ca)	mg/L	IS 3025 (P:40)	18	75 (Max)
8	Cadmium (as Cd)	mg/L	IS 3025 (P:41)	BDL(MDL=0.001)	0.003 (Max)
9	Chromium (as Cr)	mg/L	IS 3025 (P:52)	BDL(MDL=0.01)	0.05 (Max)
10	Copper (as Cu)	mg/L	IS 3025 (P:42)	BDL(MDL=0.01)	0.05 (Max)
11	Iron (as Fe)	mg/L	IS 3025 (P:53)	0.11	0.3 (Max)
12	Magnesium (as Mg)	mg/L	IS 3025 (P:46)	3.0	30 (Max)
26	Manganese (as Mn)	mg/L	IS 3025 (P:59)	BDL(MDL=0.01)	0.1 (Max)
13	Nickel (as Ni)	mg/L	IS 3025 (P:54)	BDL(MDL=0.01)	0.02 (Max)
14	Molybdenum (as Mo)	mg/L	IS 3025 (P:02)	BDL (MDL=0.002)	0.07 (Max)
15	Lead (as Pb)	mg/L	IS 3025 (P:47)	BDL(MDL=0.01)	0.01 (Max)
16	Zinc (as Zn)	mg/L	IS 3025 (P:49)	0.03	5 (Max)
17	Arsenic (as As)	mg/L	IS 3025 (P:37)	BDL(MDL0.005)	0.01 (Max)
18	Mercury (as Hg)	mg/L	IS 3025 (P:48)	BDL(MDL0.0001)	0.001(Max)
19	Selenium (as Se)	mg/L	IS 3025 (P:56)	BDL(MDL=0.001)	0.1 (Max)
20	Antimony (as Sb)	mg/L	APHA:3113B	BDL(MDL=0.001)	Max0.1

BDL: Below Detection Limit

MDL: Minimum Detection Limit


Jayendran Nair M K
Manager (Quality Control)



QUALITY CONTROL DEPARTMENT
BPCL-KOCHI REFINERY, AMBALAMUGAL

BOREWELL WATER TEST REPORT

Bore well Water-44

Date of Sample: 07.11.2025

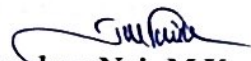
Date of Testing: 10.11.2025

KR. TECH.QC.26. DRINK.WATR

Sl No	Test Parameters	Unit	Method	Result	Acceptable limit
1	pH	-	IS 3025 (P:11)	6.9	6.5 – 8.5
2	Oil	mg/L	IS 3025 (P:39)	nil	nil
Metals					
3	Silver (as Ag)	mg/L	IS13428 Annex J	BDL (MDL=0.005)	0.1 (Max)
4	Aluminium (as Al)	mg/L	IS 3025 (P:55)	BDL(MDL=0.002)	0.03 (Max)
5	Boron (as B)	mg/L	IS 3025 (P:57)	BDL(MDL=0.01)	0.5 (Max)
6	Barium (as Ba)	mg/L	IS13428 Annex F	BDL(MDL=0.01)	0.7 (Max)
7	Calcium (as Ca)	mg/L	IS 3025 (P:40)	20	75 (Max)
8	Cadmium (as Cd)	mg/L	IS 3025 (P:41)	BDL(MDL=0.001)	0.003 (Max)
9	Chromium (as Cr)	mg/L	IS 3025 (P:52)	BDL(MDL=0.01)	0.05 (Max)
10	Copper (as Cu)	mg/L	IS 3025 (P:42)	BDL(MDL=0.01)	0.05 (Max)
11	Iron (as Fe)	mg/L	IS 3025 (P:53)	0.12	0.3 (Max)
12	Magnesium (as Mg)	mg/L	IS 3025 (P:46)	1.9	30 (Max)
26	Manganese (as Mn)	mg/L	IS 3025 (P:59)	BDL(MDL=0.01)	0.1 (Max)
13	Nickel (as Ni)	mg/L	IS 3025 (P:54)	BDL(MDL=0.01)	0.02 (Max)
14	Molybdenum (as Mo)	mg/L	IS 3025 (P:02)	BDL (MDL=0.002)	0.07 (Max)
15	Lead (as Pb)	mg/L	IS 3025 (P:47)	BDL(MDL=0.01)	0.01 (Max)
16	Zinc (as Zn)	mg/L	IS 3025 (P:49)	0.03	5 (Max)
17	Arsenic (as As)	mg/L	IS 3025 (P:37)	BDL(MDL0.005)	0.01 (Max)
18	Mercury (as Hg)	mg/L	IS 3025 (P:48)	BDL(MDL0.0001)	0.001(Max)
19	Selenium (as Se)	mg/L	IS 3025 (P:56)	BDL(MDL=0.001)	0.1 (Max)
20	Antimony (as Sb)	mg/L	APHA:3113B	BDL(MDL=0.001)	Max0.1

BDL: Below Detection Limit

MDL: Minimum Detection Limit


Jayendran Nair M K
Manager (Quality Control)



QUALITY CONTROL DEPARTMENT
BPCL-KOCHI REFINERY, AMBALAMUGAL

BOREWELL WATER TEST REPORT

Bore well Water-31

Date of Sample: 11.10.2025

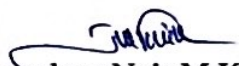
Date of Testing: 13.10.2025

KR. TECH.QC.26. DRINK.WATR

Sl No	Test Parameters	Unit	Method	Result	Acceptable limit
1	pH	-	IS 3025 (P:11)	7.4	6.5 – 8.5
2	Oil	mg/L	IS 3025 (P:39)	Nil	nil
Metals					
3	Silver (as Ag)	mg/L	IS13428 Annex J	BDL (MDL=0.005)	0.1 (Max)
4	Aluminium (as Al)	mg/L	IS 3025 (P:55)	BDL(MDL=0.002)	0.03 (Max)
5	Boron (as B)	mg/L	IS 3025 (P:57)	BDL(MDL=0.01)	0.5 (Max)
6	Barium (as Ba)	mg/L	IS13428 Annex F	BDL(MDL=0.01)	0.7 (Max)
7	Calcium (as Ca)	mg/L	IS 3025 (P:40)	22	75 (Max)
8	Cadmium (as Cd)	mg/L	IS 3025 (P:41)	BDL(MDL=0.001)	0.003 (Max)
9	Chromium (as Cr)	mg/L	IS 3025 (P:52)	BDL(MDL=0.01)	0.05 (Max)
10	Copper (as Cu)	mg/L	IS 3025 (P:42)	BDL(MDL=0.01)	0.05 (Max)
11	Iron (as Fe)	mg/L	IS 3025 (P:53)	0.09	0.3 (Max)
12	Magnesium (as Mg)	mg/L	IS 3025 (P:46)	2.8	30 (Max)
26	Manganese (as Mn)	mg/L	IS 3025 (P:59)	BDL(MDL=0.01)	0.1 (Max)
13	Nickel (as Ni)	mg/L	IS 3025 (P:54)	BDL(MDL=0.01)	0.02 (Max)
14	Molybdenum (as Mo)	mg/L	IS 3025 (P:02)	BDL (MDL=0.002)	0.07 (Max)
15	Lead (as Pb)	mg/L	IS 3025 (P:47)	BDL(MDL=0.01)	0.01 (Max)
16	Zinc (as Zn)	mg/L	IS 3025 (P:49)	0.04	5 (Max)
17	Arsenic (as As)	mg/L	IS 3025 (P:37)	BDL(MDL=0.005)	0.01 (Max)
18	Mercury (as Hg)	mg/L	IS 3025 (P:48)	BDL(MDL=0.0001)	0.001(Max)
19	Selenium (as Se)	mg/L	IS 3025 (P:56)	BDL(MDL=0.001)	0.1 (Max)
20	Antimony (as Sb)	mg/L	APHA:3113B	BDL(MDL=0.001)	Max0.1

BDL: Below Detection Limit

MDL: Minimum Detection Limit


Jayendran Nair M K
Manager (Quality Control)



Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

15.11.2025

Effluent monitoring report for the Period 01.10.2025 to 31.10.2025 attached herewith.

A. Treated Effluent Standards

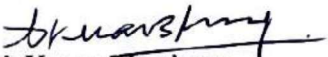
Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for Non-conformity	Action taken proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for Non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	6836	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:


Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)

Treated Effluent Water Analysis Report for the Month of October 2025

ULR No. TC148142500006603F

Issue Date 20-10-2025

Issued To

M/s Bharat Petroleum Corporation Limited

Kochi Refinery

Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	pH	**	7.72	6 - 8.5	IS:3025 (P-11)
2	Oil & Grease	mg/l	ND	5.0	IS:3025 (P-39)
3	BOD (3days) 27°C	mg/l	6	15.0	IS:3025 (P-44)
4	Total Suspended Solids (TSS)	mg/l	14	20.0	IS:3025 (P-17)
5	Phenols	mg/l	ND	0.4	IS:3025 (P-43)
6	Sulfides	mg/l	ND	0.5	IS:3025 (P-29)
7	Chemical Oxygen Demand (COD)	mg/l	34	125.0	IS:3025 (P-58)
8	Cyanide (CN)	mg/l	ND	0.2	IS:3025 (P-27)
9	Ammonia as Nitrogen	mg/l	0.19	15.0	IS:3025 (P-34)
10	Total Kjeldahl Nitrogen (TKN)	mg/l	0.28	40.0	IS:3025 (P-34)
11	Phosphate (P)	mg/l	ND	3.0	IS:3025 (P-31)
12	Chromium (Cr) (Hexavalent)	mg/l	ND	0.1	APHA 23 rd Ed.
13	Chromium (Cr) (Total)	mg/l	ND	2.0	APHA 23 rd Ed.
14	Lead (Pb)	mg/l	ND	0.1	APHA 23 rd Ed.
15	Mercury (Hg)	mg/l	ND	0.0	APHA 23 rd Ed.
16	Zinc (Zn)	mg/l	0.12	5.0	APHA 23 rd Ed.
17	Nickel (Ni)	mg/l	ND	1.0	APHA 23 rd Ed.
18	Copper Cu	mg/l	ND	1.0	APHA 23 rd Ed.

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....



TC-14814



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labsnitya@gmail.com

www.nityalab.com

Treated Effluent Water Analysis Report for the Month of October 2025

Test Report No. 202510090110	Issued To
Issue Date: 20-10-2025	M/s Bharat Petroleum Corporation Limited
	Kochi Refinery
	Ambalamugal, Kochi, Pin-682 302
Ref. No.: PO. No. 4601005329 dated 07.03.2024	
Sampling done by: Nitya Laboratories	

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	Vanadium (V)	mg/l	ND	0.2	IS:3025 (P-56)
2	Benzene	mg/l	ND	100.0	USEPA-8270C
3	Benzo (a) - Pyrene	mg/l	ND	200.0	USEPA-8270C

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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CORPORATE OFFICE & CENTRAL LABORATORIES :-

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QUALITY CONTROL LABORATORY
Bharat Petroleum Corporation Ltd
KOCHI REFINERY

Report of Analysis of Treated Effluent water from Outlet A for the month of October 2025.

Sl. No.	Characteristics	DATE & RESULT																															
		Tolerance Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	p ^H	6 to 8.5	7.90	8.30	8.30	7.60	7.80	7.50	7.30	7.70	7.60	7.70	7.80	7.00	7.20	7.40	7.40	7.40	7.70	7.50	7.60	7.50	7.80	7.90	7.40	7.90	7.60	8.30	7.80	7.20	7.60	7.70	7.60
2	Sulphides (as S)	0.5 mg/l Max	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
3	COD	125mg/mlMax	34	38	32	38	40	37	36	34	39	41	36	32	36	38	36	34	36	32	35	34	34	32	34	32	33	39	37	35	36	34	35
4	Cyanide	0.2mg/l Max	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
5	Suspended Solids	20 mg/l Max	19	8	10	12	14	19	16	18	17	18	17	15	18	17	14	17	18	20	19	18	18	17	16	18	17	18	18	15	18	14	14
6	Oil & Grease	5 mg/l Max	3.0	2.6	3.0	3.2	3.0	3.1	3.0	2.8	2.6	2.4	3.0	3.0	3.0	2.8	3.2	3.0	3.0	2.8	2.8	3.0	2.8	3.0	2.8	3.0	3.0	2.8	3.2	3.0	3.2	3.2	3.2
7	B.O.D (3 days @ 27°C)	15 mg/l Max	10	12	10	12	12	12	12	12	11	12	12	10	12	12	12	10	12	11	12	11	11	11	10	10	11	13	12	11	12	12	12
8	Phenolic Compounds	0.35 mg/l Max	0.13	0.10	0.12	0.14	0.12	0.14	0.13	0.14	0.13	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.14	0.12	0.13	0.12	0.13	0.14	0.12	0.14	0.13	0.13	0.12	0.14	0.13	0.13	0.13

Saleev.b
Saleev.b
Chief Manager (QC)
BPCL-Kochi Refinery
Ambalamugal - 682302.



Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

15.12.2025

Effluent monitoring report for the Period 01.11.2025 to 30.11.2025 attached herewith.

A. Treated Effluent Standards

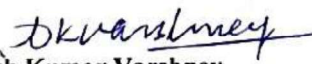
Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for Non-conformity	Action taken proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for Non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	6426	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:


Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)



QUALITY CONTROL LABORATORY
Bharat Petroleum Corporation Ltd
KOCHI REFINERY

Report of Analysis of Treated Effluent water from Outlet A for the month of November 2025.

Sl No.	Characteristics	DATE & RESULT																															
		Tolerance Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	p ^H	6 to 8.5	8.50	8.40	8.30	7.40	7.50	7.60	7.80	7.80	8.40	7.80	7.60	8.10	7.40	7.90	7.80	7.50	7.50	7.90	8.30	7.50	8.10	8.10	8.10	8.20	8.10	8.20	8.30	8.40	8.40	8.30	8.40
2	Sulphides (as S)	0.5 mg/l Max	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
3	COD	125mgm/lMax	36	34	33	34	35	33	34	35	33	36	34	33	36	32	34	36	33	34	34	33	32	36	32	32	34	34	32	34	32	34	38
4	Cyanide	0.2mg/l Max	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
5	Suspended Solids	20 mg/l Max	18	18	17	18	18	19	19	18	18	14	18	19	17	16	18	13	7	12	14	19	10	19	18	18	17	12	17	14	8	13	
6	Oil & Grease	5 mg/l Max	3.0	3.0	3.0	3.2	3.0	3.2	2.8	3.0	3.0	2.8	3.0	3.2	3.0	2.8	2.8	3.0	2.8	3.0	3.0	2.8	2.8	3.0	3.0	3.0	2.8	2.8	2.8	2.8	3.0	2.8	
7	B.O.D (3 days @ 27°C)	15 mg/l Max	12	11	11	11	12	11	11	12	11	12	11	11	10	10	11	12	13	11	11	10	11	12	10	11	12	10	11	11	11	12	
8	Phenolic Compounds	0.35 mg/l Max	0.13	0.14	0.13	0.14	0.14	0.13	0.14	0.13	0.14	0.12	0.14	0.13	0.13	0.12	0.14	0.13	0.14	0.12	0.12	0.14	0.13	0.12	0.13	0.12	0.13	0.14	0.12	0.10	0.10	0.12	

Saleev.D.
Chief Manager (QC)
BPCL-Kochi Refinery
Ambalamugal - 682302.

Treated Effluent Water Analysis Report for the Month of November 2025

ULR No. TC148142500007721F

Issue Date: 08-12-2025

Issued To

M/s Bharat Petroleum Corporation Limited

Kochi Refinery

Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	pH	**	7.66	6 - 8.5	IS:3025 (P-11)
2	Oil & Grease	mg/l	ND	5.0	IS:3025 (P-39)
3	BOD (3days) 27°C	mg/l	7	15.0	IS:3025 (P-44)
4	Total Suspended Solids (TSS)	mg/l	16	20.0	IS:3025 (P-17)
5	Phenols	mg/l	ND	0.4	IS:3025 (P-43)
6	Sulfides	mg/l	ND	0.5	IS:3025 (P-29)
7	Chemical Oxygen Demand (COD)	mg/l	38	125.0	IS:3025 (P-58)
8	Cyanide (CN)	mg/l	ND	0.2	IS:3025 (P-27)
9	Ammonia as Nitrogen	mg/l	0.21	15.0	IS:3025 (P-34)
10	Total Kjeldahl Nitrogen (TKN)	mg/l	0.31	40.0	IS:3025 (P-34)
11	Phosphate (P)	mg/l	ND	3.0	IS:3025 (P-31)
12	Chromium (Cr) (Hexavalent)	mg/l	ND	0.1	APHA 23 rd Ed.
13	Chromium (Cr) (Total)	mg/l	ND	2.0	APHA 23 rd Ed.
14	Lead (Pb)	mg/l	ND	0.1	APHA 23 rd Ed.
15	Mercury (Hg)	mg/l	ND	0.0	APHA 23 rd Ed.
16	Zinc (Zn)	mg/l	0.10	5.0	APHA 23 rd Ed.
17	Nickel (Ni)	mg/l	ND	1.0	APHA 23 rd Ed.
18	Copper Cu)	mg/l	ND	1.0	APHA 23 rd Ed.

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....



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

CORPORATE OFFICE & CENTRAL LABORATORIES :-

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Treated Effluent Water Analysis Report for the Month of November 2025

Test Report No. 202511280110	Issued To
Issue Date: 08-12-2025	M/s Bharat Petroleum Corporation Limited
	Kochi Refinery
	Ambalamugal, Kochi, Pin-682 302
Ref. No.: PO. No. 4601005329 dated 07.03.2024	
Sampling done by: Nitya Laboratories	

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	Vanadium (V)	mg/l	ND	0.2	IS:3025 (P-56)
2	Benzene	mg/l	ND	100.0	USEPA-8270C
3	Benzo (a) - Pyrene	mg/l	ND	200.0	USEPA-8270C

Remarks: ND-Not Detected, DL-Detection Limit

..... End of the Report.....

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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

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Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

15.01.2026

Effluent monitoring report for the Period 01.12.2025 to 31.12.2025 attached herewith.

A. Treated Effluent Standards

Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for Non-conformity	Action taken proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for Non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	6371	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:

Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)

Treated Effluent Water Analysis Report for the Month of December 2025

ULR No. TC148142500007900F
Issue Date 19-12-2025

Issued To
M/s Bharat Petroleum Corporation Limited
Kochi Refinery
Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	pH	**	7.74	6 - 8.5	IS 3025 (P-11)
2	Oil & Grease	mg/l	ND	5.0	IS 3025 (P-39)
3	BOD (3days) 27°C	mg/l	6	15.0	IS 3025 (P-44)
4	Total Suspended Solids (TSS)	mg/l	18	20.0	IS 3025 (P-17)
5	Phenols	mg/l	ND	0.4	IS 3025 (P-43)
6	Sulfides	mg/l	ND	0.5	IS 3025 (P-29)
7	Chemical Oxygen Demand (COD)	mg/l	30	125.0	IS 3025 (P-58)
8	Cyanide (CN)	mg/l	ND	0.2	IS 3025 (P-27)
9	Ammonia as Nitrogen	mg/l	0.40	15.0	IS 3025 (P-34)
10	Total Kjeldahl Nitrogen (TKN)	mg/l	0.56	40.0	IS 3025 (P-34)
11	Phosphate (P)	mg/l	ND	3.0	IS 3025 (P-31)
12	Chromium (Cr) (Hexavalent)	mg/l	ND	0.1	APHA 23 rd Ed.
13	Chromium (Cr) (Total)	mg/l	ND	2.0	APHA 23 rd Ed.
14	Lead (Pb)	mg/l	ND	0.1	APHA 23 rd Ed.
15	Mercury (Hg)	mg/l	ND	0.0	APHA 23 rd Ed.
16	Zinc (Zn)	mg/l	0.14	5.0	APHA 23 rd Ed.
17	Nickel (Ni)	mg/l	ND	1.0	APHA 23 rd Ed.
18	Copper Cu)	mg/l	ND	1.0	APHA 23 rd Ed.

Remark: ND-Not Detected, DL-Defection Limit

..... End of the Report



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

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Treated Effluent Water Analysis Report for the Month of December 2025

Test Report No. 202512100110

Issue Date: 19-12-2025

Issued To

M/s Bharat Petroleum Corporation Limited

Kochi Refinery

Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	Vanadium (V)	mg/l	ND	0.2	IS 3025 (P-56)
2	Benzene	mg/l	ND	100.0	USEPA-8270C
3	Benzo (a) - Pyrene	mg/l	ND	200.0	USEPA-8270C

Remark:

ND-Not Detected, DL-Detection Limit

..... End of the Report.....



NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of the organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited to the amount paid only. If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-8873524093

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QUALITY CONTROL LABORATORY
Bharat Petroleum Corporation Ltd
KOCHI REFINERY

Report of Analysis of Treated Effluent water from Outlet A for the month of December 2025.

Sl. No.	Characteristics	Tolerance Limit	DATE & RESULT																																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
1	p ^H	6 to 8.5	7.80	7.90	7.80	7.60	8.00	8.00	7.70	8.10	8.30	7.80	7.70	7.90	7.50	8.10	7.80	7.90	8.00	8.10	8.20	8.20	8.20	8.20	7.80	8.20	7.70	7.40	7.80	8.40	7.80	7.90	8.00	7.50	
2	Sulphides (as S)	0.5 mg/l Max	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
3	COD	125mgm/lMax	34	36	33	38	34	36	34	36	33	34	36	34	36	34	36	35	38	36	32	34	36	32	30	32	30	32	30	32	30	32	30	32	30
4	Cyanide	0.2mg/l Max	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
5	Suspended Solids	20 mg/l Max	19	8	19	19	13	19	18	19	16	13	13	18	19	12	19	19	18	12	14	19	18	15	19	17	16	14	19	18	19	18	18	18	
6	Oil & Grease	5 mg/l Max	2.8	3.0	3.0	2.8	3.0	2.8	3.0	2.8	2.8	3.0	3.2	3.0	2.8	3.0	3.0	3.2	3.0	2.8	2.4	2.6	2.8	3.0	2.8	2.6	2.8	3.0	2.8	2.6	2.8	3.0	2.8	2.8	
7	B.O.D (3 days @ 27°C)	15 mg/l Max	11	12	11	12	11	12	11	12	11	11	12	11	12	11	12	11	12	12	11	11	12	11	10	9	10	11	10	11	10	11	10	10	
8	Phenolic Compounds	0.35 mg/l Max	0.13	0.11	0.13	0.11	0.12	0.10	0.11	0.12	0.12	0.11	0.12	0.12	0.11	0.11	0.10	0.11	0.10	0.12	0.11	0.10	0.11	0.12	0.12	0.11	0.10	0.13	0.12	0.11	0.12	0.13	0.13	0.12	

Sajeed D
Chief Manager (QC)
BPCL-Kochi Refinery
Ambalamugal - 682302.



Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

16.02.2026

Effluent monitoring report for the Period 01.01.2026 to 31.01.2026 attached herewith.

A. Treated Effluent Standards

Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for Non-conformity	Action taken proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for Non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	6418	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:

Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)

Treated Effluent Water Analysis Report for the Month of January 2026

ULR No. TC14814260000402F

Issue Date: 09-02-2026

Issued To

M/s Bharat Petroleum Corporation Limited

Kochi Refinery

Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	pH	**	7.59	6 - 8.5	IS:3025 (P-11)
2	Oil & Grease	mg/l	ND	5.0	IS:3025 (P-39)
3	BOD (3days) 27°C	mg/l	8	15.0	IS:3025 (P-44)
4	Total Suspended Solids (TSS)	mg/l	16	20.0	IS:3025 (P-17)
5	Phenols	mg/l	ND	0.4	IS:3025 (P-43)
6	Sulfides	mg/l	ND	0.5	IS:3025 (P-29)
7	Chemical Oxygen Demand (COD)	mg/l	40	125.0	IS:3025 (P-58)
8	Cyanide (CN)	mg/l	ND	0.2	IS:3025 (P-27)
9	Ammonia as Nitrogen	mg/l	0.19	15.0	IS:3025 (P-34)
10	Total Kjeldahl Nitrogen (TKN)	mg/l	0.28	40.0	IS:3025 (P-34)
11	Phosphate (P)	mg/l	ND	3.0	IS:3025 (P-31)
12	Chromium (Cr) (Hexavalent)	mg/l	ND	0.1	APHA 23 rd Ed.
13	Chromium (Cr) (Total)	mg/l	ND	2.0	APHA 23 rd Ed.
14	Lead (Pb)	mg/l	ND	0.1	APHA 23 rd Ed.
15	Mercury (Hg)	mg/l	ND	0.0	APHA 23 rd Ed.
16	Zinc (Zn)	mg/l	0.24	5.0	APHA 23 rd Ed.
17	Nickel (Ni)	mg/l	ND	1.0	APHA 23 rd Ed.
18	Copper Cu)	mg/l	ND	1.0	APHA 23 rd Ed.

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....



TC-14814



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Treated Effluent Water Analysis Report for the Month of January 2026

Test Report No. 202601280110

Issue Date: 09-02-2026

Issued To

M/s Bharat Petroleum Corporation Limited

Kochi Refinery

Ambalamugal, Kochi, Pin-682 302

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	Vanadium (V)	mg/l	ND	0.2	IS:3025 (P-56)
2	Benzene	mg/l	ND	100.0	USEPA-8270C
3	Benzo (a) - Pyrene	mg/l	ND	200.0	USEPA-8270C

Remark:

ND-Not Detected, DL-Detection Limit

..... End of the Report.....



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QUALITY CONTROL LABORATORY
Bharat Petroleum Corporation Ltd
KOCHI REFINERY

Report of Analysis of Treated Effluent water from Outlet A for the month of Jan. 2026.

Sl. No.	Characteristics	DATE & RESULT																															
		Tolerance Limit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	p ^H	6 to 8.5	6.2	7.2	7.8	8.3	8	6.9	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.3	7.6	7.8	8.2	7.5	8	7.6	7.5	7.6	7.8	7.5	7.5	7.4	7.5	7.2	7.4	
2	Suspended Solids	20 mg/l Max	16	14	15	19	16	14	16	15	14	13	19	13	9	20	19	18	16	17	14	20	18	20	18	16	19	18	20	18	17	18	19
3	B.O.D (3 days @ 27°C)	15 mg/l Max	14	13	13	13	12	13	14	12	14	13	13	14	13	14	14	14	13	13	14	15	14	14	13	14	15	12	13	15	14	13	15
4	Sulphides (as S)	0.5 mg/l Max	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
5	Phenolic Compounds	0.35 mg/l Max	0.15	0.15	0.16	0.15	0.16	0.15	0.16	0.15	0.15	0.15	0.14	0.16	0.16	0.15	0.14	0.15	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.14	0.16	0.15	0.14	0.15	0.15	0.14	
6	Oil & Grease	5 mg/l Max	3.0	3.0	3.1	3.1	3.0	3.1	3.0	3.1	3.0	3.0	3.1	3.0	3.1	3.0	3.0	3.2	3.0	3.0	3.1	3.1	3.0	3.1	3.0	3.1	3.0	3.0	3.0	3.0	3.0	3.5	
7	COD	125 mg/l Max	42	41	42	41	43	40	43	38	42	41	39	40	42	43	44	42	40	41	44	46	42	42	42	40	44	46	38	40	45	43	40
8	Cyanide	0.2mg/l Max	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

QC F-151A Rev 1

QC.F.121A Rev 1

Sateev D.
Senior Manager (QC)
BPCL-Kochi Refinery
Ambalamugal - 682302.



Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

12.03.2026

Effluent monitoring report for the Period 01.02.2026 to 28.02.2026 attached herewith.

A. Treated Effluent Standards

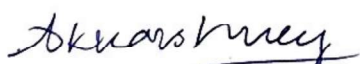
Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for non-conformity	Action proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	7812	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:


Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)

Treated Effluent Water Analysis Report for the Month of February 2026

ULR No.	TC148142600000611F	Issued To	M/s Bharat Petroleum Corporation Limited
Issue Date:	18-02-2026	Kochi Refinery	Ambalamugal, Kochi, Pin-682 302
Ref. No.:	PO. No. 4601005329 dated 07.03.2024		
Sampling done by:	Nitya Laboratories		

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	pH	**	7.66	6 - 8.5	IS:3025 (P-11)
2	Oil & Grease	mg/l	ND	5.0	IS:3025 (P-39)
3	BOD (3days) 27°C	mg/l	6	15.0	IS:3025 (P-44)
4	Total Suspended Solids (TSS)	mg/l	12	20.0	IS:3025 (P-17)
5	Phenols	mg/l	ND	0.4	IS:3025 (P-43)
6	Sulfides	mg/l	ND	0.5	IS:3025 (P-29)
7	Chemical Oxygen Demand (COD)	mg/l	32	125.0	IS:3025 (P-58)
8	Cyanide (CN)	mg/l	ND	0.2	IS:3025 (P-27)
9	Ammonia as Nitrogen	mg/l	0.38	15.0	IS:3025 (P-34)
10	Total Kjeldahl Nitrogen (TKN)	mg/l	0.56	40.0	IS:3025 (P-34)
11	Phosphate (P)	mg/l	ND	3.0	IS:3025 (P-31)
12	Chromium (Cr) (Hexavalent)	mg/l	ND	0.1	APHA 23 rd Ed.
13	Chromium (Cr) (Total)	mg/l	ND	2.0	APHA 23 rd Ed.
14	Lead (Pb)	mg/l	ND	0.1	APHA 23 rd Ed.
15	Mercury (Hg)	mg/l	ND	0.0	APHA 23 rd Ed.
16	Zinc (Zn)	mg/l	0.32	5.0	APHA 23 rd Ed.
17	Nickel (Ni)	mg/l	ND	1.0	APHA 23 rd Ed.
18	Copper Cu)	mg/l	ND	1.0	APHA 23 rd Ed.

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....



TC-14814



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Treated Effluent Water Analysis Report for the Month of February 2026

Test Report No. 202602090110	Issued To
Issue Date: 18-02-2026	M/s Bharat Petroleum Corporation Limited
	Kochi Refinery
	Ambalamugal, Kochi, Pin-682 302
Ref. No.: PO. No. 4601005329 dated 07.03.2024	
Sampling done by: Nitya Laboratories	

Sl. No:	Parameter	Unit	Value reported	Limits as per notification-GSR 186 (E) dt. 18.03.2008	Test Method
1	Vanadium (V)	mg/l	ND	0.2	IS:3025 (P-56)
2	Benzene	mg/l	ND	100.0	USEPA-8270C
3	Benzo (a) - Pyrene	mg/l	ND	200.0	USEPA-8270C

Remark: ND-Not Detected, DL-Detection Limit

..... End of the Report.....


(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

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

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QUALITY CONTROL LABORATORY
Bharat Petroleum Corporation Ltd
KOCHI REFINERY

Report of Analysis of Treated Effluent water from Outlet A for the month of Feb 2026.

Sl. No.	Characteristics	Tolerance Limit	DATE & RESULT																												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	p ^H	6 to 8.5	7.60	7.60	8.30	8.40	7.60	7.80	7.60	8.20	8.20	7.80	7.60	8.00	7.60	7.90	8.00	8.10	8.40	8.10	7.70	7.60	7.40	7.80	7.90	7.40	7.70	7.60	7.60	7.40	
2	Sulphides (as S)	0.5 mg/l Max	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
3	COD	125mgm/lMax	36	35	34	31	32	30	28	34	33	36	38	36	32	35	37	38	36	39	36	34	32	36	34	42	36	34	32	31	
4	Cyanide	0.2mg/l Max	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
5	Suspended Solids	20 mg/l Max	18	13	15	19	19	16	18	18	18	19	18	19	14	18	16	14	13	17	10	15	13	16	14	15	14	16	16	16	14
6	Oil & Grease	5 mg/l Max	3.2	2.9	3.0	3.0	3.2	3.0	2.8	3.0	2.8	2.6	2.8	3.0		2.9	2.8	3.0	3.2	3.0	3.3	3.0	3.0	3.2	3.0	3.2	2.8	3.0	2.8	2.8	2.6
7	B.O.D (3 days @ 27°C)	15 mg/l Max	12	12	11	10	11	10	9	11	11	12	12	11	10	12	12	13	12	13	12	11	11	12	11	14	12	10	11	10	
8	Phenolic Compounds	0.35 mg/l Max	0.13	0.11	0.11	0.12	0.13	0.15	0.13	0.12	0.15	0.13	0.11	0.12	0.13	0.12	0.13	0.14	0.12	0.11	0.14	0.11	0.12	0.13	0.12	0.14	0.11	0.12	0.14	0.15	0.15


Sajeev B
Chief Manager (QC)
BPCL-Kochi Refinery
Ambalamugal - 682302.



Bharat Petroleum Corporation Limited - Kochi Refinery
Post Bag No: 2, Ambalamugal – 682302

17.04.2026

Effluent monitoring report for the Period 01.03.2026 to 31.03.2026 attached herewith.

A. Treated Effluent Standards

Sl. No.	Characteristics	unit	Tolerance limit for Outlet - A (max.)	Tolerance limit for Outlet - B (max.)	Outlet Results	Reason for non-conformity	Action proposed to comply with consent conditions and expected date of achievement
1	pH	**	6.0 – 8.5	6.0 – 8.5	Effluent analysis report is given in the first part of the report.	All consent conditions are satisfied.	Not Applicable
2	Suspended Solids	mg. /lit.	20	100			
3	BOD (3 days @27 °C)	mg. /lit.	15	30			
4	Sulfides	mg. /lit.	0.5	--			
5	Phenols	mg. /lit.	0.35	--			
6	Oil & Grease	mg. /lit.	5	10			

B. Effluent Discharged.

	Limit m3 / day	Measurement m3/day (avg.)	Mode of measurement	Reason for non-conformity	Action taken / proposed to Comply with consent condition and Expected date of Completion
Outlet - A	9848.50	5938	Rectangular Weir type.	Complied	Nil
Outlet - B	50	0	Flow meter	N. A	Discharge is zero as Chullichira Water treatment plant is not in operation.

C. Any other matter to be reported: Only treated Effluents are discharged through Outlet - A & Outlet – B

Signature, Name and Designation of Occupier / Authorized Officer:

Santosh Kumar Varshney
DY. GENERAL MANAGER – HSE (ENVIRONMENT)



Stack Emission Data as per On-line Analyzer data _October 2025											
Sl. No.	Stack Name	Flow rate (Nm ³ /hr)	PM (mg/Nm ³)	NO _x (mg/Nm ³)	Units Run (max)	PM (kg/hr)	NO _x (kg/hr)	CO (mg/Nm ³)	CO (kg/hr)	SO ₂ (mg/Nm ³)	SO ₂ (kg/hr)
		Avg. Value			Hrs						
1	KH01B (KHDS)	22953	3.322	12.597	744	0.08	0.29	60.785	1.40	9.005	0.21
2	FH01 (FCCU)	24235	0.98	46.424	744	0.02	1.13	6.519	0.16	8.877	0.22
3	FH03/COB (FCCU)	84321	32.085	18.283	744	2.71	1.54	127.232	10.73	3.837	0.32
4	CH21 (CDU - II)	90531	0	92.874	744	0.00	8.41	1.981	0.18	21.534	1.95
5	CH22 (CDU - II)	33510	0	88.092	744	0.00	2.95	1.616	0.05	14.113	0.47
6	CH223 (CDU - II)	50563	1.241	31.127	744	0.06	1.57	0.965	0.05	18.428	0.93
7	DD-HO1 (DHDS)	25998	4.499	42.552	744	0.12	1.11	4.593	0.12	24.767	0.64
8	DS-X-002 (SRU - 01)	29135	31.268	159.726	744	0.91	4.65	92.959	2.71	3449.454	100.50
9	DSX 301 (SRU - 02)	14151	23.498	50.565	744	0.33	0.72	152.278	2.15	4377.371	61.94
10	BS-101 (Biturox)	14174	9.49	37.276	744	0.13	0.53	4.27	0.06	5.199	0.07
11	VH HO1/02 (VGO HDS)	52233	6.098	8.881	744	0.32	0.46	40.641	2.12	39.567	2.07
12	NHT CCR - 01	104483	8.883	2.864	744	0.93	0.30	42.609	4.45	30.06	3.14
13	UB07 (Boiler)	111963	12.239	41.826	744	1.37	4.68	10.925	1.22	41.957	4.70
14	UB08 (Boiler)	29524	20.19	0.976	744	0.60	0.03	4.903	0.14	13.049	0.39
15	UB09 (Boiler) (UX200)	30622	15.701	45.913	744	0.48	1.41	7.316	0.22	59.55	1.82
16	UB 10 (Boiler)	40255	6.984	53.269	744	0.28	2.14	0	0.00	152.28	6.13
17	UB 11 (Boiler)	71246	34.391	273.132	744	2.45	19.46	9.476	0.68	638.447	45.49
18	HRSO 1 (CPP - 01)	161184	0	43.769	744	0.00	7.05	1.932	0.31	2.755	0.44
19	GT2/HRSO - 02 (CPP - 02)	151867	2.352	110.26	744	0.36	16.74	6.859	1.04	0	0.00
20	SRU III Train A (IS LZ 102)	91703	17.542	1.822	744	1.61	0.17	139.219	12.77	1201.139	110.15
21	SRU III Train B (IS LZ 202)	90130	13.363	19.996	744	1.20	1.80	100.811	9.09	1131.278	101.96
22	CDU-III (ICH 101/102)	252659	1.637	1.142	744	0.00	0.29	57.211	14.45	32.896	8.31
23	DHDT (IGH 101/102)	58678	1.785	5.427	744	0.00	0.32	34.319	2.01	8.206	0.48
24	VGO-HDT (IVH 101/201)	54092	1.412	2.69	744	0.08	0.15	38.706	2.09	22.867	1.24
25	PFCCU-Heater (IFH 002)	21661	0	9.18	744	0.00	0.20	27.952	0.61	8.604	0.19
26	PFCCU-Regen. (IFLS 001)	170940	22.463	159.197	744	3.84	27.21	10.892	1.86	13.478	2.30
27	DCU-1 (IDH 101)	77894	2.272	2.269	744	0.18	0.18	40.697	3.17	11.383	0.89
28	DCU-2 (IDH 102)	77012	2.455	1.499	744	0.19	0.12	35.165	2.71	9.173	0.71
29	HRSO 3 (IUS HRSO 05LZ554)	161009	3.45	5.289	744	0.56	0.85	60.735	9.78	0.886	0.14
30	HRSO 4 (IUS HRSO 05LZ554)	142276	1.52	4.905	744	0.22	0.70	68.441	9.74	3.525	0.50
31	HRSO 5 (IUS HRSO 05LZ554)	143106	60.806	13.662	744	8.71	1.96	1.08	0.15	2.67	0.38
32	UB 12 (Boiler) (IUS UB12 LZ08)	122932	2.543	6.246	744	0.31	0.77	91.626	11.26	35.784	4.40
33	UB 13 (Boiler) (IUS UB12 LZ08)	123507	3.182	7.343	744	0.39	0.91	84.597	10.45	39.485	4.88
34	NHT -Isom. (NH-2/ H H 101)	53005	0	62.931	744	0.00	3.34	0	0.00	0	0.00
35	PWILS 110 (PDPP INC - 01)	70957	0.507	1.825	744	0.04	0.13	0.6	0.04	0.364	0.03
36	LSO21A (PDPP INC - 02)	71924	0	0.236	744	0.00	0.02	2.81	0.20	0	0.00
37	MSBP - HOH	158034	0.831	26.806	744	0.13	4.24	5.376	0.85	20.032	3.17
38	MRH 01/02/03/04 (MSBP - CCR)	06064	2.145	1.136	744	0.21	0.11	51.243	4.97	8.051	0.78
						28.81	118.61		124.01		471.93
						PM (kg/hr)	NO _x (kg/hr)		CO (kg/hr)		SO ₂ (kg/hr)

राजेंद्र प्रसाद के जी RAJENDRA PRASAD K G
 सहायक प्रबंधक एचएसई (पर्यावरण)
 Asst. Manager HSE (Environment)
 भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड
 BHARAT PETROLEUM CORPORATION LTD.
 कोच्चि रिफाइनरी KOCHI REFINERY
 अम्बलमगल Ambalamugal-682 302
 एरनाकुलम जिला Ernakulam Dist. Kerala

15/11/25

Stack Emission Data as per On-line Analyzer data _November 2025										
Sl. No.	Stack Name	Flow rate (Nm ³ /hr)	PM (mg/Nm ³)	NOx (mg/Nm ³)	PM (kg/hr)	NOx (kg/hr)	CO (mg/Nm ³)	CO (kg/hr)	SO2 (mg/Nm ³)	SO2 (kg/hr)
		Avg. Value								
1	KH01B (KHDS)	22953	3.347	16.038	0.08	0.37	74.886	1.72	3.38	0.08
2	FH01 (FCCU)	24235	0.98	48.019	0.02	1.16	6.182	0.15	6.178	0.15
3	FH03/COB (FCCU)	84321	34.488	33.073	2.91	2.79	37.064	3.13	13.808	1.16
4	CH21 (CDU - II)	90531	0	81.084	0.00	7.34	1.526	0.14	48.73	4.41
5	CH22 (CDU - II)	33510	0	85.106	0.00	2.85	2.161	0.07	35.459	1.19
6	CH223 (CDU - II)	50563	0.95	38.128	0.05	1.93	0.448	0.02	50.444	2.55
7	DD-HO1 (DHDS)	23998	4.389	40.415	0.11	1.05	4.163	0.11	23.015	0.60
8	DS-X-002 (SRU - 01)	29135	34.018	101.224	0.99	2.95	49.141	1.43	1526.153	44.46
9	DSX 301 (SRU - 02)	14151	22.827	62.835	0.32	0.89	190.134	2.69	4849.267	68.62
10	BS-101 (Biturox)	14174	11.126	33.852	0.16	0.48	3.173	0.04	7.449	0.11
11	VH H01/02 (VGO HDS)	52233	2.466	6.77	0.13	0.35	17.118	0.89	36.433	1.90
12	NHT CCR - 01	104483	8.674	2.56	0.91	0.27	45.296	4.73	9.324	0.97
13	UB07 (Boiler)	111963	12.635	39.833	1.41	4.46	13.377	1.50	47.771	5.35
14	UB08 (Boiler)	29524	17.897	0.136	0.53	0.00	10.812	0.32	0	0.00
15	UB09 (Boiler) (UX200)	30622	0.505	0.561	0.02	0.02	3.064	0.09	0	0.00
16	UB 10 (Boiler)	40255	3.962	3.368	0.16	0.14	9.186	0.37	17.901	0.72
17	UB 11 (Boiler)	71246	30.516	272.575	2.17	19.42	9.743	0.69	660.408	47.05
18	HRSG 1 (CPP - 01)	161184	0	34.775	0.00	5.61	1.535	0.25	0	0.00
19	GT2/HRSG -02 (CPP - 02)	151867	2.352	119.343	0.36	18.12	3.915	0.59	0	0.00
20	SRU III Train A (IS LZ 102)	91703	17.273	1.468	1.58	0.13	132.867	12.18	1654.632	151.73
21	SRU III Train B (IS LZ 202)	90130	13.71	2.85	1.24	0.26	118.84	10.71	1459.125	131.51
22	CDU-III (ICH 101/102)	252659	1.613	0.9	0.00	0.23	56.17	14.19	40.142	10.14
23	DHDT (IGH 101/102)	58678	0	5.677	0.00	0.33	32.537	1.91	11.508	0.68
24	VGO-HDT (IVH 101/201)	54092	1.442	2.538	0.08	0.14	35.245	1.91	16.171	0.87
25	PFCCU-Heater (IFH 002)	21661	0	14.205	0.00	0.31	24.619	0.53	3.886	0.08
26	PFCCU-Regen. (IFLS 001)	170940	25.717	173.429	4.40	29.65	4.663	0.80	7.42	1.27
27	DCU-1 (IDH 101)	77894	2.395	4.934	0.19	0.38	36.073	2.81	8.952	0.70
28	DCU-2 (IDH 102)	77012	0	4.463	0.00	0.34	51.879	4.00	15.402	1.19
29	HRSG 3 (IUS HRSG 05LZ554)	161009	3.619	4.787	0.58	0.77	61.053	9.83	1.063	0.17
30	HRSG 4 (IUS HRSG 05LZ554)	142276	1.509	4.431	0.21	0.63	69.092	9.83	5.107	0.73
31	HRSG-5 (IUS HRSG 05LZ554)	141306	62.895	13.726	9.01	1.97	0.255	0.04	2.163	0.31
32	UB 12 (Boiler) (IUS UB12 LZ08)	122932	2.532	7.996	0.31	0.98	93.019	11.44	32.555	4.00
33	UB 13 (Boiler) (IUS UB12 LZ08)	123507	3.414	7.355	0.42	0.91	87.255	10.78	38.439	4.75
34	NHT -Isom. (NH-2/ H H 101)	53005	0	68.465	0.00	3.63	1.452	0.08	0	0.00
35	PW1 LS 110 (PDPP INC - 01)	70957	0.579	1.79	0.04	0.13	0.545	0.04	0.309	0.02
36	LS021A (PDPP INC - 02)	71924	0	0.236	0.00	0.02	2.808	0.20	0	0.00
37	MSBP HOH	158034	0.853	25.477	0.13	4.03	3.168	0.50	17.345	2.74
38	MSBP HOH	96964	2.141	1.051	0.21	0.10	51.446	4.99	8.811	0.85
					28.73	115.13		115.70		491.08
					PM (kg/hr)	NOx (kg/hr)		CO (kg/hr)		SO2 (kg/hr)


 M. K. Prasad
 Asst. Mgr.
 O&PCL. KCR.

Stack Emission Data as per On-line Analyzer data _December 2025

Sl. No.	Stack Name	Flow rate (Nm ³ /hr)	PM (mg/Nm ³)	NOx (mg/Nm ³)	PM (kg/hr)	NOx (kg/hr)	CO (mg/Nm ³)	CO (kg/hr)	SO2 (mg/Nm ³)	SO2 (kg/hr)
		Avg. Value								
1	KH01B (KHDS)	22953	3.658	15.666	0.08	0.36	97.219	2.23	4.208	0.10
2	FH01 (FCCU)	24235	0.98	49.271	0.02	1.19	3.51	0.09	4.604	0.11
3	FH03/COB (FCCU)	84321	30.693	36.051	2.59	3.04	40.98	3.46	33.166	2.80
4	CH21 (CDU - II)	90531	0	85.738	0.00	7.76	1.693	0.15	30.79	2.79
5	CH22 (CDU - II)	33510	0	85.424	0.00	2.86	2.302	0.08	20.898	0.70
6	CH223 (CDU - II)	50563	2.033	34.749	0.10	1.76	0.177	0.01	18.961	0.96
7	DD-HO1 (DHDS)	25998	3.515	43.046	0.09	1.12	4.438	0.12	22.14	0.58
8	DS-X-002 (SRU - 01)	29135	0	82.69	0.00	2.41	46.429	1.35	1668.75	48.62
9	DSX 301 (SRU - 02)	14151	24.015	56.06	0.34	0.79	170.176	2.41	4955.548	70.13
10	BS-101 (Biturox)	14174	15.154	23.944	0.21	0.34	2.73	0.04	3.873	0.05
11	VH H01/02 (VGO HDS)	52233	2.708	7.41	0.14	0.39	15.916	0.83	37.028	1.93
12	NHT CCR - 01	104483	8.388	3.152	0.88	0.33	49.614	5.18	25.438	2.66
13	UB07 (Boiler)	111963	10.351	34.709	1.16	3.89	4.706	0.53	4.034	0.45
14	UB08 (Boiler)	29524	34.646	6.664	1.02	0.20	4.269	0.13	67.172	1.98
15	UB09 (Boiler) (UX200)	30622	1.747	7.648	0.05	0.23	0	0.00	3.501	0.11
16	UB 10 (Boiler)	40255	11.636	68.799	0.47	2.77	34.935	1.41	277.56	11.17
17	UB 11 (Boiler)	71246	30.995	258.61	2.21	18.42	9.82	0.70	678.117	48.31
18	HRSO 1 (CPP - 01)	161184	0	37.327	0.00	6.02	0.941	0.15	7.584	1.22
19	GT2/HRSO -02 (CPP - 02)	151867	2.353	128.844	0.36	19.57	2.108	0.32	0	0.00
20	SRU III Train A (IS LZ 102)	91703	17.216	1.259	1.58	0.12	119.549	10.96	1336.219	122.54
21	SRU III Train B (IS LZ 202)	90130	13.433	2.536	1.21	0.23	109.668	9.88	1520.423	137.04
22	CDU-III (ICH 101/102)	252659	1.758	0.744	0.00	0.19	52.914	13.37	33.254	8.40
23	DHDT (IGH 101/102)	58678	0.19	6.621	0.00	0.39	32.746	1.92	10.007	0.59
24	VGO-HDT (IVH 101/201)	54092	1.102	2.792	0.06	0.15	33.215	1.80	19.03	1.03
25	PFCCU-Heater (IFH 002)	21661	0	4.732	0.00	0.10	31.287	0.68	5.706	0.12
26	PFCCU-Regen. (IFLS 001)	170940	19.634	134.152	3.36	22.93	2.608	0.45	11.617	1.99
27	DCU-1 (IDH 101)	77894	2.437	14.027	0.19	1.09	32.468	2.53	11.828	0.92
28	DCU-2 (IDH 102)	77012	-2.738	1.832	-0.21	0.14	42.886	3.30	10.572	0.81
29	HRSO 3 (IUS HRSO 05LZ554)	161009	3.766	3.967	0.61	0.64	64.988	10.46	1.627	0.26
30	HRSO 4 (IUS HRSO 05LZ554)	142276	1.516	3.156	0.22	0.45	85.96	12.23	2.203	0.31
31	HRSO-5 (IUS HRSO 05LZ554)	143306	61.405	13.71	8.80	1.96	0.62	0.09	2.967	0.43
32	UB 12 (Boiler) (IUS UB12 LZ08)	122932	2.504	12.483	0.31	1.53	90.928	11.18	33.896	4.17
33	UB 13 (Boiler) (IUS UB12 LZ08)	123507	3.467	7.711	0.43	0.95	93.556	11.55	39.342	4.86
34	NHT -Isom. (NH-2/ H H 101)	53005	-1.427	72.111	-0.08	3.82	3.577	0.19	-1.603	-0.08
35	PWI LS 110 (PDPP INC - 01)	70957	0.721	1.763	0.05	0.13	0.511	0.04	0.28	0.02
36	LS021A (PDPP INC - 02)	71924	0	0.229	0.00	0.02	2.811	0.20	0	0.00
37	MSBP _ HOH	158034	0.807	23.38	0.13	3.69	3.743	0.59	17.617	2.78
38	MRH 01/02/03/04 (MSBP _ CCR)	96964	1.962	1.287	0.19	0.12	50.069	4.85	4.537	0.44
					26.57	112.11		115.45		481.29
					PM (kg/hr)	NOx (kg/hr)		CO (kg/hr)		SO2 (kg/hr)



Stack Emission Monitoring Report for the Month of Dec 2025

ULR No. TC148142500007836F-7838F, 7841F-78443F,
7850F-7851F, 7908F-7911F, 7947F-7948F,
7970F-7971F

Issued To
M/s Bharat Petroleum Corporation Limited
Kochi Refinery
Ambalamugal, Kochi, Pin-682 302

Issue Date: 20-12-2025

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Stack / Unit	Date of Monitoring / Sampling	Time of Monitoring	Lab Id. Code / No:	Analysis Started on (date)	Analysis completed on (date)
1	GT1/HRSG -01 (CPP - 01)	05-12-2025	11:40 AM	S/12/01	15-12-2025	19-12-2025
2	UB 10 (Boiler) (IUS UB12 LZ08)	05-12-2025	01:55 PM	S/12/02	15-12-2025	19-12-2025
3	UB-07 (BOILER)	05-12-2025	03:10 PM	S/12/03	15-12-2025	19-12-2025
4	HRSG 4 (IUS HRSG 05LZ554)	06-12-2025	10:10 AM	S/12/04	15-12-2025	19-12-2025
5	HRSG 3 (IUS HRSG 05LZ554)	06-12-2025	11:40 AM	S/12/05	15-12-2025	19-12-2025
6	HRSG 5 (IUS HRSG 05LZ554)	06-12-2025	03:00 PM	S/12/06	15-12-2025	19-12-2025
7	UB-12 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	11:25 AM	S/12/07	15-12-2025	19-12-2025
8	UB-13 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	02:10 PM	S/12/08	15-12-2025	19-12-2025
9	DS-X-301 (SRU - 02)	10-12-2025	09:30 AM	S/12/09	15-12-2025	19-12-2025
10	SRU III Train A (IS LZ 102)	10-12-2025	10:45 AM	S/12/10	15-12-2025	19-12-2025
11	SRU III Train B (IS LZ 202)	10-12-2025	12:50 PM	S/12/11	15-12-2025	19-12-2025
12	DS-X-002 (SRU-01)	10-12-2025	02:40 PM	S/12/12	15-12-2025	19-12-2025
13	PFCCU-Heater (IFH 002)	11-12-2025	10:50 AM	S/12/13	15-12-2025	19-12-2025
14	PFCCU-Regen. (IFLS 001)	11-12-2025	02:20 PM	S/12/14	15-12-2025	19-12-2025
15	VGO-HDT(Vacuum Gas Oil Hydro Treater) (IVH 101/201)	11-12-2025	03:25 PM	S/12/15	15-12-2025	19-12-2025
16	UB 11 (Boiler)	12-12-2025	10:20 AM	S/12/16	15-12-2025	19-12-2025
17	DD-HO1 (DHDS)	12-12-2025	11:40 AM	S/12/17	15-12-2025	19-12-2025

Instruments used for Monitoring				
Stack Monitoring kit, with all assembly Make: Enviro Instruments	Calibrated on	05-03-2025	Calibration due on	06-03-2026



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(SANDEEP SAINI)

[illegible]

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Stack Emission Monitoring Report for the Month of Dec 2025

ULR No. TC148142500007838F-7838F, 7841F-78443F,
7850F-7851F, 7908F-7911F, 7947F-7948F,
7970F-7971F

Issued To
M/s Bharat Petroleum Corporation Limited
Kochi Refinery
Ambalamugal, Kochi, Pin-682 302

Issue Date: 20-12-2025

Ref. No.: PO. No. 4601005329 dated 07.03.2024

Sampling done by: Nitya Laboratories

Sl. No:	Stack / Unit	Date of Sampling	Ambient Air Temp.	Sampling Temp. (0C)	Flow rate Result (Nm3/Hr)	PM (mg/Nm3)	H2S (mg/Nm3)
1	GT1/HRSG-01 (CPP - 01)	05-12-2025	26	128	334208.0	8.8	N.A.
2	UB 10 (Boiler) (IUS UB12 LZ08)	05-12-2025	26	48	291045.5	11.5	N.A.
3	UB-07 (BOILER)	05-12-2025	26	112	243060.1	19.5	N.A.
4	HRSG 4 (IUS HRSG 05LZ554)	06-12-2025	26	148	241316.8	12.8	N.A.
5	HRSG 3 (IUS HRSG 05LZ554)	06-12-2025	26	74	320190.6	13.9	N.A.
6	HRSG 5 (IUS HRSG 05LZ554)	06-12-2025	26	76	313278.0	18.4	N.A.
7	UB-12 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	26	49	289669.2	18	N.A.
8	UB-13 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	25	41	323809.0	16	N.A.
9	DS-X-301 (SRU - 02)	10-12-2025	26	598	48906.8	8.4	4.2
10	SRU III Train A (IS LZ 102)	10-12-2025	25	267	127464.9	11.8	3.8
11	SRU III Train B (IS LZ 202)	10-12-2025	25	298	111846.0	12.9	4.1
12	DS-X-002 (SRU-01)	10-12-2025	24	590	47686.4	11.5	N.A.
13	PFCCU-Heater (IFH 002)	11-12-2025	25	259	77490.1	5.9	N.A.
14	PFCCU-Regen. (IFLS 001)	11-12-2025	25	211	299582.6	7.8	N.A.
15	VGO-HDT(Vacuum Gas Oil Hydro Treater)	11-12-2025	25	165	135365.6	7.4	N.A.
16	UB 11 (Boiler)	12-12-2025	24	40	330438.6	10.5	N.A.
17	DD-HO1 (DHDS)	12-12-2025	24	110	71282.4	8.7	N.A.



TC-14814

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(SANDEEP SAINI)



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Stack Emission Monitoring Report for the Month of Dec 2025

Test Report No.: 202512050110-126	Issued To
Issue Date: 20-12-2025	M/s Bharat Petroleum Corporation Limited
	Kochi Refinery
	Ambalamugal, Kochi, Pin-682 302
Ref. No.: PO, No. 4601005329 dated 07.03.2024	
Sampling done by: Nitya Laboratories	

Sl. No.	Stack / Unit	Date of Sampling	Ambient Air Temp.	Sampling Temp. (°C)	Flow rate Result (Nm ³ /Hr)	SO ₂ (mg/N m ³)	NO _x (mg/N m ³)	CO (mg/N m ³)	Ni + V (mg/Nm ³)	O ₂ %
1	GT1/HRSG-01 (CPP-01)	05-12-2025	26	128	334208.0	12.5	25.7	45.9	ND (DL-0.5)	6.9
2	UB 10 (Boiler) (IUS UB12 LZ08)	05-12-2025	26	48	291045.5	12.5	9.2	7.8	ND (DL-0.5)	7.1
3	UB-07 (BOILER)	05-12-2025	26	112	243060.1	108	116	7.5	ND (DL-0.5)	6.6
4	HRSG 4 (IUS HRSG 05LZ554)	06-12-2025	26	148	241316.8	4.5	19.1	5.6	ND (DL-0.5)	7.9
5	HRSG 3 (IUS HRSG 05LZ554)	06-12-2025	26	74	320190.6	8.6	42.6	4.8	ND (DL-0.5)	7.5
6	HRSG 5 (IUS HRSG 05LZ554)	06-12-2025	26	76	313278.0	0.0	13.8	5.8	ND (DL-0.5)	6.9
7	UB-12 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	26	49	289669.2	123	156.6	5.4	ND (DL-0.5)	7.0
8	UB-13 (BOILER) (IUS-UB-12-LZ-08)	08-12-2025	25	41	323809.0	8.1	7.9	5.1	ND (DL-0.5)	6.7
9	DS-X-301 (SRU-02)	10-12-2025	26	598	48905.8	1310	34.2	146	ND (DL-0.5)	7.8
10	SRU III Train A (IS LZ 102)	10-12-2025	25	267	127464.9	1169	11.5	5.9	ND (DL-0.5)	6.7
11	SRU III Train B (IS LZ 202)	10-12-2025	25	298	111846.0	1210	18.6	4.2	ND (DL-0.5)	6.1
12	DS-X-002 (SRU-01)	10-12-2025	24	590	47686.4	1190	33.2	149	ND (DL-0.5)	7.9
13	PFCCU-Heater (IFH 002)	11-12-2025	25	259	77490.1	18.5	14.3	8.5	ND (DL-0.5)	7.1
14	PFCCU-Regen. (IFLS 001)	11-12-2025	25	211	299582.6	13.8	20.5	53.7	ND (DL-0.5)	7.6
15	VGO-HDT(Vacuum Gas Oil Hydro Treater) (IVH 101/201)	11-12-2025	25	165	135365.6	9.5	19.7	2.8	ND (DL-0.5)	6.2
16	UB 11 (Boiler)	12-12-2025	24	40	330438.6	110	196.3	9	ND (DL-0.5)	6.9
17	DD-HO1 (DHDS)	12-12-2025	24	110	71282.4	6.8	51.8	0.0	ND (DL-0.5)	8.1

(CHECKED BY)
(SANDEEP SAINI)



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Stack Emission Data as per On-line Analyzer data _ February 2026

Sl. No.	Stack Name	Flow rate (Nm ³ /hr)	PM (mg/Nm ³)	NOx (mg/Nm ³)	PM (kg/hr)	NOx (kg/hr)	CO (mg/Nm ³)	CO (kg/hr)	SO2 (mg/Nm ³)	SO2 (kg/hr)
		Avg. Value								
1	KH01B (KHDS)	22953	3.492	15.702	0.08	0.36	89.326	2.05	0.944	0.02
2	FH01 (FCCU)	24235	0.98	37.135	0.02	0.90	7.684	0.19	9.73	0.24
3	FH03/COB (FCCU)	84321	31.413	37.614	2.65	3.17	47.503	4.01	10.648	0.90
4	CH21 (CDU - II)	90531	0	78.25	0.00	7.08	3.815	0.35	28.001	2.53
5	CH22 (CDU - II)	33510	0	73.291	0.00	2.46	7.559	0.25	11.124	0.37
6	CH223 (CDU - II)	50563	5.053	32.469	0.26	1.64	0	0.00	11.672	0.59
7	DD-HO1 (DHDS)	25998	3.341	44.462	0.09	1.16	7.61	0.20	2.029	0.05
8	DS-X-002 (SRU - 01)	29135	0	106.769	0.00	3.11	18.682	0.54	2545.794	74.17
9	DSX 301 (SRU - 02)	14151	26.096	42.055	0.37	0.60	114.5	1.62	3432.98	48.58
10	BS-101 (Biturox)	14174	10.908	18.222	0.15	0.26	3.371	0.05	2.789	0.04
11	VH H01/02 (VGO HDS)	52233	15.775	6.454	0.82	0.34	16.183	0.85	46.22	2.41
12	NHT CCR - 01	104483	8.126	1.396	0.85	0.15	53.761	5.62	6.405	0.67
13	UB07 (Boiler)	111963	10.961	9.385	1.23	1.05	3.742	0.42	5.376	0.60
14	UB08 (Boiler)	29524	39.035	0.131	1.15	0.00	44.361	1.31	37.449	1.11
15	UB09 (Boiler) (UX200)	30622	2.317	94.418	0.07	2.89	51.446	1.58	11.013	0.34
16	UB 10 (Boiler)	40255	6.792	0	0.27	0.00	11.805	0.48	22.479	0.90
17	UB 11 (Boiler)	71246	32.386	181.534	2.31	12.93	7.239	0.52	358.445	25.54
18	HRSR 1 (CPP - 01)	161184	0	2.118	0.00	0.34	2.926	0.47	5.269	0.85
19	GT2/HRSR - 02 (CPP - 02)	151867	2.246	112.342	0.34	17.06	2.841	0.43	0	0.00
20	SRU III Train A (IS LZ 102)	91703	16.918	1.4	1.55	0.13	84.404	7.74	1188.537	108.99
21	SRU III Train B (IS LZ 202)	90130	13.438	2.167	1.21	0.20	105.698	9.53	1322.654	119.21
22	CDU-III (ICH 101/102)	252659	1.512	5.83	0.00	1.47	56.957	14.39	33.192	8.39
23	DHDT (IGH 101/102)	58678	1.184	5.357	0.00	0.31	31.761	1.86	2.712	0.16
24	VGO-HDT (IVH 101/201)	54092	0.866	4.023	0.05	0.22	29.228	1.58	16.15	0.87
25	PFCCU-Heater (IFH 002)	21661	0	27.209	0.00	0.59	15.285	0.33	7.361	0.16
26	PFCCU-Regen. (IFLS 001)	170940	17.931	29.696	3.07	5.08	4.142	0.71	16.253	2.78
27	DCU-1 (IDH 101)	77894	1.449	3.544	0.11	0.28	42.74	3.33	20.155	1.57
28	DCU-2 (IDH 102)	77012	0	0.177	0.00	0.01	51.384	3.96	15.205	1.17
29	HRSR 3 (IUS HRSR 05LZ554)	161009	4.223	2.392	0.68	0.39	43.508	7.01	1.444	0.23
30	HRSR 4 (IUS HRSR 05LZ554)	142276	3.01	3.758	0.43	0.53	77.73	11.06	9.559	1.36
31	HRSR-5 (IUS HRSR 05LZ554)	143306	55.483	13.897	7.95	1.99	0.339	0.05	2.101	0.30
32	UB 12 (Boiler) (IUS UB12 LZ08)	122932	2.571	7.006	0.32	0.86	105.179	12.93	24.619	3.03
33	UB 13 (Boiler) (IUS UB12 LZ08)	123507	2.944	6.345	0.36	0.78	88.513	10.93	27.423	3.39
34	NHT -Isom. (NH-2/ H H 101)	53005	0	57.705	0.00	3.06	1.186	0.06	4.449	0.24
35	PWT LS 110 (PDPP INC - 01)	70957	0.533	1.833	0.04	0.13	0.616	0.04	0.384	0.03
36	LS021A (PDPP INC - 02)	71924	0	0.241	0.00	0.02	2.899	0.21	0	0.00
37	MSBP_HOH	158034	0.808	26.672	0.13	4.22	5.971	0.94	15.03	2.38
38	MRH 01/02/03/04 (MSBP_CCR)	96964	2.008	2.053	0.19	0.20	49.731	4.82	6.244	0.61
					26.75	75.96		112.39		414.77
					PM (kg/hr)	NOx (kg/hr)	CO (kg/hr)		SO2 (kg/hr)	

Stack Emission Data as per On-line Analyzer data _March 2026											
Sl. No.	Stack Name	Flow rate (Nm ³ /hr)	PM (mg/Nm ³)	NOx (mg/Nm ³)	Units Run (max)	PM (kg/hr)	NOx (kg/hr)	CO (mg/Nm ³)	CO (kg/hr)	SO2 (mg/Nm ³)	SO2 (kg/hr)
		Avg. Value			Hrs						
1	KH01B (KHDS)	22953	3.251	19.22	744	0.07	0.44	75.668	1.74	8.858	0.20
2	FH01 (FCCU)	24235	0.98	27.598	720	0.02	0.67	16.056	0.39	12.273	0.30
3	FH03/COB (FCCU)	84321	38.149	21.543	720	3.22	1.82	22.083	1.86	14.831	1.25
4	CH21 (CDU - II)	90531	0	101.877	720	0.00	9.22	1.789	0.16	49.664	4.50
5	CH22 (CDU - II)	33510	0	88.289	720	0.00	2.96	2.787	0.09	36.453	1.22
6	CH223 (CDU - II)	50563	4.03	38.089	720	0.20	1.93	0	0.00	32.436	1.64
7	DD-HO1 (DHDS)	25998	2.919	39.278	720	0.08	1.02	8.261	0.21	30.602	0.80
8	DS-X-002 (SRU - 01)	29135	30.543	185.836	720	0.89	5.41	49.478	1.44	2975.483	86.69
9	DSX 301 (SRU - 02)	14151	27.184	46.987	720	0.38	0.66	109.288	1.55	4700.816	66.52
10	BS-101 (Biturox)	14174	13.452	27.038	720	0.19	0.38	4.718	0.07	9.68	0.14
11	VH H01/02 (VGO HDS)	52233	19.155	8.736	720	1.00	0.46	40.172	2.10	41.093	2.15
12	NHT CCR - 01	104483	8.199	0.665	720	0.86	0.07	39.939	4.17	44.04	4.60
13	UB07 (Boiler)	111963	13.79	60.357	720	1.54	6.76	8.564	0.96	139.01	15.56
14	UB08 (Boiler)	29524	102.66	2.79	720	3.03	0.08	29.237	0.86	109.81	3.24
15	UB09 (Boiler) (UX200)	30622	0.681	123.218	720	0.02	3.77	43.699	1.34	94.714	2.90
16	UB 10 (Boiler)	40255	5.83	0.651	720	0.23	0.03	6.591	0.27	-5.685	-0.23
17	UB 11 (Boiler)	71246	41.183	154.804	720	2.93	11.03	11.872	0.85	517.685	36.88
18	HRSG 1 (CPP - 01)	161184	0	26.747	720	0.00	4.31	1.563	0.25	12.084	1.95
19	GT2/HRSG-02 (CPP - 02)	151867	2.247	135.654	720	0.34	20.60	0	0.00	32.676	4.96
20	SRU III Train A (IS LZ 102)	91703	17.351	2.18	720	1.59	0.20	63.281	5.80	796.469	73.04
21	SRU III Train B (IS LZ 202)	90130	13.545	2.167	720	1.22	0.20	124.606	11.23	1551.014	139.79
22	CDU-III (ICH 101/102)	252659	1.401	6.403	720	0.00	1.62	53.004	13.39	35.236	8.90
23	DHDT (IGH 101/102)	58078	0.605	7.95	720	0.00	0.47	33.425	1.96	1.783	0.10
24	VGO-HDT (IVH 101/201)	54092	1.126	5.339	720	0.06	0.29	29.5	1.60	17.948	0.97
25	PFCCU-Heater (IFH 002)	21661	0	29.053	720	0.00	0.63	14.234	0.31	7.826	0.17
26	PFCCU-Regen. (IFLS 001)	170940	17.047	15.209	720	2.91	2.60	4.449	0.76	14.232	2.43
27	DCU-1 (IDH 101)	77894	1.445	2.384	720	0.11	0.19	44.727	3.48	26.343	2.05
28	DCU-2 (IDH 102)	77012	0	10.824	720	0.00	0.83	47.201	3.64	13.717	1.06
29	HRSG 3 (IUS HRSG 05LZ554)	161009	4.639	2.725	720	0.75	0.44	122.824	19.78	25.824	4.16
30	HRSG 4 (IUS HRSG 05LZ554)	142276	3.252	6.538	720	0.46	0.93	23.723	3.38	4.41	0.63
31	HRSG-5 (IUS HRSG 05LZ554)	143306	52.109	15.047	720	7.47	2.16	4.5	0.64	1.944	0.28
32	UB 12 (Boiler) (IUS UB12 LZ08)	122932	2.57	4.68	720	0.32	0.58	96.226	11.83	38.547	4.74
33	UB 13 (Boiler) (IUS UB12 LZ08)	123507	3.033	7.682	720	0.37	0.95	103.111	12.73	46.524	5.75
34	NHT-Isom. (NH-2/ H H 101)	53005	0	51.556	720	0.00	2.73	2.437	0.13	9.062	0.48
35	PW1 LS 110 (PDPP INC - 01)	70957	0.47	1.839	720	0.03	0.13	0.631	0.04	0.399	0.03
36	LS021A (PDPP INC - 02)	71924	0	0.251	720	0.00	0.02	2.92	0.21	0	0.00
37	MSBP _ HOH	158034	0.833	29.503	720	0.13	4.66	9.615	1.52	20.061	3.17
38	MRH 01/02/03/04 (MSBP _ CCR)	96964	1.97	2.593	720	0.19	0.25	42.109	4.08	8.363	0.81
						30.65	91.49		114.82		483.83
						PM (kg/hr)	NOx (kg/hr)	CO (kg/hr)		SO2 (kg/hr)	

