To

The Director (Industrial Projects - 1)
Ministry of Environment, Forest and Climate Change (MoEF&CC)
Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj
New Delhi – 110003

Subject: Submission of Six-Monthly Environment Clearance Compliance Status Report for the EC File No: **J-11011/141/2004-IA-II(I)** dated 19/10/2024 and amendment dated 11 Feb 2025.

Reference: Environment Clearance granted vide File no. **J-11011/141/2004-IA-II(I) for** Proposed Alumina Refinery of 3.0 MTPA along with co-generation power plant of 150MW by M/s. Hindalco Industries Limited - Aditya Alumina Refinery Project at Kansarigurha village, Kashipur Tehsil, Rayagada District, Odisha.

Dear Sir,

We are hereby submitting the **Six-Monthly Environment Clearance Compliance Status Report** for the period **e.g., 1st Oct 2025 to 31st March 2026**, in accordance with the conditions stipulated in the Environmental Clearance granted for our project located at Kansariguda, Kashipur Tehsil, Rayagada 765015 Odisha- with id - EC24A1005OR5293964N & with amended EC Id: EC24A1005OR5322895A dated 11 Feb 2025.

The compliance report has been prepared in the prescribed format and is accompanied by relevant supporting documents for your kind perusal.

A copy of the same is also being forwarded to:

- The Regional Officer, Odisha State Pollution Control Board, **Rayagada**
- The Regional Officer, Odisha State Pollution Control Board, **Koraput**
- Ministry of Environment, Forest and Climate Change (MoEF&CC) Zonal Office (EZ) A/3, Chandrasekharpur Bhubaneswar – 751023 Odisha

We kindly request you to acknowledge the receipt of this submission. Should you require any further information or clarification, please feel free to contact us.

Thanking you.

Yours faithfully,

Mazharullah Beig
Unit Head & President
Adiya Alumina Refinery
Hindalco Industries Limited
Kansariguda, Kashipur Tehshil,
Rayagada, 765015, odisha

1.1 Statutory Compliance

EC Identification No. **EC24A1005OR5322895A**		
Sr. No.	EC conditions	Status
1.	The PP shall ensure compliance of OM dated 14-01-2025 regarding streamlining the implementation of GSR 702 and GSR 703 dated 12-11-2024 through which projects requiring prior EC were exempted from the requirement of CTE	In reference to the Office Memorandum dated 14-01-2025 regarding the implementation of GSR 702(E) and GSR 703(E) dated 12-11-2024, we would like to submit that the Consent to Establish (CTE) for the Aditya Alumina Refinery Project was granted prior to the issuance of the said notifications. Furthermore, the Environmental Clearance (EC) for the project was obtained in October 2024. As such, the provisions of the above-mentioned notifications are not applicable retrospectively to the CTE already granted to our industry. Nevertheless, we remain committed to adhering to all applicable regulatory requirements.
2.	PP shall complete the acquisition of total land involved in the instant proposal and its conversion for industrial purpose in a time-bound manner, i.e. up to June-2025, Jan-2026 and June-2026 for respective identified parcels of land, as committed before EAC. A compliance of the same shall be submitted to concerned RO MoEFCC in July-2025, February-2026 and July-2026, respectively. Further, it may commence construction for the first phase of the project where the land acquisition is completed covering Refinery Plant area (core plant), Red Mud Pond, and Ash Pond, including Rehabilitation Colony, for the CTE Granted capacity of 1.0MTPA (issued vide letter dated 07-10-2024). However, it shall be ensured that the area where work is started is already in possession (from IDCO) and converted for industrial purposes.	1953 Acre has been acquired for setting of Project rest acre of land is in process of acquisition.
3.	The project proponent may commence construction as per specific condition (iv), provided that the resettlement and rehabilitation (R&R) process for displaced families is carried out concurrently and completed by 2026 i.e. within a timeline of 2 years from the date of issuance of EC. The R&R colony shall be developed as per the approved design and plan, with housing for displaced families progress as a priority. The proponent must ensure that no construction activity adversely impacts the livelihood, habitat, or environment of the displaced	RPDAC Meeting: 4th Rehabilitation and Peripheral Development Advisory Committee meeting held on 18th July 2024. Approvals: • DP list of Rayagada District approved. • RR package finalized. • Layout and RR colony design approved. Construction Progress: • Area grading and construction activities initiated. • Phase-wise construction calendar prepared.

	persons until they are fully restored. Regular progress updates on the R&R activities, including the completion of housing units and issuance of DP cards, must be submitted to the RO in six-monthly compliance report.	• First phase ongoing: 90 houses construction under progress.

EC Identification No. **EC24A1005OR5293964N**		
Sr. No.	EC conditions	Status
1.1	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Yes, Noted.
1.2	The project proponent shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	Implementation of EIA/EMP: All recommendations made in the EIA/EMP regarding environmental management and risk mitigation measures will be implemented diligently. Commitment confirmed: The project proponent is committed to fully complying with the environmental protection measures and safeguards outlined in the EMP/EIA. Standards ensured: Every recommendation provided in the EIA/EMP concerning environmental management and risk mitigation will be carried out to ensure the project meets all required environmental standards.
1.3	The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.	Plantation activity is in progress.
1.4	PP shall complete the acquisition of total land involved in the instant proposal and conversion for industrial purpose prior to commencement of project.	The condition was amended on 11th February 2025 with identification ID EC24A1005OR5322895A. It is covered under condition 2 above.
1.5	Prior to the commencement of any project-related activities, the proponent shall ensure the completion and implementation of the approved Resettlement & Rehabilitation (R&R) plan, including the resettlement of 278 displaced families from Kansariguda and Puhundi villages, as per the R&R package approved in the 4th RPDAC meeting held on 18th July 2024, and in compliance with the Odisha R&R Policy 2006 and the LA	The condition was amended on 11th February 2025 with identification ID EC24A1005OR5322895A. It is covered under condition 3 above.

	R&R Act 2013. PP shall make efforts to ensure that all displaced people reside in R&R colony. The displaced people shall be given direct / indirect employment opportunities based on their ability / willingness; else proper compensation shall be provided. The colony developed shall be ecologically and culturally tuned to the local environment and ecological practices.	
1.6	There are several sensitive areas reported within the study area of the project site. Proponent shall take appropriate environmental safeguard measures to minimise the impact on the habitation of the locals. The project proponent needs to strengthen green belt all around the plant area to reduce the dust pollution. The PP shall also include some of these locations in its environmental monitoring programme.	Maximum GLC: PM dispersion: ~3.35 km westward. SO_2 and NOx dispersion: ~3.4 km westward. These directions contain no receptors, minimizing direct impact. Pollution control equipment: ESP (Electrostatic Precipitators), Bag Filters. These will be installed to rigorously control emission rates. Traffic management: A strict traffic management plan will be followed to reduce vehicular emissions and congestion.
1.7	As reported, Pathagarha Nala is adjacent in north of project site along with other water bodies within the study area of the project site. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be implemented.	Nallah Conservation Plan has been prepared and approved by Chief Engineer of Berhampur, Payment has been proceeded for implementation. **Annexure -1**
1.8	Total water requirement of 20,000 m3/day, which will be obtained from the Pathagarha river. PP shall obtain necessary permission from the Competent Authority in this regard.	Water allocation letter agreement signed, and approval received vide letter no-2227(WR) dated 15.10.25 **Annexure -2**
1.9	Three tier Green Belt shall be developed in at least 33% of the project area as committed, of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years. PP shall also develop greenbelt in the form of shelter belt comprising of total of 6 rows of 2x2 m plantation with tall trees & broad leaves with thick canopy along with windshield inside the plant premises to act as green barrier for air pollution & noise levels towards sensitive areas nearby project site. Compliance status in this regard, shall be submitted to	Total trees planted: 122,000 Location: Non-construction areas within the project premises Coverage: Plantation initiated to achieve the mandated 33% of project area

	concerned Regional Office of the MoEF&CC.	
1.10	PP shall undertake tree felling/ cutting, if required, after due permission and in consultation with the State Forest Department	Tree Felling and cutting is under progress by Odisha Forest development corporation team.
1.11	The PP shall undertake plantation, in compliance to MoEFCC OM dated 24.07.2024, in the earmarked 33% greenbelt area as a part of tree plantation campaign 'Ek Ped Maa Ke Naam' Campaign and the details of the same shall be uploaded on Meri LiFE portal at https://merilife.nic.in	Under Gov of India campaign for Ek Pad Maa Ke Name, Aditya alumina refinery project organized plantation drive at village farm near the project site. Over 11300 fruit bearing saplings are planted including mango, Sapota, Avocado, Lichi etc. further our planning in process for completion of target 33% within time of project.
1.12	All the commitments made towards socio-economic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 amounting to Rs. 170.912 Crores shall be strictly implemented, and progress shall be submitted to the Regional Office of MoEF&CC.	Total budget allotted: Rs. 30.32 Crores Fund utilized (CER/CSR activities): Rs. 25 Crores (approx.) Utilization percentage: ~82% of the annual allocation Village infrastructure: Road strengthening, sanitation facilities, and electrification works. Healthcare initiatives: Medical camps, supply of medicines, and support to primary health centres. Education support: Scholarships, school infrastructure upgrades, and digital learning tools. Livelihood programs: Skill development workshops and support for self-help groups. Environmental measures: Plantation drives, water conservation structures, and awareness campaigns. Detailed progress report is attached as **Annexure-3**
1.13	The project proponent shall undertake village adoption programme and prepare and implement the action plan to develop them into a model village.	Kadapadar Village has been adopted to develop them into a model village. **Annexure -4**
1.14	The project proponent shall ensure that the demolition of the school in the displaced village does not disrupt students' education. All affected students must be provided support for admission to nearby schools, and the proponent shall continue to offer necessary assistance, including transportation, remedial classes, and other educational amenities, to facilitate their transition. A compliance report on these measures must be submitted to IRO, MoEF&CC.	We ensured the continuation of education of all students and extended support for their admission in the nearby school. Education materials and transport facilities are being provided. Progress report attached **annexure - 5**
1.15	PP shall assess the potential for expanding water supply from the Pathagarha River to other nearby villages. Any feasible measures shall be implemented to ensure access to clean drinking water for the affected communities.	Baseline data has been collected based on a need-based assessment for water supply and distribution facilities. Water provision has been initiated through solar-powered borewells, and once the piped water supply from the Pathagarha River becomes operational, any additional feasible measures shall be implemented to ensure access to safe and clean drinking water for the affected communities."

		Annexure -6
1.16	PM emissions from the calciners during normal course of operation shall be limited to 30 mg/Nm3.	Noted. Agreed to comply as per new norms.
1.17	Based on the comprehensive study on the environmental impacts of red mud generated from the Alumina Refinery, including an assessment of current handling, storage, and disposal methods, and potential risks to soil, water, and air quality, a detailed Red Mud Management Plan must be prepared and implemented, addressing strategies for neutralizing alkalinity, minimizing environmental impacts, secure storage, recycling/reuse options, and remediation measures. The plan should include a monitoring program to assess its effectiveness. A similar approach shall be applied to the Ash Pond management.	Handling and Management of Red Mud will be in accordance with the CPCB guidelines published in May 2023. The Red mud management plan includes monitoring program of red mud storage and handling to minimize impact on environment (soil, water, and air quality). Red Mud Utilization pilot projects undertaken like mine void backfilling, road construction, brick making etc. will be suitably implemented in this project which will maximize the utilization of Red Mud. A similar approach will be applied to the Ash Pond management.
1.18	As committed, once the proposed plant in Gujarat is commissioned, PP shall send the E-waste generated in the instant plant to the Gujarat plan for proper disposal.	The electrical and electronic equipment including proposed solar PV modules or panels or cells, whole or in part generated from the refinery and power plants, as waste items under the e-waste rules will be supplied to authorised recyclers empanelled by the State Pollution Control Board. Ones Gujrat recycling plant operational.
1.19	The recommendations of the approved Site-Specific Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.	Detailed list of flora and fauna has been prepared based on baseline study and secondary data. 4 Schedule I species is present in the area and wildlife management plan has been prepared for the same. Implementation starts through State Forest Department, and payment proceeds for the same. **Annexture -7**
1.20	The ground water in the vicinity of the Red Mud Pond must be tested periodically (once a year) for alkalis, Ti, Fe, Al, Na, Si and reported to the IRO.	Groundwater sampling and monitoring will be implemented once the Red Mud Pond operation begins.
1.	**Statutory Compliance**	
1.1	The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.	Yes, Agreed.

1.2	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Noted.
2.	**Air Quality Monitoring And Preservation**	
2.1	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 06 Nos. Continuous Ambient Air Quality Station (CAAQMS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Environmental Monitoring is being caried out through the NABL accredited lab. **Annexture – 8**
2.2	The project proponent shall carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions.	Yes Complied.
2.3	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Sampling and testing in progress through laboratories recognized under the Environment (Protection) Act, 1986 or NABL accredited laboratories. Environmental Monitoring report includes the fugitive report as well. **Annexture -8**
2.4	Sampling facility at process stacks shall be provided as per CPCB guidelines for manual monitoring of emissions.	Yes, Agreed.
2.5	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	Efficient Air Pollution Control Equipment (APCE) will be installed for the control of emissions from all the sources within the prescribed limit.

2.6	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	Yes, Agreed.
2.7	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.	Yes, Agreed.
2.8	Ensure covered transportation and conveying of raw material to prevent spillage and dust generation. The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.	Followed.
2.9	The project proponent shall provide primary and secondary fume extraction system at all heat treatment furnaces.	Yes, Agreed.
2.10	Wind shelter fence and chemical spraying shall be provided on the raw material stockpiles.	Yes, Agreed.
2.11	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	The ventilation system shall be designed to ensure adequate air changes per hour (ACH) as per prevailing statutory norms and relevant Indian Standards.
2.12	Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.	ETP, STP, ESP, and bag filters will be provided as per the requirement and EMP plan. And waste reduction practice will be implemented as per the EMP.
2.13	The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.	Yes, Agreed.
2.14	Bag filters shall be cleaned regularly, and efficiency of bag filter system shall be monitored at regular intervals.	Yes, Agreed.
2.15	Water Sprinklers/Water mist system shall be installed near raw material yards, operational units and other strategic locations to control fugitive emissions from the plant.	Water sprinklers or water mist systems shall be installed near the Bauxite Handling Plant, Coal Handling Plant, operational units, and other strategic locations to control fugitive emissions, in accordance with the Environmental Management Plan (EMP)

2.16	The particulate matter emissions from the process stacks shall be less than 30 mg/Nm3 and measures shall be undertaken as per the submitted action plan. Efficient Air monitoring equipment shall be installed.	AARP acknowledged the PM emissions from the process stack during normal operation will be limited to 30 mg/Nm3. Opacity meter (CEMS) will be installed for continuous monitoring of particulate matter.
2.17	Following additional arrangements to control fugitive dust shall be provided: a. Fog / Mist Sprinklers at all on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas. b. Proper covered vehicle shall be used while transport of materials. c. Wheel washing mechanism shall be provided in entry and exit gates with complete recirculation system.	Water Sprinklers/Water mist system will be installed near raw material yards, operational units and other strategic locations to control fugitive emissions from the plant as per the EMP. b. Proper covered vehicle will be used for the transportation c. Wheel washing mechanism will be provided in entry and exit gates with complete recirculation system.
3.	**Air Quality Monitoring And Preservation In Case Of Aluminium Smelter / Aluminium Refinery**	
3.1	Adopt measures to recover fluoride gas from electrolytic cells and recycle the same in the process.	Amendment received for this condition via identification ID- EC24A1005OR5322895A:- This condition shall be considered as null and Void
3.2	Practice use of low-sulphur tars for baking anodes	Amendment received for this condition via identification ID- EC24A1005OR5322895A:- This condition shall be considered as null and Void.
3.3	Adopt dry scrubbing combined with incineration in order to control emissions of tar and volatile organic compounds (VOCs). The waste heat shall be recovered from the flue gases of incinerator.	Amendment received for this condition via identification ID- EC24A1005OR5322895A:- This condition shall be considered as null and Void.
3.4	Make efforts to increase the life of pot lining through better construction and operating techniques.	Null
3.5	Recycle alumina dust collected in ESPs installed in calciner.	Alumina dust will be recycled.
3.6	Design the pot roofs with louvers and roof ventilators	Amendment received for this condition via identification ID- EC24A1005OR5322895A:- This condition shall be considered as null and Void.
3.7	During operational phase at Captive Power Plant, Action Plan to monitor coke/coal dust exposures in different process plants using personal and area air samplers and to compare with permissible limits as per Indian Factories Act, 1948 shall be implemented.	Once the system installation is completed, Action plan included in EMP for sampling and testing also will be implemented on site for comply factory act, 1948 permissible limit is 2 mg/m3.
3.8	The coal dust should be monitored at coal unloading, crushing, furnace areas and should be within 2 mg/m3, respirable	Once the system installation is completed, Action plan included in EMP for sampling and testing also will be implemented on site for comply factory act, 1948 permissible limit is 2 mg/m3.

	dust fraction containing less than 5% quartz as per Indian Factories Act, 1948.	
4.	**Water Quality Monitoring And Preservation**	
4.1	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate this system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Both ETP and OCEMS are included in the project package system. The order finalization is currently in process. Once the system installation is completed, all parameters will be connected to the SPCB and CPCB portals for monitoring. Calibration of OCEMS system include in our environment management plan on the yearly basis through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.
4.2	The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.	Groundwater quality monitoring is included in our environmental plan. Report attached as annexure 8.
4.3	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Garland drain and collection pit considered in project engineering.
4.4	Water meters shall be provided at the inlet to all unit processes in the **alumina refinery operations**.	We will install water meters at all locations to monitor water usage and ensure proper tracking of water consumption.
4.5	The project proponent shall make efforts to minimise water consumption in the alumina refinery operation complex by segregation of used water, practicing cascade use and by recycling treated water	AARP reused all water and balance water will be collected for treatment for further recycling.
4.6	The proposed project shall be designed as Zero Liquid Discharge Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.	We will implement a Zero Liquid Discharge (ZLD) facility, and The treated STP water will be utilized for the development of our greenbelt, park, and plantation areas. This will ensure that no contamination of any water body occurs.
4.7	All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and	Redmud pond: Constructed for safe containment of redmud, preventing leachate infiltration and ensuring long-term stability.

	shall be implemented as per the action plan submitted in EIA/EMP report.	Ash dyke: Developed for fly ash disposal with engineered embankments to prevent runoff and dust emissions. Bauxite storage yard: Compacted with laterite to provide a stable, impervious surface preventing leachate infiltration. LDO storage: Close storage facilities constructed with leakage-proof design to avoid soil and groundwater contamination. Coal storage yard: Compacted with coal stone to minimize dust emissions and prevent seepage. Oil handling: Oil used in process is contained within trays to prevent spillage and ensure safe collection.
4.8	Rainwater harvesting shall be implemented to recharge/harvest water as per the action plan submitted in the EIA/EMP report.	Rainwater collection pond: Constructed with a storage capacity of 10,000 cubic meters. Purpose: Designed to collect and store rainwater for use in construction activities, thereby reducing dependence on external water sources.
4.9	Air Cooled condensers shall be used in the captive power plant.	Water cooled condenser planned as per our feasibility.
5.	**Noise Monitoring And Prevention**	
5.1	Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof, and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	Being Complied. **Annexure-8**
5.2	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during daytime and 70 dB(A) during nighttime.	Being Complied.
6.	**Energy Conservation Measures**	
6.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, streetlights, parking around project area and maintain the same regularly;	It will have co-generation unit for captive consumption. Green energy projects will be taken up additionally.
6.2	Provide LED lights in their offices and residential areas.	Yes, initiated the installation in all offices and streets.
7.	**Waste Management**	
7.1	Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil.	The collection pit and secondary oil spillage provisions are considered in design and engineering.
7.2	Kitchen waste shall be composted or converted to biogas for further use.	Yes, Agreed.
7.3	100% utilization of fly ash shall be ensured. All the fly ash shall be provided	100% utilization of fly ash will be prioritized. It will be used in brick manufacturing, cement production, mine

	to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.	void filling, road construction, and land reclamation for low-lying areas. Regular evaluations will explore additional uses to ensure full utilization. Continuous efforts will be made to maximize the benefits of fly ash in various industries.
7.4	The Plastic Waste Management Rules 2016, inter-alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by the CPCB in this regard is available at https://cpcb.nic.in/technical-guidelines-3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six-monthly compliance report being submitted by the project proponents.	To promote awareness, we will sensitize all individuals working within the project area and its surroundings about the SUP ban. This will be done through training sessions, awareness campaigns. Additionally, a detailed report, along with photographs of the actions taken, will be included in the next six-monthly compliance report submitted to the authorities. We will also refer to the technical guidelines issued by CPCB, which are available at CPCB Technical Guidelines, to ensure proper implementation and adherence to the prescribed measures.
7.5	A proper action plan must be implemented to dispose of the electronic waste generated in the industry.	Electronic waste generated from the project will be sold to a CPCB/SPCB/MOEF authorized recycler for proper disposal and recycling.
8.	**Waste Management In Case Of Aluminium Smelter/ Aluminium Refinery**	
8.1	A plan for 100 % utilisation of red mud generated shall be implemented. Under the Plan, MOU with shall be signed with potential buyers including cement companies for supply of red mud.	Handling and Management of Red Mud will be in accordance with the CPCB guidelines published in May 2023. The Red mud management plan including monitoring program of red mud storage and handling to minimize impact on environment (soil, water, and air quality), Red Mud Utilisation pilot projects undertaken like mine void backfilling, road construction, brick making etc. will be suitably implemented in this project which will maximise the utilisation of Red Mud.
8.2	The red mud generated from the project shall be stored in the red mud pond lined with impervious clay prior to use to prevent leakage, designed as per the CPCB guidelines with proper leachate collection system. Ground water shall be monitored regularly all around the red mud disposal area and report submitted to the Regional Office of the Ministry.	The red mud generated from the project will be stored in the red mud pond lined with impervious clay prior to use to prevent leakage, designed as per the CPCB guidelines with proper leachate collection system. As per condition 4.2 of this EC, ARP included Piezometer construction in EMP for monitoring of ground water at Red Mud Pond.

	Proper care shall be taken to ensure no run off or seepage from the red mud disposal site to natural drainage.	Proper care will be taken to ensure no runoff or seepage from the red mud disposal site to natural drainage.
9.	**Green Belt**	
9.1	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.	Being Complied.
9.2	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.	Being Complied. **Annexure -9**
9.3	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	Yes, Agreed.
10.	**Public Hearing And Human Health Issues**	
10.1	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Yes, Agreed.
10.2	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.	Yes, Agreed.
10.3	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, mobile STP. Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied. Bio toilets provided for the labor within the site. Drinking water facility is available on site. Temporary structures will remove after the completion of project.
10.4	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	Yes, Agreed.

11.	**Environment Management**	
11.1	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.	Being Complied.
11.2	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	Being Complied.
11.3	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	A separate Environmental Cell has been established at both the project level and the company headquarters, staffed with qualified personnel. This cell functions under the supervision of a senior executive who will report directly to the head of the organization.
11.4	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Integrated Regional Office of the MoEF&CC.	Yes, Agreed.
12.	**Miscellaneous**	
12.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven	Complied. We have displayed the environmental clearance and associated conditions on our company website, where it will remain accessible permanently for public reference at- https://www.hindalco.com/upload/pdf/kansariguda-environmental-clearance-alumina-refinery-sep2024.pdf

	days and in addition this shall also be displayed in the project proponent's website permanently.	**Copies of the newspaper advertisements attached herewith as an annexure -10**
12.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	Complied. Sample attached. **Annexure- 11.**
12.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	Complied. Last Report uploaded.
12.4	The project proponent shall monitor the criteria pollutants level namely, PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	Yes, Agreed.
12.5	Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be implemented.	Internal roads are being developed.
12.6	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Being Complied.
12.7	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Yes, Agreed. Once the plant operational.
12.8	The project proponent 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, commencing the land development work and start of production operation by the project.	Yes, Agreed.
12.9	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report,	Yes, Agreed.

	commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	
12.10	The recommendations of the approved Site-Specific Wildlife Management Plan (in case of involvement of Schedule-I species) shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.	Detailed list of flora and fauna has been prepared based on baseline study and secondary data. 4 Schedule I species is present in the area and wildlife management plan has been prepared for the same. Implementation starts through State Forest Department, and payment proceeds for the same. **Annexture -12.**
12.11	The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA/EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left-over funds allocated to EMP and PH as committed in the earlier ECs and shall be carried out and spent in next three years, in the company web site for the information to public/public domain.	Environment related expenditure is monitoring in progress. FY 2025-26 attached for your reference. **Annexure -13.**
12.12	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Yes, Agreed.
12.13	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Yes, Agreed.
12.14	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Yes, Agreed.
12.15	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Yes, Agreed.
12.16	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.	Yes, Agreed.
12.17	Any appeal against this EC shall lie with the National Green Tribunal, if preferred,	Yes, Agreed.

	within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	

Annexure-1

Office of the Additional Chief Engineer
Vansadhara Nagabali Basin, Paralakhemundi.
E-mail ID: se_sicpkd@yahoo.com

*****

Letter No. 2452 /WE

Date:23.10.2024

To,

The Chief Engineer& Basin Manager,
RBVN Basin, Berhampur,

Sub: - Submission of DPR on Patharagada Nalla conservation Plan for Aditya Alumina Refinary Project.

Ref: - Your Letter No.4722, dated- 30.8.24 .

Sir,

In inviting a kind reference to the letter and subject cited above, it is to intimate that the CE & BM RBVN, Berhampur while issuing NOC has instructed the Hindalco industries to submit Patharagada Nalla conservation Plan incorporating the following measures.

1. Slope protection measures in the Patharagada Nalla to Prevent soil erosion from starting to end of plant boundary.
2. Preparation of drainage plan to ensure smooth release of rain water, storm water into the Nalla through properly designed structures.
3. Plantation on both sides of the Nalla for soil protection.

Hindalco Industries Ltd has submitted the DPR of Patharagada Nalla conservation Plan amounting to 111.26 Lakhs to the SE, Rayagada Irrigation Division, Rayagada. In the DPR the Hindalco Industries has mentioned that the amount will be deposited to WR dept for implementing Nalla Conservation Plan. Further, the Plantation for providing vegetative cover on both side of the nalla will be done by the industry.

In the view of above the DPR for Patharagada Nalla conservation Plan is submitted herewith for favour of kind information & necessary action.

Yours' faithfully,

Additional Chief Engineer
Vansadhara Nagabali Basin,Paralakhemundi

Memo No.2453 Date: 23.10.2024

Copy to the Superintending Engineer, Rayagada Irrigation Division, Rayagada for information and necessary action.

Additional Chief Engineer
Vansadhara Nagabali Basin,Paralakhemundi

OFFICE OF THE SUPERINTENDING ENGINEER,
HARABHANGI IRRIGATION DIVISION,ADAVA,GAJAPATI

mail id-eeharabhangi@gmail.com

****

Letter no. 2227 (CWB) dated, 15.10.25

To

The Chief Engineer, Water Services,
O/o the Engineer-in-Chief, Water Resources,
Odisha, Bhubaneswar.

Sub : Submission of agreement as per clause 18 of the Agreement of M/s Hindalco Industries Ltd., Kansariguda, Rayagada.

Sir,

In inviting a kind reference to the subject cited above, it is to submit herewith the copy of agreement as per clause 18 of the Agreement drawn with M/s Hindalco Industries Ltd. Kansariguda, Rayagada on dated 15.10.2025 for drawal of 2.24 Cusecs of Surface water from Patagarh River for construction purpose along with Xerox copy of Bank Guarantee and FDR for favour of kind information and necessary action.

Encl:-

1. Xerox copy of Agreement for Industrial use – (12 Pages)
2. Xerox copy of Bank Guarantee No.0665725BG0B00299 dated 20.06.2025 amounting to Rs. 96,91,553/- valid up to 31.12.2028.
3. Xerox copy of F.D.R. bearing No. 44186680053 dated 16.06.2025 amounting to Rs.32,30,518/-

Yours faithfully,

15/10/25

Superintending Engineer,
Harabhangi Irr.Division,Adava,
Gajapati(761217)

15.10.25

Memo No. 2228 (CWB) dated, 15.10.25

Copy along with copy of enclosure submitted to Engineer-in-Chief-cum-Special Secretary to Government, Department of Water Resources Odisha, Bhubaneswar for favour of kind information and necessary action.

15/10/25

Superintending Engineer

15.10.25

Encl:- As above.

Memo No. 2229 (CWB) dated, 15.10.25

Copy along with copy of enclosure submitted to Engineer-in-Chief,(P&D)Odisha, Bhubaneswar for favour of kind information and necessary action.

15/10/25

Superintending Engineer

15.10.25

Encl:- As above.

Memo No. 2230 (CWB) dated, 15.10.25

Copy along with copy of enclosure submitted to Chief Engineer & Basin Manager, RBVN Basin, Berhampur/ Additional Chief Engineer, VN Basin, Paralkhemundi for favour of kind information and necessary action.

15/10/25

Superintending Engineer

15.10.25

Encl:- As above.

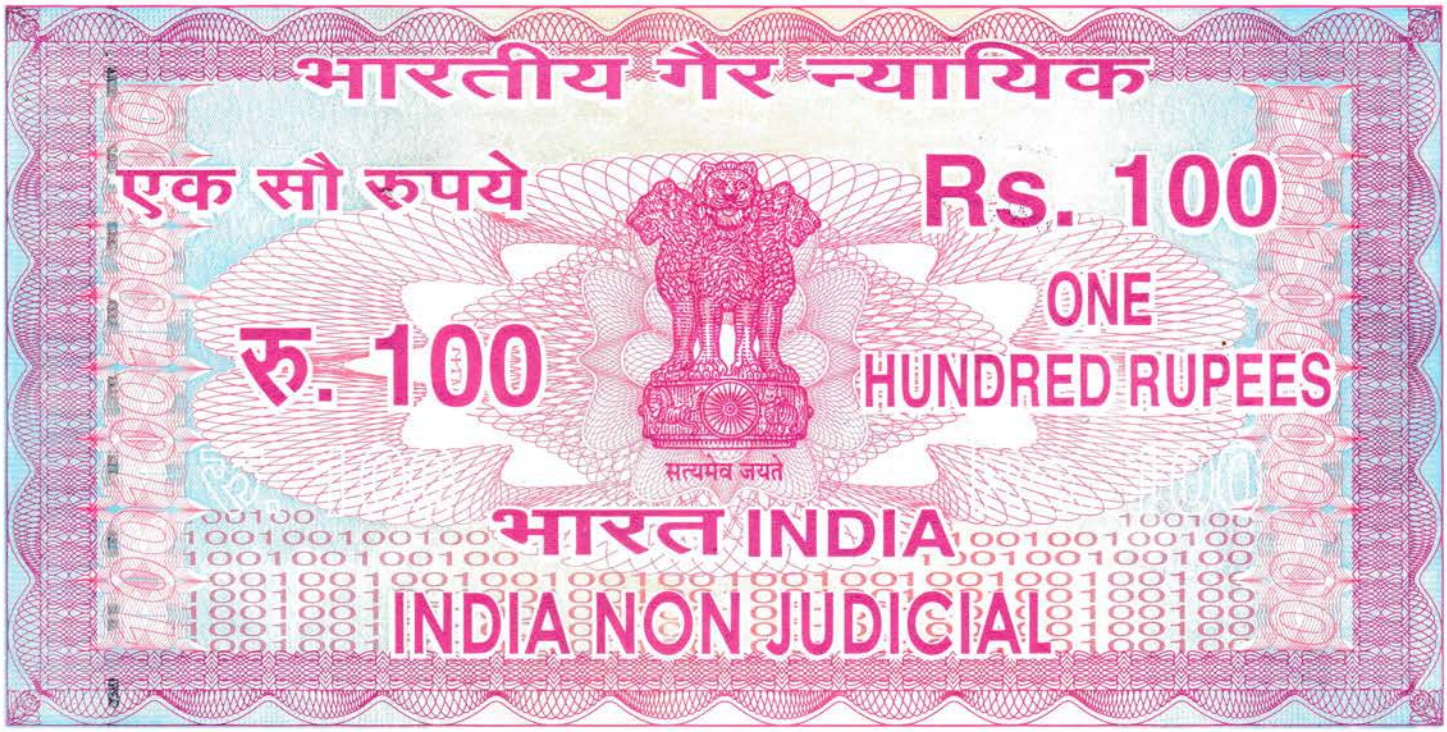
Memo No. 2231 (CWB) dated, 15.10.25

Copy along with copy of enclosure forwarded to M/s Hindalco Industries Ltd., Kansariguda, Rayagada for information and necessary action.

15/10/25

Superintending Engineer

Encl:- As above.



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S 347973

FORM 'K'

{See Rule 23-A (2) (e) & rule 26}

AGREEMENT FOR SUPPLY OF WATER FOR THE PURPOSE OF INDUSTRIAL COMMERCIAL USE

INDUSTRIAL/COMMERCIAL USE

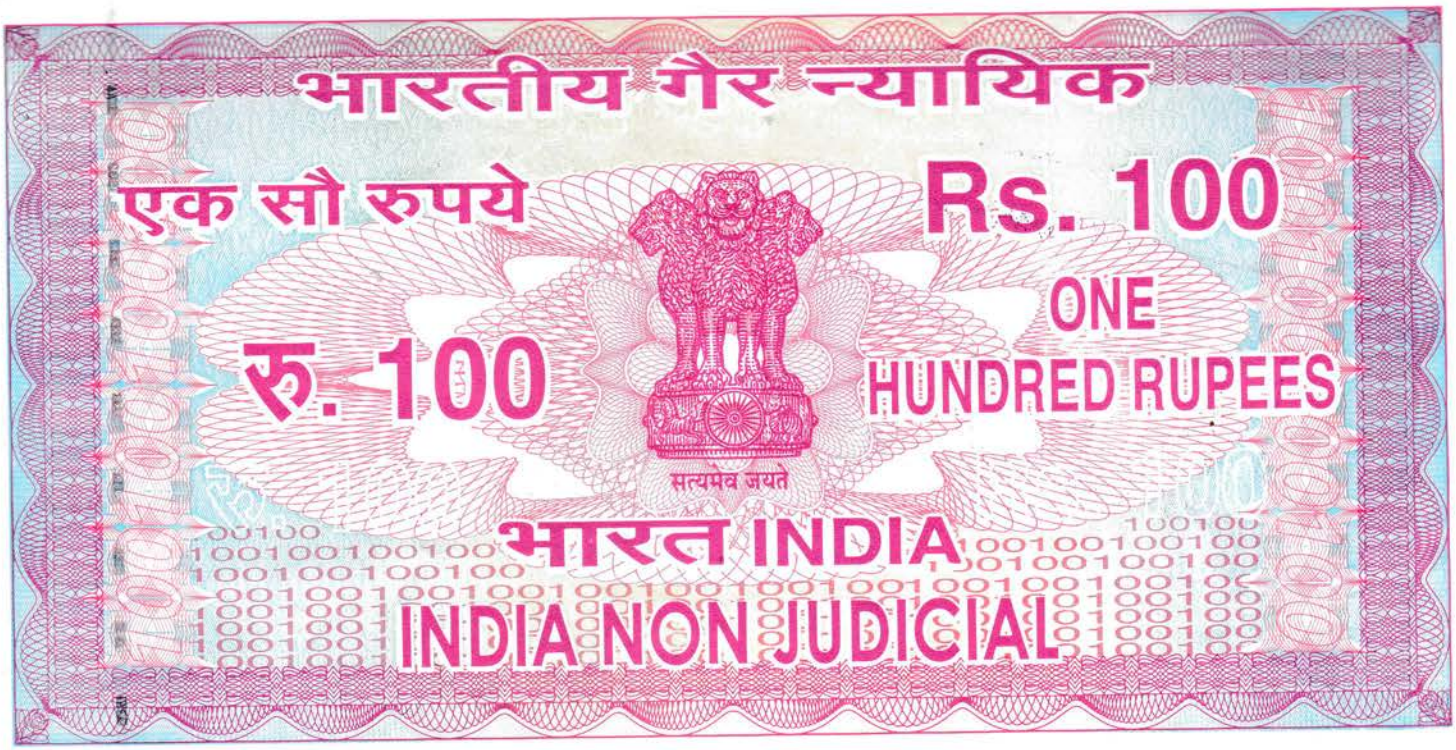
THIS AGREEMENT is made on this 15th day of October 2025 between Hindalco Industries Limited, duly organized and existing under the Companies Act 1956 and having its registered office at 21st Floor, One Unity Centre, Senapati Bapat Marg, Prabhadevi, Mumbai – 400013, at one of its manufacturing unit located at Aditya Alumina Refinery Project at Kansariguda, District Rayagada, Odisha, Pin – 765015 India and represent by **Shri. Mazharullah Beig** S/o Shri. Mohd. Masihullah Beig, President, Hindalco Industries Limited, hereinafter referred to as "Applicant" (which term or expression shall, unless excluded by or repugnant to the context or the meaning thereof, be deemed to include its successors and permitted assigns) of the First part.

AND

Sri Subrata Chaudhury, Son of Late Harihara Chaudhury, resident of Berhampur, Ganjam, Odisha by profession **Superintending Engineer, Harabhangi Irrigation Division, Adava, Dist:-Gajapati,** Odisha (hereinafter

15/10/2025

15/10/25



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S 347973

FORM 'K'

{See Rule 23-A (2) (e) & rule 26}

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AND

Sri Subrata Chaudhury, Son of Late Harihara Chaudhury, resident of Berhampur, Ganjam, Odisha by profession **Superintending Engineer, Harabhangi Irrigation Division, Adava, Dist:-Gajapati,** Odisha (hereinafter

15/10/25

HINDALCO INDUSTRIES LTD. KANSARIGUDA

15/10/25

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati

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referred to as the **'Sureties')** of the second part: **AND** the Governor of Odisha which expression unless repugnant to the context, shall include his successors and assigns (hereinafter called 'the Government') of the third part:

WHEREAS, the applicant has made an application for supply of water from Government water source/from Patagarha River(Lat: 19°08'50" and Long: 83°11'45"), for the period as mentioned in the schedule here to annexed:

AND WHEREAS, the sureties have agreed to stand surety for payment of rates charged for such supply in the manner hereinafter appearing and the Government has agreed to supply water for the purpose specified in the schedule annexed hereto:

SCHEDULE

Purpose for which water will be supplied	Volume of water if any	Period of supply	The place at which it will be supplied
(1)	(2)	(3)	(4)
Construction purpose of M/s Hindalco Industries Limited	**2.24 cusec or 193536 cft/day**	**Continuous as per availability from the source**	**To Plant site at Kansariguda**

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15/10/25

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati

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NOW THIS AGREEMENT witness as follows: -

1. In pursuance of the said agreement and in consideration of supply of water to be made to the applicant, the applicant and the suretieshereby jointly and severallycovenant withthe Government as follows: -

a) The applicant shall pay **Rs. 96,91,553/-(Rupees Ninety six lakh ninety one thousand five hundred fifty three)** only for **Bank Guarantee** and **Rs.32,30,518/- (Rupees Thirty two lakh thirty thousand five hundred eighteen only)** for **FDR** for the allotment period of one year @ Rs. 6.46/cum on or before the day of the Agreement to the Superintending Engineer, Harabhangi Irrigation Division, Adava, Dist:-Gajapati, Odisha.

b) The applicant shall make suitable arrangement to take the water from the Government water source from Patagarha River at which it will be supplied.

c) The applicant shall not use the water supplied to him for any purpose other than that which is specified in the said schedule.

2. If the sum aforesaid or any part thereof, is not paid on or before the date specified in this agreement, it shall become payable at once (unless the Government sanctions for special reason an extension of time) and the applicant and the sureties shall be liable jointly and

15/10/2021

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15/10/21

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati

15/10/21

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severally to pay the same with compound interest at the rate of two percent per mensem from the date of default. All amount due to the Government under the terms of these presents shall if not paid in time, be recoverable as a public demand under the Odisha Public Demands Recovery Act, 1962.

3.The applicant shall be liable for criminal and civil action if by drawal of water the rights of any third party are affected and shall indemnify the Government against all claims for damage preferred by person or persons affected by the permission granted.

I. The applicant shall not without prior permission in writing from the Government lay pipe line on Government or communal lands. If the pipelines have to pass through Government lands, permission of the Government for this shall be taken separately which may be granted subject to the protection of rights of Government or community, as the case may be.

II. The applicant shall not draw or lift water more than the quantity mentioned in the requisition or order and not exceeding the volume mentioned in the Schedule except with the prior approval of the Government. The Superintending Engineer shall assess the fees to be charged as per Unit/Quantity of water drawn or allocated whichever is higher. If drawal is more than the allocation, a penal rate at six times the rate specified in Schedule II and III shall be charged on the quantity of excess drawal, in addition to the normal bill on allocated quantity. The

15/10/2024

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15/10/24
Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati
15.10.24

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excess drawal is permissible for a maximum period of six months, within which, the licensee shall have to apply for a higher allocation of water with reasons and where the licensee fails to so apply for such higher allocation or where the licensee is refused for such higher allocation and the water supplied thereafter.

III. The permission granted shall not be deemed to exempt the applicant from liability to payment of water charges lawfully assessable at the rate as may be prescribed by Government from time to time.

IV. Government reserves the right to suspend or cancel the permission in case of violation of any of the covenants.

4. The applicant at his own cost shall install a IOT Flow meter or a suitable measuring device for measurement of water drawn or lifted by him from the Government water source/Irrigation works as per the procedure laid down in rule 23-A (b). The Superintending Engineer shall visit the location of drawal or lifting of water, verify the quantities of water drawn or lifted by the applicant and ensure such control as may be necessary for administering the drawal or lifting of water. Assessment of water rate shall be made as per the quantity of water drawn or allocated whichever is higher. In case of any defect or non functioning of the Flow Meter, the licence shall bring the fact to the notice of the concerned Superintending Engineer forthwith and take appropriate steps to remove the defects in the meter or for replacement thereof within a period of two months and

15/10/2025

HINDALCO INDUSTRIES LTD. * ADITYA ALUMINA REFINERY * KANSARIGUDA

Superintending Engineer
Harabhangi Irrigation Division

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in such cases the fees shall be charged on the quantity of water allocated for the said period of three months or till the defect in the meter is removed or the meter is replaced, as the case may be whichever is earlier and where the licencee fails to bring the defect or non-functioning of the meter to the notice of the Superintending Engineer or fails to remove the defects in the meter or to replace the same as the case may be, within the stipulated period the agreement shall be liable to cancellation and thereafter the water supply shall be stopped.

5. The applicant shall construct full proof effluent discharge plant before commissioning of the Project. For proper test of such effluent there shall be computerised testing system and the applicant shall give details of effluent discharged in the natural source (in river and nalla).

6. For construction of head works and control mechanism i.e., intake well, pump house and other related facilities, **M/s Hindalco Industries Limited** will get the land leased in their favour through **IDCO** as is done in respect of any other Government land required by the industry. **IDCO** will make available land on long term lease to **M/s Hindalco Industries Limited**. The continuance of the lease agreement will be subject to the condition that the industry shall pay water charges as per prevailing water rate and all other dues of Government and IDCO from time to time.

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati

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7. **M/s Hindalco Industries Limited,** would be required to pay three months advance water charges in favour of Superintending Engineer concerned in shape of Bank Draft or FDR duly discharged by the Company as non-interestbearing security deposit and for nine months a Bank Guarantee duly pledged in favour of the concerned Superintending Engineer. Onus of maintaining the Bank Guarantee lies with the company.

8. In case of water supply for the M/s Hindalco Industries Limited is to be met from a common source through a sharing mechanism, such common infrastructure for drawal of water will be constructed, maintained, and operated either by **IDCO** or Special Purpose Vehicle (SPV) after taking due clearance from **IDCO.** Water will be supplied to **M/s Hindalco Industries Limited** by **IDCO/SPV** and they would also be liable for payment of water rate to the Government and will in turn have arrangements as similar therein as clauses (6) and (7) of this agreement.

9. **M/s Hindalco Industries Limited** would compensate the loss of power generation if any due to drawal of water from **Patagarha River(Source).**

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15/10/25

Superintending Engineer
Harabhangi Irrigation Division
Adava

15.10.25

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10. They will not disturb the normal flow of water so that riparian rights in the downstream will be affected and the **Company** shall have no claim on the account.

11. The drawal mechanism for raw water and disposal system of effluent to be established by the industry without disturbing existing eco system and environmental set up.

12. The Rehabilitation and Resettlement Action Plan/ Welfare Action Plan, if so required will be prepared in conformity with the current Odisha Rehabilitation and Resettlement Policy and executed by the **Company** at its own cost under the supervision of the Water Resources Department and the Collector of the District.

13. **M/s Hindalco Industries Limited** shall not claim as a matter of right to get the desired quantity of water during non-monsoon and lean period to meet their full industrial use and the **Company** has to make adequate storage facility in their own land for supply of water to their plant during such period.

14. The safety design of all the structures lies fully on the **Company.**
15. In case of any dispute /arising out of this agreement, the same shall be referred to Government and the decision of the Government in Water Resources Department shall be final.

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15.10.25

Superintending Engineer
Harabhangi Irrigation Division
Adeva, Gajapati

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16. Any surplus power from the Captive Power Plant shall be sold by **M/s Hindalco Industries Limited to GRIDCO** or any other entity to be notified by the State Government under mutually acceptable terms and conditions.

17. The allocation of water will automatically lapse if the **Company** does not use the water for the purpose applied for within three years of allotment.

18. This agreement shall be valid for a period of **3 years w.e.f. 15th day of October 2025** subject to renewal of the same by the Superintending Engineer. For renewal of the agreement, the concerned drawee has to apply minimum three months before the expiry of the agreement.

19. If the industry is found to be drawing water unauthorisedly before signing the agreement/Installation of flowmeter, the concerned Superintending Engineer, will charge a penal rate at six times the normal rate as provided in Schedule II & III.

20. Government shall be at liberty to review the water allocation unilaterally in case of exigencies.

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

15/10/25

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati
15.10.25

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21. The Superintending Engineer or his authorized representative reserves the right to inspect all installations of drawal and disposal mechanism during and after construction including intake structure, flow meter and treatment plant.

22. **M/s Hindalco Industries Limited** will have to show clearly in water management plan as to what storage facility the **Company** will create for the lean season and to what extent and how the water is going to be recycled which shall be a part of the Project report of the unit.

23. **M/s Hindalco Industries Limited** may engage at their own cost consultant (s) experienced in the field to take up field investigations, prepare design land drawing to set up the water supply scheme for drawing water from Government water source/irrigation works for their proposed plant. The actual work will start after approval of the scheme by the competent authority or Water Resources Department who can inspect the work during the construction.

24. The exact place for lifting will be decided in consultation with the authority of Water Resources Department.

25. Department of Water Resources shall not be held responsible for non-availability of water due to dry seasons, disruption, repair and maintenance of canal/reservoir.

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINIUM REFINERY

Superintending Engineer
Narabhangi Irrigation Division
Adava, Gajapati

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26. The agreement to be executed by the industry/commercial establishment with Local Authority/Superintending Engineer must be approved by the Department of Water Resources before drawal of water.

27. License fees shall be charged and collected at the rate as specified in the SCHEDULE-III per Unit or quantity of water actually drawn or allocated whichever is higher and shall be enhanced at the rate of ten percent (10%) per annum with effect from 1st day of April.

28. The Government in department of water resources reserves the right to totally cancel/ suitable modify / or to substitute further any additional clauses in the agreement in the best interest of the Government or public and the **Company M/s Hindalco Industries Limited** has to bear with this strictly.

15/10/2025

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati
15.10.25

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

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In witness where of the parties hereto have put their hands and seals the day and year first above written.

In the presence of Witnesses:

1. Dr R.C.Rao - 15/10/25

Signature of applicant

2. 15.10.25
(Rakesh Kumar Gouda)
(JE, Estt.)

HINDALCO INDUSTRIES LTD. KANSARIGUDA ADITYA ALUMINA REFINERY

Signature of the Superintending Engineer

Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati
15.10.25

15/10/25
Superintending Engineer
Harabhangi Irrigation Division
Adava, Gajapati

Annexure -3

ANNUAL CSR REPORT – FY 2025–26

ADITYA ALUMINA REFINERY, KANSARIGUDA

(A Unit of Hindalco Industries Limited – Aditya Birla Group)

1. PREFACE

Aditya Alumina Refinery complex at Kansariguda, Odisha is being set up by **Hindalco Industries Limited**, a flagship company of the **Aditya Birla Group**. The project is based on the **Kodingamali Bauxite Deposit** located in **Rayagada and Koraput districts of Odisha**, duly approved by the **Government of Odisha**.
The proposed facilities include:

- **Alumina Refinery** with a capacity of **0.85 million TPA**
- **Co-generation Power Plant** of **60 MW**

The Aditya Alumina Refinery is driving **inclusive socio-economic transformation** in the Kansariguda region by placing **community well-being at the core of its development philosophy**. Through a **five-pillar CSR framework**, the refinery positively impacts the lives of **over 18,000 people**, addressing critical gaps in **healthcare, education, livelihoods, infrastructure, and socio-cultural development**.

2. OPERATIONAL VILLAGES & COVERAGE

District	Block	GPs	Villages	Plant Area	Periphery	Outer Periphery	Approx. Population
Rayagada	Kashipur	5	26	05	10	11	14,000
Koraput	Laxmipur	2	08	04	03	01	4,000
Total	**2 Blocks**	**7 GPs**	**34 Villages**	**09**	**13**	**12**	**18,000**

3. OUR FIVE CSR FOCUS AREAS

1. **Health** – Addressing health & wellbeing of **15,000+ people**
2. **Education** – Improving education standards of **1,200 school children**
3. **Sustainable Livelihood** – Enhancing skills & making **100 local youths employable**
4. **Village Infrastructure** – Building need-based community infrastructure across **36 villages**
5. **Socio-Cultural Development** – Promoting traditional culture & rural sports

4. HEALTH CARE INITIATIVES

Under **Integrated Health Services**, comprehensive healthcare is delivered focusing on **accessibility, emergency response, outreach, and disease prevention** through:

- Nirogshala (Village Health Dispensaries)
- Mobile Health Units (MHU)
- 24×7 Ambulance Services
- Health, sanitation & disease awareness

4.1 NIROGSHALA – Village Health Dispensary

Three decentralized health facilities operate close to the community, minimizing travel to distant hospitals.

Location	Panchayat	Block	District	Patient Footfall FY 2025–26
Podapadi	Podapadi	Kashipur	Rayagada	**9,855**
Kadapadar	Podapadi	Kashipur	Rayagada	**1350**
Biriguda	Odiapentha	Laxmipur	Koraput	**4,721**

4.2 AMBULANCE SERVICES

By providing ambulance services to the local community, access to prompt and reliable emergency healthcare has been significantly strengthened.

Indicator	FY 2025–26
Emergency referral cases	**425**

4.3 MOBILE HEALTH UNIT (MHU)

The objective of the Mobile Health Unit (MHU) is to provide accessible, doorstep healthcare services to underserved rural communities, thereby reducing travel burdens and ensuring timely medical support. MHU covers 36 villages across five Gram Panchayats in Kashipur Block (Rayagada) and two Gram Panchayats in Laxmipur Block (Koraput), Odisha

- Coverage: **36 villages**, 7 GPs (Rayagada & Koraput)

Indicator	FY 2025–26
MHU Camps conducted	**563**
Patients served	**10,189**

4.4 HEALTH AWARENESS & PREVENTIVE CARE

- **JALACHHATRA:**
    - 03 drinking water outlets during summer
    - **~500 people/day/centre** benefiting (lemon water & ORS)
- **Disease Awareness:**
    - Diarrhoea, Dengue & Malaria campaigns in **16 villages**
    - **2,500 people covered** (van, street play & IEC)
- **Water Safety:**
    - **178 drinking water sources chlorinated** in **20 villages**
- **Environment & Plastic Waste:**
    - "**Beat Plastic Pollution**" awareness in **27 villages**
    - **~2,500 people sensitized**

5. EDUCATION INITIATIVES

Education interventions aim to ensure **access, retention, quality learning, and holistic child development**.

5.1 GYANVRIDDHI PATHSHALA – Remedial Education

To strengthen primary education, Eight Gyanvriddhi Pathshala were established across Eight villages, covering students from Classes I to V. These centers currently support 275 enrolled students, offering a structured and encouraging learning environment that promotes foundational literacy, numeracy, and overall development.

Year	Centres	Students	Boys	Girls
FY 2025–26	07	239	108	131
Total	**08**	**275**	**127**	**148**

- Classes **I–V**
- Community-based teachers
- Attendance improved up to **94%**

5.2 PROJECT SHIKSHA – Secondary School Support

Ensuring safe and uninterrupted access to education, a school bus facility was introduced to provide smooth and reliable transportation for students, contributing to improved attendance and continuity in learning.

Significant school infrastructure development activities were also undertaken to create a better academic atmosphere. Key interventions included the construction and upgradation of school gates, cycle stands, drinking water facilities, dining halls, and playgrounds, enabling schools to function more efficiently and safely.

Through these integrated efforts, the organization continues to invest in building a strong educational foundation, ensuring that children are empowered with quality learning opportunities from early childhood through adolescence.

As part of its commitment to holistic child development, there is a Children's Festival at Podapadi High School Ground on 8 December 2025. The festival saw the participation of 14 schools and over 700 students, who engaged in a range of creative and experiential learning activities. The day-long programmed provided a joyful platform for children to explore their talents, enhance skills, and learn through fun and collaboration.

- **1,200 Education Kits** distributed in **10 schools**
- **255 Test Papers** given to **Class X students (5 schools)**
- Infrastructure support:
    - Girls' toilets
    - Water cooler cum purifier
    - School gate
    - Cycle stand
    - Benches & desks

5.3 SCHOOL INFRASTRUCTURE & TRANSPORT

- **80 pairs of bench & desk** at Podapadi High School
  → **160 students benefited**
- School Bus facility introduced
- Development of:
    - Drinking water facilities
    - Dining halls
    - Playgrounds
    - Boundary & access improvements

5.4 CHILDREN'S FESTIVAL – 2025

- Date: **8 December 2025**
- Venue: Podapadi High School Ground

Indicator	Details
Schools participated	14
Student participation	700+
Activities	Art, Science, Math, Environment, Yoga, TLM

5.5 ANGANWADI REFURBISHMENT – SISHU VATIKA

Focusing on early childhood education, the Sishu Vatika Project was launched to strengthen pre-primary learning. As part of the initiative, 5 Anganwadi Centres were renovated with improved infrastructure, vibrant BALA (Building as Learning Aid) paintings, and the provision of Teaching Learning Materials (TLMs) to promote joyful, activity-based learning among young children.

- **05 Anganwadi Centres renovated**
- BALA paintings & TLM provided
- Improved pre-primary learning environment

6. SUSTAINABLE LIVELIHOODS

6.1 PROJECT KAUSHAL – ITI TRAINING

Project "Kaushal" marks a significant milestone under the CSR initiative of Aditya Alumina Refinery, reaffirming the company's commitment to fostering sustainable livelihoods through skill enhancement for local youth. Under this initiative, 46 local youths—including 39 from Rayagada and 7 from Koraput are currently undergoing a two-year ITI training program in Fitter and Electrical trades at KIIT (Kalinga Institute of Industrial Technology), Bhubaneswar.

The program is designed to provide both theoretical knowledge and practical exposure and will be followed by one year of on-the-job training, enabling the trainees to gain hands-on industry experience. Through Project *Kaushal*, Aditya Alumina Refinery continues to invest in empowering young talent and building a skilled workforce that can contribute meaningfully to the region's socio-economic development.

- **46 youths enrolled**
    - Rayagada: 39
    - Koraput: 7
- Trades: **Fitter & Electrical**
- Institute: **KIIT, Bhubaneswar**

- 2-year training + 1-year OJT

6.2 PROJECT KAUSHAL – Apparel Skill Development was initiated by Hindalco CSR at Aditya Alumina Refinery to skill tribal women and create a sustainable local workforce for the Apparel Project. Partnering with M/s Skilift, Bhubaneswar, 66 women were selected for an eight-month training program covering apparel manufacturing, machine operation, workplace discipline, and industrial standards. The trainees achieved an early milestone by producing quality-compliant Peter England shirts within 12 days, reached 32% operational efficiency, reduced reliance on external manpower, and gained confidence and employability, delivering strong community impact and a replicable skilling model for other Hindalco projects.

The Apparel Manufacturing Unit, being established alongside the Refinery and Power Plant at Phuljoba, aims to create sustainable employment opportunities for women and girls from nearby communities. In its initial phase, the unit is expected to generate employment for more than 500 women, significantly contributing to the socio-economic development of the region.

- **66 tribal women trained**
- Partner: **Skilift, Bhubaneswar**
- Achievements:
    - Quality Peter England shirts in **12 days**
    - **32% operational efficiency**

➞ Upcoming **Apparel Manufacturing Unit at Phuljoba**
➞ **500+ women employment potential**

6.3 PROJECT UDYAMEE – ENTERPRISE PROMOTION

Aditya Alumina Refinery, Kansariguda has signed an MoU with Mahashakti Foundation and officially launched Project Udyamee. This initiative aims to promote entrepreneurship among local youths and women by establishing a Rural Business Incubation Centre. The Centre will support micro enterprises across manufacturing, trading, and services sectors- strengthening sustainable livelihoods and contributing to the growth of the local economy. A meaningful step towards inclusive growth, women empowerment and long term community development.

- MoU with **Mahashakti Foundation**
- Establishment of **Rural Business Incubation Centre**
- Focus: Women & youth entrepreneurship
- Sectors: Manufacturing, Trade & Services

6.4 FARM-BASED LIVELIHOODS

To strengthen short-term agricultural productivity, 40 farmers supported with sunflower seeds across 18 acres and 140 farmers with 11 types of vegetable seeds during the Kharif season at

Kadapadar village. These initiatives helped crop diversity and improved food security for the farming community.

To ensure long-term sustainability through the plantation of 200 fruit-bearing saplings over 2 acres, directly benefiting 2 farmers in Bhalujodi village.

- **40 farmers** – sunflower seeds (18 acres)
- **140 farmers** – 11 vegetable varieties
- **200 fruit saplings** planted (2 acres, 2 farmers)

6.5 Project Rationale of Veterinary Program

Livestock rearing is a critical source of livelihood for households in the peripheral villages of Aditya Alumina Refinery. However, the region faces limited access to veterinary healthcare facilities, resulting in preventable animal morbidity, mortality, and income loss for farmers. The Veterinary Program was initiated to address these gaps by providing timely diagnosis, treatment, preventive care, and awareness at the doorstep. The program also supports compliance with environmental and social commitments while strengthening rural livelihoods, food security, and resilience among tribal communities.

Key Achievements of the Program

- Baseline livestock survey completed across 36 villages
- Regular animal health and awareness camps conducted in project villages
- Over 1,200 cattle and 1,500 small ruminants treated through vaccination, deworming, and supplementation
- Dedicated veterinary field vehicle deployed for improved outreach
- Enhanced awareness among farmers on animal health management and disease prevention
- Contributed to reduced livestock morbidity and improved livelihood security for farmers

7. NEED-BASED VILLAGE INFRASTRUCTURE

Access to basic infrastructure is fundamental to improving quality of life in rural communities. Recognizing this, a series of community need–based infrastructure interventions were undertaken across villages in the project area, with a focus on safe drinking water, improved connectivity, and protection from environmental risks. These initiatives were designed through community consultations to ensure that the most pressing local needs were addressed effectively and sustainably.

7.1 SAFE DRINKING WATER

To address the critical challenge of drinking water scarcity, 40 solar-based borewells with overhead tanks were constructed across 33 villages, ensuring access to safe and clean drinking water for nearly 10,000 people. These facilities have significantly reduced the time and effort

spent—particularly by women and children—in collecting water, while also improving health and hygiene outcomes in the villages

- **40 solar-based borewells with OH tanks**
- Coverage: **33 villages**
- Beneficiaries: **~10,000 people**

7.2 RURAL ROADS

Reliable road infrastructure is vital for mobility, access to services, and economic activities. In response to community demands, 13021 meters of Cement Concrete (CC) roads were constructed in various peripheral villages. These initiatives enhanced access to all weather interconnective roads with streetlight

- 13021 **meters of CC roads**
- All-weather connectivity with streetlights

7.3 PROTECTION & DRAINAGE

To safeguard villages from soil erosion, waterlogging, and seasonal damage, 5530.37 meters of protection walls were constructed across vulnerable locations in the project area. Additionally, 3109.51 meters of CC drains were developed to ensure proper drainage and improved sanitation. These structures have enhanced environmental resilience, protected community assets, and contributed to cleaner and healthier village surroundings

- Protection walls: 5530.37 **meters**
- Water Storage: 958500 **meters**

7.4 OTHER INFRASTRUCTURE

In addition to this, several other community-driven infrastructure facilities were developed on local requests and emerging needs. These included the construction of river steps and bathing ghats, which provide safe and convenient access to water bodies for daily use and cultural practices. Check dams for irrigation, field canals structures were also constructed to support agriculture by improving water availability, and groundwater recharge. These interventions have contributed to enhanced agricultural productivity, better water management, and increased livelihood security for farming households

- Bathing ghats & river steps
- Check dams & field canals
- Groundwater recharge structures

8. SOCIO-CULTURAL INTERVENTIONS

8.1 Promotion of Rural Sports

- Volleyball tournaments: Biriguda, Puhundi, Phuljoba, Podapadi

- Cricket tournaments: Kadapadar & Puhundi
- Annual sports support to **5 schools**

8.2 Promotion of Local Culture

- Dhemsa dance & village festivals supported in **8 villages**

8.3 Environment Day – "ONE CHILD ONE TREE"

- **500 children** provided grafted fruit saplings
- Plantation & maintenance at homesteads

CONCLUSION

The **Aditya Alumina Refinery**, a unit of Hindalco Industries Limited (Aditya Birla Group), is driving a profound socio-economic transformation in the Kansariguda region by placing community well-being at the heart of its growth. Through a strategic five-pillar CSR framework, the refinery touches the lives of over 18,000 individuals, bridging critical gaps in healthcare, education, livelihoods, and infrastructure. Its **Nirogshala**s, Mobile Health Unit, and 24/7 ambulance services provide a vital medical lifeline to 15,000 people, while eight **Gyanvriddhi Paathshala** (Remedial Coaching Centers) strengthen the academic foundation, moral character, and physical development of more than 300 primary students. The refurbishment of five Anganwadi Centres under Sishuvatika project has enabled 95 children to access quality elementary education in project periphery villages.

Beyond immediate relief, the refinery is investing in long-term self-reliance through structured livelihood and skill-development programs. The first batch of 66 local women is undergoing apparel training to become Master Trainers for the upcoming unit at Phuljoba, while 46 local youths are gaining market-ready skills through ITI studies at KIIT Bhubaneswar. Furthermore, **Project Udyamee** is transforming the local economic landscape by developing over 300 youth entrepreneurs via its Rural Business Incubation Centres. This holistic approach extends to agriculture and sustainability; the **Pranidhan Seva Prakalp** provides essential veterinary services to strengthen the livelihoods of marginal farmers, and the installation of 40 units of solar-powered water systems ensures safe drinking water for 10,000 residents across 36 villages.

Progress Report on Model Village

Kadapadar village, adopted by Aditya Alumina Refinery project, has been developed into a model village through initiatives in education, healthcare, infrastructure, and livelihood support. Key programs include remedial coaching centers for children, healthcare facilities, safe drinking water, road connectivity, and employment opportunities for local youth.

1. Need-Based Community Infrastructure

- **Work Orders Issued:** 31 community members of Kadapadar village were provided work orders worth Rs. 2.68 crore, based on the current needs and requirements of the village.
- **Safe Drinking Water Access:** Two solar-powered borewells were constructed, and two spring-based water structures were repaired to ensure safe access to drinking water for the community.
- **Village Connectivity:** All-weather CC roads were constructed at 10 different locations in Kadapadar village, improving safe communication and mobility for all villagers.
- **Road Development:** The village road was revamped, and a periphery road connecting Kadapadar to Puhundi was constructed.
- **Street Lighting:** Two solar streetlights were installed to enhance safety and accessibility during nighttime.

Before and after photos of connecting road of Kadapadar village

2. Education

- **Gyanvriddhi Paathshala (Remedial Coaching Centre)**, was established in March 2025 to address the educational needs of children in Kadapadar village. Since its inception, the centre has been providing quality education to 40 children, focusing on strengthening their foundational learning and improving academic performance.
- The existing **Anganwadi Centre** in Kadapadar village was refurbished and upgraded with modern amenities to create a child-friendly learning environment. The centre was equipped with new educational materials, Bala art (child-centric wall paintings), furniture support and boundary wall, ensuring that young children have access to quality preliminary education.
- Under **project Shiksha**, 40 school going children supported with educational kit comprising of (School bag, water bottle, notebook, pencils, eraser, sharpener, color pen)

Before and after photographs of Model Anganwadi Centre

Children coming out of attending class from Gyanvriddhi Paathshala

3. Health care

- **Nirogshala (Village Health Dispensary)** was inaugurated at Kadapadar village in the month of January 2026 to provide timely medical attention for common ailments and minor emergencies within the locality. Nearly 20 to 25 people are getting daily medical attention through this support.
- Since January 2025, the **Mobile Health Unit** has been providing vital healthcare services to Kadapadar village through fortnightly health camps. This initiative brings medical care directly to the doorsteps of villagers, ensuring that even those with limited mobility or resources can access treatment. On average, 30 to 40 people benefit from each camp, receiving consultations, medicines, and preventive health guidance.
- Kadapadar village also benefits from **24/7 ambulance service.** Ambulance toll-free number is widely disseminated through Mobile Health Unit camps and the Nirogshala health center, ensuring that every household is aware of how to access immediate medical support. Villagers have been actively availing ambulatory services whenever urgent situations arise.

Nirogshala services is being set up at Kadapadar village

4. Sustainable Livelihood

- Currently, **22 people from the village are engaged** across different contracting companies under the Aditya Alumina Refinery project. This engagement not only provides them with a stable source of income but also ensures that the benefits of industrial development are shared directly with the community.
- Currently, 07 women and girls from Kadapadar are undergoing **apparel training** at ABFRL in Bhubaneswar under Project Kaushal. This initiative is designed not only to

equip them with professional skills but also to empower them as future trainers at upcoming Apparel factory at Phuljoba.

- Under **Project Kaushal**, 05 young boys from Kadapadar have been shortlisted to pursue **technical education** through ITI training at KIIT, Bhubaneswar. This initiative is aimed at equipping them with specialized vocational skills that will enhance their employability and open up new career opportunities.
- As part of livelihood enhancement initiatives, **sunflower seeds** were distributed to 40 farmers, encouraging crop diversification and promoting oilseed cultivation. In addition, **Kharif vegetable seeds** were provided to 120 farmers, supporting seasonal vegetable farming and improving household nutrition as well as income generation

Govt letter file

ADITYA BIRLA
HINDALCO

To

The Block Education Officer,
Kashipur Block, Kashipur, Rayagada.

Dt. 11.11.2025

Sub: Seeking permission to dismantle the infrastructure of Kansariguda Primary School.

Ref.: Your Office Letter No. 1830/2025 dated 12.06.2025

Sir,

In inviting a reference to the subject, we are to state that the Government has been pleased to close the Kansariguda Primary School of Kashipur Block in Rayagada District following to your office letter cited above due to zero enrollment.

This school site comes under Aditya Alumina Refinery Project by M/s Hindalco Industries Limited, Kansariguda and the construction activities of the project are in full swing. Since the school area is coming under core project area, the construction activities are halted due to presence of school infrastructure.

Hence, we request you to permit us to dismantle the standing infrastructure.

With regards,

Yours faithfully,

(Dr. Rama Chandra Rout)
Head – Corporate Affairs, Environment and Land

Copy: The District Education Officer, Rayagada
The Special Land Acquisition Officer, Rayagada

Hindalco Industries Limited
Unit : Aditya Alumina Refinery
Village: Kansariguda, Post Office: Podapadi – 765015, District: Rayagada, Odisha
Corporate Office: 6th & 7th Floor, Birla Centurion, Pandurang Budhkar Marg, Worli, Mumbai – 400030, India | T: +91 22 66626666/62610555 | F: +91 22 62610400/62610500
Registered Office: 21st Floor, One Unity Center, Senapati Bapat Marg, Prabhadevi, Mumbai – 400013, India |T: +91 22 69477000 / 69477150 I F: +91 22 69477001/69477090
W: www.hindalco.com |E: hilinvestors@adityabirla.com | Corporate ID No.: L27020MH1958PLC011238

O/C

OFFICE OF THE BLOCK EDUCATION OFFICER,KASHIPUR

Letter No 2330 /2025 Date: 14.10.2025

To,

The Sub- Divisional Officer,
TPSODL, Kashipur

Sub: Disconnection of of Electricity supply to Kansariguda PS

Sir,

With reference to the subject cited above I am to inform you that Kansariguda PS was closed due to zero enrollment of students. In this regard electric connection to the said school needs to be disconnected.

Hence you are hereby requested to take necessary steps for above said purpose at your leve.

Yours faithfully

14/10/2025

Block Education Officer
Kashipur
Block Education Office
Kashipur

CNo - 311202630022
Received
Manikata
31,10,2025

Progress on Model School

There are 25 children studying in the primary school of Kansariguda village. All of them have been successfully enrolled in different schools such as Podapadi Upper Primary School, Aditya Birla Public School, and a few in schools at Laxmipur. Since the majority of the children are enrolled at Podapadi Upper Primary School, the Aditya Alumina Refinery project adopted this school as a model institution. To transform Podapadi UP School into a model school, several key activities have been undertaken.

1. Ensuring access to safe drinking water

To ensure safe drinking water for schoolchildren, a **solar-based borewell** has been installed at Podapadi UP School, along with a **water purifier cum cooler**. This initiative guarantees that all children have easy access to clean and cool drinking water within the school premises.

2. Ensuring access to safe sanitation practices

To strengthen access to safe sanitation practices for girl students, a **toilet block** comprising **eight units** has been constructed at the girls' hostel within the school premises.

3. Bedding material support

Children in Podapadi UP school have been supported with essential **bedding materials**, including mattresses, pillows, bedsheets, and mosquito nets, to ensure their safety and comfort.

4. Education kit support

To strengthen educational support for children, an **education kit** was provided to 220 school students in Podapadi UP school. The kit included a school bag, water bottle, dictionary, pens, pencils, notebooks, and a drawing set, ensuring that children have access to essential learning materials.

5. Cultural and sports event

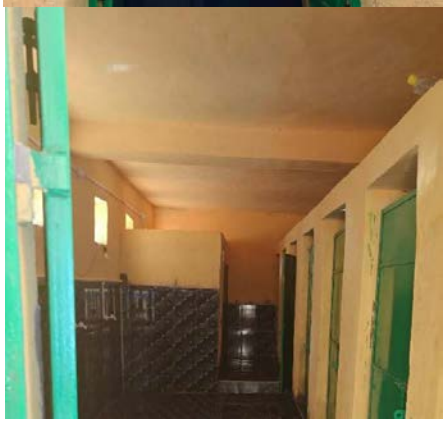
Supported financially to school for conducting annual sports events and cultural events time to time.

Way forward

- Construction of classrooms
- Establishment of mini science lab and library facilities
- Providing solar lighting in school premises
- Desk and bench support

Photographs

Handing over of Drinking water structures and water purifier in the presence of SMC members and Hindalco officials.



5.3 Infrastructure for drinking water

5.3.1 Drinking Water - Hand Pump

Infrastructure available for drinking water was assessed in all 9 villages of the core zone. Need for provision of additional sources of drinking water was also assessed for the villages. Out of the total available 25 hand pumps, only 7 were functional. 18 hand pumps were non-functional, which could be repaired. So, 16 hand pumps would be required to be repaired. The demand for installation of 12 new hand pumps has been recorded.

Table 5.1 Infrastructure for drinking water (Hand Pump)

Zone	Village Name	Existing	Functional	Non Functional	New
Core	Bhalujodi	4	0	4	0
	Biriguda	0	0	0	0
	Kadapadar	2	0	2	6
	Kansariguda	5	1	4	2
	Phuljuba	2	0	2	0
	Podapadi	2	2	0	0
	Puhundi	3	0	3	0
	Rajan Pansa Guda	5	3	2	3
	Singaram	2	1	1	1
Total		**25**	**7**	**18**	**12**

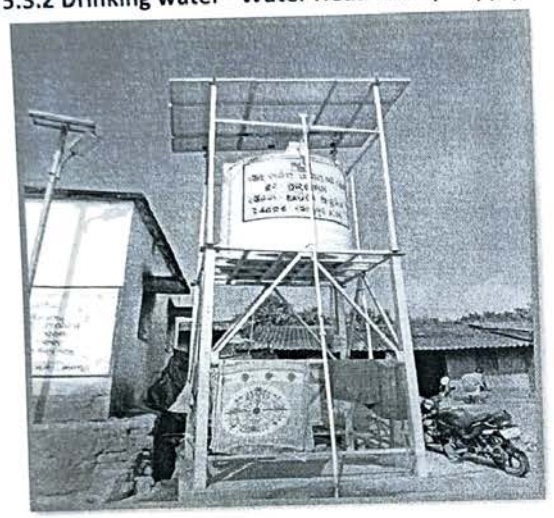
There are a total of 88 hand pumps in the periphery and outer periphery zones, of which 42 are in working condition and 46 need to be repaired. Requirement for 52 new hand pumps has come up in both the zones.

Table 5.2 Requirement for drinking water (Hand Pump)

Zone	Village Name	Existing	Functional	Non Functional	New
Periphery	Badmatikana	5	3	2	5
	Kansariguda WP	1	0	1	0
	Kapadanga	2	2	0	0
	Kidripadar	2	2	0	0
	Kuntigiguda	2	1	1	1
	Panchali	5	1	4	3
	Perdiguda	3	0	3	2
	Pipalpadar	3	1	2	3
	Punjiguma	1	0	1	0
	Sankarada	4	1	3	2
	Toyaput	2	1	1	1
Outer Periphery	Bandhapadar	4	3	1	4
	Bankamab	7	5	2	0
	Barigaon	5	0	5	7
	Haridaspur	2	1	1	0
	Kandsil	2	2	0	0
	Karajhola	2	2	0	0
	Lulupadar	5	3	2	3

	Mankadajhola	7	4	3	5
	Mundagaon	9	6	3	6
	Naktiguda	2	0	2	3
	Phatagarh	3	0	3	3
	Sanamatikuna	4	1	3	2
	Sorisha padar	5	2	3	2
	Sukriput	1	1	0	0
Total		**88**	**42**	**46**	**52**

5.3.2 Drinking water - Water Head tanks/ supply water



Water Head Tank facilities include 19 units in the core zone, of which 18 are functional and 1 is non- functional. The community is dependent on 1 water head tank available at Phuljoba village supported by M/s. AAR, for fulfilling the requirement for drinking water. 9 new deep bore wells/water head Tanks have been recommended which could be taken care by M/s. AAR.

Water head Tank in Phuljoba village supported by AAR

Table 5.3 Zone wise water head tank/supply water and its future requirement

Zone	Village Name	Existing	Functional	Non Functional	New
Core	Bhalujodi	2	2	0	0
	Biriguda	0	0	0	3
	Kadapadar	2	2	0	0
	Kansariguda	3	3	0	2
	Phuljuba	1	1	0	1
	Podapadi	3	3	0	0
	Puhundi	3	3	0	0
	Rajan Pansa Guda	2	2	0	1
	Singaram	3	2	1	2
Total		**19**	**18**	**1**	**9**

Except for 2 villages in the peripheral zone and 2 villages in the outer peripheral zone, all villages have the facility of water head tanks. During the survey, 35 water head tanks were available, out of which 28 were in good condition and 7 tanks needed repair. Apart from this, the villagers have demanded 41 new water head tanks in all the villages so that the problem regarding drinking water is resolved.

5.3.3 Solar Deep Boring (For Irrigation)

It is very important to have water facility for agriculture sector, as almost 52% of the households are engaged in agriculture. The farmers are totally dependent on the monsoon. As there is no facility for irrigation, the villagers have demanded 92 solar deep borings so that they can ensure their livelihood by augmenting farming through irrigation.

Table 5.5 Solar Deep Boring (For Irrigation)

Zone	Village Name	Existing	Repair	New
Core	Bhalujodi	0	0	15
	Biriguda	0	0	20
	Kadapadar	0	0	12
	Kansariguda	0	0	0
	Phuljuba	0	0	15
	Podapadi	0	0	14
	Puhundi	0	0	0
	Rajan Pansa Guda	0	0	13
	Singaram	0	0	3
Total		**0**	**0**	**92**

There are a lot of forests and mountains in the periphery and outer periphery zones, yet the villagers do farming, but the means of irrigation in this area are also negligible, so the villagers of these two zones have also demanded about 230 new solar deep boring for meeting the irrigation requirements.

Table 5.6 Solar Deep Boring (For Irrigation)

Zone	Village Name	Existing	Repair	New
Periphery	Badmatikana	0	0	0
	Kansariguda WP	0	0	5
	Kapadanga	0	0	5
	Kidripadar	0	0	0
	Kuntigiguda	0	0	7
	Panchali	0	0	12
	Perdiguda	0	0	5
	Pipalpadar	0	0	5
	Punjiguma	0	0	5
	Sankarada	0	0	25
	Toyaput	0	0	0
Outer Periphery	Bandhapadar	0	0	10
	Bankamab	0	0	10
	Barigaon	0	0	15
	Haridaspur	0	0	5
	Kandsil	0	0	0
	Karajhola	0	0	5
	Lulupadar	0	0	10

	Mankadajhola	0	0	20
	Mundagaon	0	0	30
	Naktiguda	0	0	15
	Phatagarh	0	0	12
	Sanamatikuna	0	0	12
	Sorisha padar	0	0	12
	Sukriput	0	0	5
Total		**0**	**0**	**230**

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)
& CHIEF WILDLIFE WARDEN, ODISHA
Government of Odisha, Forest, Environment & Climate Change Department
PRAKRUTI BHAWAN, PLOT NO.1459, SAHEED NAGAR, BHUBANESWAR- 751007
Phone: 0674-2602250, Website: www.wildlife.odisha.gov.in, Email: odishawildlife@gmail.com

No. 3481 / CWLW-FDWC-FD-0048-2022
Dated, Bhubaneswar the 18 March, 2025

To

The Assistant Vice-President (Corporate Affairs)
M/s. Aditya Alumina Limited, J-6, Jayadev Vihar,
Bhubaneswar- 751013

Sub: Diversion of 38.062 ha. of forest land for establishment of Alumina Refinery Plant at Kansariguda by M/s. Hindalco Industries Ltd.- Aditya Alumina Refinery Project: Deposit of 5% cost of the approved cost of the SSWLCP in the A/c. of the society "The Wildlife Odisha" Reg.

Sir,

In inviting a reference to the captioned subject and this office Letter No. 12144 dated 09.10.2024 wherein approval has been accorded for the project by the PCCF (WL) & CWLW, Odisha, I am directed to request you to deposit the 5% cost of the approved cost of the SSWLCP amounting to ₹25.275 Lakh (Rupees Twenty-five Lakh Twenty-seven Thousand Five Hundred) only in the account of the society "The Wildlife Odisha" and intimate the undersigned at an early date.

The details of the Bank Account are mentioned as under.

Customer Name : The Wildlife Odisha
Bank Account No.: 50100516644769
IFSC Code : HDFC0001252

Yours faithfully,

18/3/25

Deputy Conservator of Forests (Admn.)

Memo No. 3482 / Date 18/03/2025

Copy forwarded to Divisional Forest Officer(s), Rayagada / Koraput Forest Division for information and necessary action with reference to this office Memo No. 12145 dated 09.10.2024.

18/3/25

Deputy Conservator of Forests (Admn.)

Divisional Forest Officer * Rayagada Division
Receipt No. 1482 Date 20.3.25

P.T.O.

ENVIRONMENT MONITORING REPORT

FOR THE MONTH

OF

MARCH-2026

Client – Aditya Alumina Refinery,
Project- Kansariguda
Hindalco Industries Ltd,
At/PO- Kansariguda, Podapadi, Dist- Rayagada,
Odisha-765015

PREPARED BY

M/s VIBRANT TECHNO LAB PVT.LTD.

Plot No.Q-39, Shringarpura, Narayan Vihar Q,
Bhankrota, Jaipur (Rajasthan)

NABL Certificate No:- TC – 16019

PHOTOGRAPHS

OF

ENVIRONMENT MONITORING

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1.0 INTRODUCTION

Aditya Alumina Refinery Project Kansariguda Hindalco Industries Ltd., Odisha Undertaking has engaged Vibrant Techno Lab Pvt. Ltd. Jaipur, for Carrying out Environmental Monitoring for their core and buffer zone.

Environmental Monitoring such as Ambient Air Quality , Noise Level , Fugitive Dust Emission & Ground Water and Surface Water as Suggestions to control the Pollution are part of this programme.

1.1 Present Report

The Present report presents the Environmental related data in respect of Ambient Air Quality, Fugitive Dust Emission , Noise Level & Ground Water and Surface Water In and around Aditya Alumina Refinery Project Kansariguda Hindalco Industries Ltd, Odisha during March - 2026

1.2 Scope of the Work

The Scope of work for during March 2026 is as follows:

Table No. 1.1: Scope of Work Within the Mine Lease Area

Environmental Attributes	No. Of Locations	Frequency of Sampling
On Monthly Basis :		
Ambient Air Quality	2 locations	Weekly Twice
Ambient Noise Level	2 locations	Weekly Twice

2.0 MONITORING DESCRIPTION

In order to assess the pollution level in and around the industries, different environmental attributes such as air quality, fugitive dust emission and noise level are being monitored. The monitoring is carried out as per the CPCB guideline and every care has been taken for preservation and transportation of samples to the respective laboratory. **M/s Vibrant Techno Lab Pvt. Ltd.** has a laboratory equipped with adequate instruments to monitor and analyze all the parameters of Air Quality i.e. PM10, PM2.5, SO2, NOx, NH3,O3, Ni, As, Pb, C6H6, BaP & CO and NRPM.

2.1 AMBIENT AIR QUALITY

The prime objective of the ambient air quality study is to establish the existing ambient air quality in and around the industry lease area. The existing ambient air quality was monitored at six (6) locations i.e., two (2) location on monthly basis and four (4) locations on quarterly basis. The locations were identified after due consultation of the Vibrant officials. Monitoring was carried out for Particulate Matter (PM10), Particulate Matter (PM2.5), Sulphur Dioxide (SO2), Oxides of Nitrogen (NOx) and Carbon Monoxide (CO). The PM10 & PM2.5 was monitored for 24 hourly, while SO2 and NOx were monitored on 4 hourly basis for 24 hours at each sampling location and CO was monitored using the CO Monitor for 1 hour in a day, NH3 & 03 is monitor for 1 hours in a day at each sampling location.

Details about Air Quality Monitoring locations are given in **Table No. 2.1.**

Table No.2.1: Ambient Air Quality Monitoring Stations

Sl. No	Location	Station Code	Coordinates	
			Latitude	Longitude
On Monthly Basis :				
1	Village Phuljuba Near Project Office	A1	19°06'43.03"N	83°05'11.28"E
2	Village Puhundi	A2	19°06'54.42"N	83°04'26.93"E
On Quarterly Basis				
3	Village Kadapadar	A3	19°06'09.20"N	83°05'18.11"E
4	Village Podapadi	A4	19°07'40.57"N	83°04'36.84"E
5	Village Bhalujodi	A5	19°06'14.21"N	83°06'09.41"E
6	Village Biriguda	A6	19°04'09.85"N	83°05'22.55"E

2.2 Fugitive Emissions

To assess the level of fugitive dust due to industrial and allied activities, one monitoring stations were selected within the lease considering the activity area. Fugitive dust emissions monitoring was carried out on 8 hourly basis.

The lists of fugitive emissions monitoring stations are given in **Table No. 2.2.**

Table No. 2.2: Fugitive Dust Emissions Monitoring Stations

S.No.	Location	Station Code
1	Refinery Area	FD1
2	CPT Area	FD2
3	CEGPP-1 Near Hapoor CGPP-Batching Plant	FD3
4	CEGPP-2 Near Stack Working Area CGPP	FD4

2.3 Noise Level

In order to assess the existing noise levels in and around industrial lease area, noise monitoring was carried out at 6 locations. Details of Noise monitoring stations are given in **Table No. 2.3.**

Table No. 2.3: Ambient Noise Monitoring Locations

Sl. No	Location	Station Code	Coordinates	
			Latitude	Longitude
On Monthly Basis :				
1	Village Phuljuba Near Project Office	N1	19°06'43.02"N	83°05'11.25"E
2	Village Puhundi	N2	19°06'54.23"N	83°04'26.91"E
On Quarterly Basis				
3	Village Kadapadar	N3	19°06'09.20"N	83°05'18.11"E
4	Village Podapadi	N4	19°07'40.57"N	83°04'36.84"E
5	Village Bhalujodi	N5	19°06'14.21"N	83°06'09.41"E
6	Village Biriguda	N6	19°04'09.85"N	83°05'22.55"E

3.0 METHODOLOGY

3.1 Air Monitoring

Monitoring was carried out for Particulate Matter (PM10), Particulate Matter (PM2.5), Sulphur Dioxide (SO2), Oxides of Nitrogen (Nox) and Carbon Monoxide (CO). The PM10 & PM2.5 was monitored for 24 hourly, while SO2 and Nox were monitored on 4 hourly basis for 24 hours at each sampling location and CO was monitored using the CO Monitor for 1 hour in a day in each monitoring. NH3 & 03 was monitored for 1 hour in a day in each monitoring location. The sampling and analysis of ambient air quality was carried out as per the approved procedures by CPCB.

3.2 Noise Monitoring

Ambient noise monitoring was carried out at selected locations using calibrated sound level meters. Noise levels were measured at hourly intervals over a 24-hour monitoring cycle to evaluate diurnal variations and compliance with applicable standards.

3.3 Ground Water Monitoring

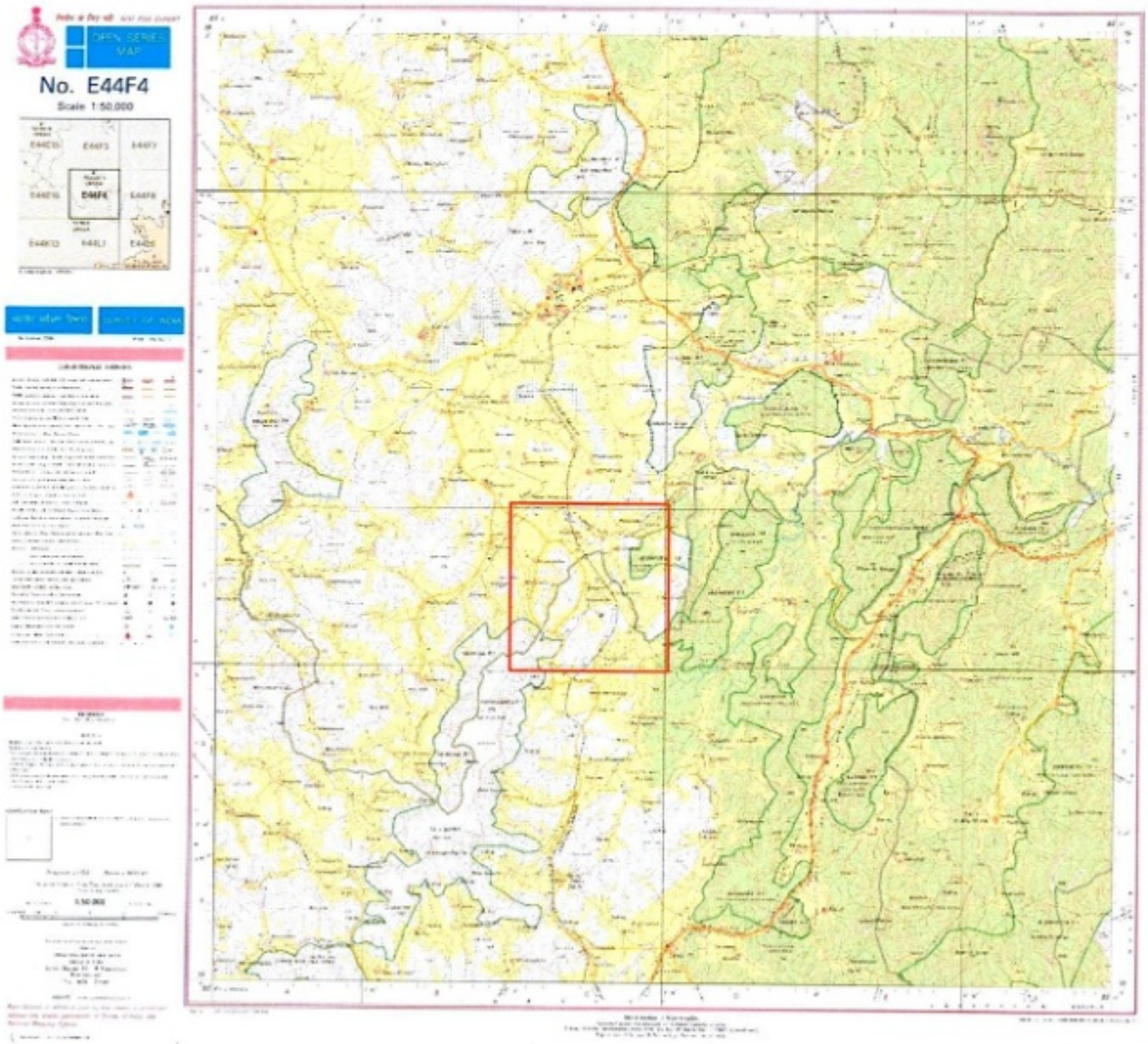
Groundwater monitoring was carried out during the month of March at selected locations to assess water quality. Samples were collected from bore wells/hand pumps following standard sampling procedures and analyzed for relevant physico-chemical parameters.

3.4 Fugitive Emission Monitoring

Fugitive emission monitoring was carried out at selected locations to assess particulate matter levels. Suspended Particulate Matter (SPM) was monitored using a High Volume Sampler (HVS) over an 8-hour sampling duration, following standard procedures.

4.0 Environmental Monitoring Location Map

"The environmental monitoring location map shows the sampling locations selected for ambient air quality, noise, water, soil, and other environmental monitoring around the project site. The monitoring stations were selected considering predominant wind direction, habitation areas, traffic movement, industrial activities, and surrounding environmental features. The map indicates the project site, nearby villages, roads, water bodies, and monitoring stations within the study area."



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TC-16019

TEST REPORT

Sample Number:	VTL/AA/01-08	**Report No.:**	VTL/A/2603300001-08/A
Name & Address of the Party	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F 02
		Party Reference No.:	1327311457
		Report Date:	31/03/2026
		Period of Analysis:	06/03/2026-30/03/2026

Sample Description : Ambient Air Quality Monitoring

General Information:-

Sampling Location	: Village – Phuljuba Near Project Office
Sample collected by	: VTL Team
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear sky
Surrounding Activity	: Human , Vehicular & Other Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Sampling Duration	: 24 hrs.
Parameter Required	: As Per Work Order
Sample Cordinates	: 19°06'43.03"N & 83°05'11.28"E

Sr.	Date of Sampling	PM 10 (µg/m³)	PM 2.5 (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)
1.	02/03/2026	62.31	34.89	11.15	15.70	0.67
2.	05/03/2026	66.44	37.21	11.89	16.74	0.71
3.	09/03/2026	63.25	35.42	11.32	15.94	0.68
4.	12/03/2026	64.42	36.08	11.53	16.23	0.69
5.	16/03/2026	68.55	38.39	12.26	17.27	0.74
6.	19/03/2026	65.36	36.60	11.69	16.47	0.70
7.	23/03/2026	66.61	37.30	11.92	16.79	0.72
8.	26/03/2026	68.74	35.74	11.42	16.09	0.69
Max		**68.74**	**38.39**	**12.26**	**17.27**	**0.74**
Min		**62.31**	**34.89**	**11.15**	**15.70**	**0.67**
Average		**65.71**	**36.45**	**11.65**	**16.40**	**0.70**
Limit		**100**	**60**	80	80	4
Protocol		IS:5182 (Part-23)-2006 RA 2022	IS 5182 (P-24): 2019	IS: 5182 (P-2):Sec 1 :2023	IS: 5182 (P-6), 2006, RA 2022	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]

*BLQ=Below Limit of Quantification, **LOQ= Limit of Quantification.

----------End of the Report----------

Checked By

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
www.vibranttechnolab.com

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TC-16019

TEST REPORT

Sample Number:	VTL/AA/09-16	**Report No.:**	VTL/A/2603300009-16/A
Name & Address of the Party	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F 02
		Party Reference No.:	1327311457
		Report Date:	31/03/2026
		Period of Analysis:	06/03/2026-30/03/2026

Sample Description : Ambient Air Quality Monitoring

General Information:-

Sampling Location	: Village – Puhundi Village
Sample collected by	: VTL Team
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear sky
Surrounding Activity	: Human , Vehicular & Other Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Sampling Duration	: 24 hrs.
Parameter Required	: As Per Work Order
Sample Cordinates	: 19°6'54.42"N & 83°4'26.93"E

Sr.	Date of Sampling	PM 10 (µg/m³)	PM 2.5 (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	CO (mg/m³)
1.	02/03/2026	59.33	30.85	9.86	13.88	0.59
2.	05/03/2026	63.75	32.51	10.39	14.63	0.62
3.	09/03/2026	60.73	31.58	10.09	14.21	0.61
4.	12/03/2026	62.28	34.88	11.14	15.69	0.67
5.	16/03/2026	66.54	37.26	11.91	16.77	0.71
6.	19/03/2026	63.1	32.18	10.28	14.48	0.62
7.	23/03/2026	64.49	38.05	12.16	17.12	0.73
8.	26/03/2026	66.97	35.49	11.34	15.97	0.68
Max		66.97	38.05	12.16	17.12	0.73
Min		59.33	30.85	9.86	13.88	0.59
Average		63.40	34.10	10.90	15.35	0.65
Limit		100	60	80	80	4
Protocol		IS:5182 (Part-23)-2006 RA 2022	IS 5182 (P-24): 2019	IS: 5182 (P-2):Sec 1 :2023	IS: 5182 (P-6), 2006, RA 2022	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]

*BLQ=Below Limit of Quantification, **LOQ= Limit of Quantification.

----------End of the Report----------

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TEST REPORT

VIBRANT

TC-16019

Sample Number:	**VTL/ N/01-08**	**Report No.:**	**VTL/N/2603300001-08**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501**	**Format No.:**	**7.8 F-04**
		Party Reference No.:	**1327311457**
		Report Date:	**30/03/2026**
Sample Description :	**Ambient Noise Level Monitoring**	**Receipt Date:**	**06/03/2026-30/03/2026**

General Information:-

Sample collected by	**: VTL Team**
Instrument Used	**:Sound Level Meter**
Instrument Calibration Status	**:Calibrated**
Instrument Code	**:VTL/SLM/01**
Meteorological condition during monitoring	**:Clear Sky**
Scope of Monitoring	**: Regulatory Requirement**
Sampling & Analysis Protocol	**: IS 9989-1981 RA: 2020**
Parameter Required	**: As per Work Order**

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village –Phuljuba Near Project Office 19°6'43.02"N & 83°5'11.25"E	02-03/03/2026	54.9	40.1
		05-06/03/2026	54.2	39.5
		09-10/03/2026	54.4	39.8
		12-13/03/2026	54.1	39.0
		16-17/03/2026	54.8	40.2
		19-20/03/2026	54.3	39.5
		23-24/03/2026	54.7	39.9
		26-27/03/2026	54.0	39.1

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting o crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards sh apply

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TEST REPORT

Sample Number:	**VTL/ N/09-16**	**Report No.:**	**VTL/N/2603300009-16**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501**	**Format No.:**	**7.8 F-04**
		Party Reference No.:	**1327311457**
		Report Date:	**30/03/2026**
Sample Description :	**Ambient Noise Level Monitoring**	**Receipt Date:**	**06/03/2026-30/03/2026**

General Information:-

Sample collected by	**: VTL Team**
Instrument Used	**:Sound Level Meter**
Instrument Calibration Status	**:Calibrated**
Instrument Code	**:VTL/SLM/01**
Meteorological condition during monitoring	**:Clear Sky**
Scope of Monitoring	**: Regulatory Requirement**
Sampling & Analysis Protocol	**: IS 9989-1981 RA: 2020**
Parameter Required	**: As per Work Order**

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village –Puhundi 19°6'54.23"N & 83°4'26.91"E	03-04/03/2026	50.9	39.8
		06-07/03/2026	50.1	39.5
		10-11/03/2026	50.5	39.7
		13-14/03/2026	51.0	39.9
		17-18/03/2026	51.1	40.0
		20-21/03/2026	50.6	39.4
		24-25/03/2026	50.8	39.5
		27-28/03/2026	50.2	39.1

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting o crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards sh apply

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TEST REPORT

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TC-16019

Sample Number:	VTL/AA/01	**Report No.:**	VTL/A/2603200001
Name & Address of Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-02
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
		Period Of Analysis:	20/03/2026-26/03/2026
		Receipt Date:	20/03/2026

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sample Location	: Village- Kadapadar
Sample collected by	: VTL Team
Sampling Equipment Used	RDS/FPS
Instrument Code	: VTL/RDS/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 10/03/2026 To 11/03/2026
Time of Monitoring	: 10:10 To 10:10 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 33°C
Surrounding Activity	: Human , Vehicular & other Activities
Scope Of Monitoring	: Regulatory Requirement
Method Of Sampling	: IS : 5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per Work Order
Coordinates	: 19°06'09.20"N & 83°05'18.11"E

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1.	Particulate Matter (as PM10)	IS:5182 (P-23)-2006 RA 2022	55.96	µg/m³	100
2.	Particulate Matter (as PM2.5)	IS 5182 (P-24): 2019	32.14	µg/m³	60
3.	Nitrogen Dioxide (as NO2)	IS: 5182 (P-6), 2006, RA 2022	14.10	µg/m³	80
4.	Sulphur Dioxide (as SO2)	IS: 5182 (P-2):Sec 1 :2023	9.99	µg/m³	80
5.	Carbon Monoxide (as CO)	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]	0.51	mg/m³	4
6.	Benzene (as C6H6)	IS:5182 (P -11)-2006,RA .2017	*BLQ(**LOQ 1.0)	µg/m³	5
7.	Ammonia (as NH3)	IS 5182 (P -25)-2018	*BLQ(**LOQ 10.0)	µg/m³	400
8.	Ozone (as O3)	IS 5182 (P -9):1974 RA 2019	*BLQ(**LOQ 4.0)	µg/m³	180
9.	Lead (as Pb)	IS 5182 (P -22) :2004, RA2019	*BLQ(**LOQ 0.02)	µg/m³	1
10.	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ(**LOQ 0.5)	ng/m³	6
11.	Nickel (as Ni)	IS 5182 (P- 26):2020	*BLQ(**LOQ 5.0)	ng/m³	20
12.	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P -12) :2004,RA.2019	*BLQ(**LOQ 0.2)	ng/m³	1

*BLQ-Below Limit ofQuantification, **LOQ- Limit of Quantification

End of the report

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TEST REPORT

TC-16019

Sample Number:	**VTL/AA/02**	**Report No.:**	**VTL/A/2603200002**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-02**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
		Period Of Analysis:	**20/03/2026-26/03/2026**
		Receipt Date:	**20/03/2026**

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sample Location	: Village- Podapadi
Sample collected by	: VTL Team
Sampling Equipment Used	RDS/FPS
Instrument Code	: VTL/RDS/FPS/02
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 10/03/2026 To 11/03/2026
Time of Monitoring	: 10:40 To 10:40 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 33°C
Surrounding Activity	: Human , Vehicular & other Activities
Scope Of Monitoring	: Regulatory Requirement
Method Of Sampling	: IS : 5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per Work Order
Coordinates	: 19°07'40.57"N & 83°04'36.84"E

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1.	Particulate Matter (as PM10)	IS:5182 (P-23)-2006 RA 2022	59.36	µg/m³	100
2.	Particulate Matter (as PM2.5)	IS 5182 (P-24): 2019	30.10	µg/m³	60
3.	Nitrogen Dioxide (as NO2)	IS: 5182 (P-6), 2006, RA 2022	12.41	µg/m³	80
4.	Sulphur Dioxide (as SO2)	IS: 5182 (P-2):Sec 1 :2023	8.69	µg/m³	80
5.	Carbon Monoxide (as CO)	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]	0.47	mg/m³	4
6.	Benzene (as C6H6)	IS:5182 (P -11)-2006,RA .2017	*BLQ(**LOQ 1.0)	µg/m³	5
7.	Ammonia (as NH3)	IS 5182 (P -25)-2018	*BLQ(**LOQ 10.0)	µg/m³	400
8.	Ozone (as O3)	IS 5182 (P -9):1974 RA 2019	*BLQ(**LOQ 4.0)	µg/m³	180
9.	Lead (as Pb)	IS 5182 (P -22) :2004, RA2019	*BLQ(**LOQ 0.02)	µg/m³	1
10.	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ(**LOQ 0.5)	ng/m³	6
11.	Nickel (as Ni)	IS 5182 (P- 26):2020	*BLQ(**LOQ 5.0)	ng/m³	20
12.	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P -12) :2004,RA.2019	*BLQ(**LOQ 0.2)	ng/m³	1

*BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification

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VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
www.vibranttechnolab.com

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TEST REPORT

TC-16919

Sample Number:	VTL/AA/03	**Report No.:**	VTL/A/2603200003
Name & Address of Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-02
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
		Period Of Analysis:	20/03/2026-26/03/2026
		Receipt Date:	20/03/2026

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sample Location	: Village- Bhalujodi
Sample collected by	: VTL Team
Sampling Equipment Used	RDS/FPS
Instrument Code	: VTL/RDS/FPS/01
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 17/03/2026 To 18/03/2026
Time of Monitoring	: 11:20 To 11:20 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 35°C
Surrounding Activity	: Human , Vehicular & other Activities
Scope Of Monitoring	: Regulatory Requirement
Method Of Sampling	: IS : 5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per Work Order
Coordinates	: 19°04'14.21"N & 83°06'09.41"E

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1.	Particulate Matter (as PM10)	IS:5182 (P-23)-2006 RA 2022	52.69	µg/m³	100
2.	Particulate Matter (as PM2.5)	IS 5182 (P-24): 2019	31.66	µg/m³	60
3.	Nitrogen Dioxide (as NO2)	IS: 5182 (P-6), 2006, RA 2022	11.93	µg/m³	80
4.	Sulphur Dioxide (as SO2)	IS: 5182 (P-2):Sec 1 :2023	9.05	µg/m³	80
5.	Carbon Monoxide (as CO)	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]	0.44	mg/m³	4
6.	Benzene (as C6H6)	IS:5182 (P -11)-2006,RA .2017	*BLQ(**LOQ 1.0)	µg/m³	5
7.	Ammonia (as NH3)	IS 5182 (P -25)-2018	*BLQ(**LOQ 10.0)	µg/m³	400
8.	Ozone (as O3)	IS 5182 (P -9):1974 RA 2019	*BLQ(**LOQ 4.0)	µg/m³	180
9.	Lead (as Pb)	IS 5182 (P -22) :2004, RA2019	*BLQ(**LOQ 0.02)	µg/m³	1
10.	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ(**LOQ 0.5)	ng/m³	6
11.	Nickel (as Ni)	IS 5182 (P- 26):2020	*BLQ(**LOQ 5.0)	ng/m³	20
12.	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P -12) :2004,RA.2019	*BLQ(**LOQ 0.2)	ng/m³	1

*BLQ-Below Limit ofQuantification, **LOQ- Limit of Quantification

End of the report

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TC-16019

TEST REPORT

Sample Number:	VTL/AA/04	**Report No.:**	VTL/A/2603200004
Name & Address of Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-02
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
		Period Of Analysis:	20/03/2026-26/03/2026
		Receipt Date:	20/03/2026

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sample Location	: Village- Biriguda
Sample collected by	: VTL Team
Sampling Equipment Used	RDS/FPS
Instrument Code	: VTL/RDS/FPS/02
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 17/03/2026 To 18/03/2026
Time of Monitoring	: 11:45 To 11:45 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 35°C
Surrounding Activity	: Human , Vehicular & other Activities
Scope Of Monitoring	: Regulatory Requirement
Method Of Sampling	: IS : 5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per Work Order
Coordinates	: 19°04'09.85"N & 83°05'22.55"E

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1.	Particulate Matter (as PM10)	IS:5182 (P-23)-2006 RA 2022	57.09	µg/m³	100
2.	Particulate Matter (as PM2.5)	IS 5182 (P-24): 2019	32.44	µg/m³	60
3.	Nitrogen Dioxide (as NO2)	IS: 5182 (P-6), 2006, RA 2022	12.96	µg/m³	80
4.	Sulphur Dioxide (as SO2)	IS: 5182 (P-2):Sec 1 :2023	10.03	µg/m³	80
5.	Carbon Monoxide (as CO)	IS: 5182 (P-10)-1999,RA. 2019 [NDIR]	0.48	mg/m³	4
6.	Benzene (as C6H6)	IS:5182 (P -11)-2006,RA .2017	*BLQ(**LOQ 1.0)	µg/m³	5
7.	Ammonia (as NH3)	IS 5182 (P -25)-2018	*BLQ(**LOQ 10.0)	µg/m³	400
8.	Ozone (as O3)	IS 5182 (P -9):1974 RA 2019	*BLQ(**LOQ 4.0)	µg/m³	180
9.	Lead (as Pb)	IS 5182 (P -22) :2004, RA2019	*BLQ(**LOQ 0.02)	µg/m³	1
10.	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ(**LOQ 0.5)	ng/m³	6
11.	Nickel (as Ni)	IS 5182 (P- 26):2020	*BLQ(**LOQ 5.0)	ng/m³	20
12.	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P -12) :2004,RA.2019	*BLQ(**LOQ 0.2)	ng/m³	1

*BLQ-Below Limit ofQuantification, **LOQ- Limit of Quantification

End of the report

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0141-2954638 bd@vibranttechnolab.com
www.vibranttechnolab.com

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TEST REPORT

Sample Number:	**VTL/ N/016019**	**Report No.:**	**VTL/N/2603200001**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501**	**Format No.:**	**7.8 F-04**
		Party Reference No.:	**13272311457**
		Report Date:	**26/03/2026**
Sample Description :	**Ambient Noise Level Monitoring**	**Receipt Date:**	**20/03/2026**

General Information:-

Sample collected by	**: VTL Team**
Instrument Used	**:Sound Level Meter**
Instrument Calibration Status	**:Calibrated**
Instrument Code	**:VTL/SLM/01**
Meteorological condition during monitoring	**:Clear Sky**
Scope of Monitoring	**: Regulatory Requirement**
Sampling & Analysis Protocol	**: IS 9989-1981 RA: 2020**
Parameter Required	**: As per Work Order**

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village- Kadapadar	04-05/03/2026	49.9	39.2

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority ar the corresponding standards shall apply

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Lab Incharge
Authorized Signatory

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TEST REPORT

Sample Number:	**VTL/ N/26019**	**Report No.:**	**VTL/N/2603200002**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501**	**Format No.:**	**7.8 F-04**
		Party Reference No.:	**13272311457**
		Report Date:	**26/03/2026**
Sample Description :	**Ambient Noise Level Monitoring**	**Receipt Date:**	**20/03/2026**

General Information:-

Sample collected by	**: VTL Team**
Instrument Used	**:Sound Level Meter**
Instrument Calibration Status	**:Calibrated**
Instrument Code	**:VTL/SLM/01**
Meteorological condition during monitoring	**:Clear Sky**
Scope of Monitoring	**: Regulatory Requirement**
Sampling & Analysis Protocol	**: IS 9989-1981 RA: 2020**
Parameter Required	**: As per Work Order**

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village- Podapadi	11-12/03/2026	48.7	38.5

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority ar the corresponding standards shall apply

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Lab Incharge
Authorized Signatory

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Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
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TEST REPORT

Sample Number:	VTL/ N/036019	**Report No.:**	VTL/N/2603200003
Name & Address of Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501	**Format No.:**	7.8 F-04
		Party Reference No.:	13272311457
		Report Date:	26/03/2026
Sample Description :	Ambient Noise Level Monitoring	**Receipt Date:**	20/03/2026

General Information:-

Sample collected by	: VTL Team
Instrument Used	:Sound Level Meter
Instrument Calibration Status	:Calibrated
Instrument Code	:VTL/SLM/01
Meteorological condition during monitoring	:Clear Sky
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: IS 9989-1981 RA: 2020
Parameter Required	: As per Work Order

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village- Bhalujodi	18-19/03/2026	49.0	38.9

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

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Lab Incharge
Authorized Signatory

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0141-2954638 bd@vibranttechnolab.com
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TEST REPORT

Sample Number:	**VTL/ N/04** TC-16019	**Report No.:**	**VTL/N/2603200004**
Name & Address of Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -76501**	**Format No.:**	**7.8 F-04**
		Party Reference No.:	**13272311457**
		Report Date:	**26/03/2026**
Sample Description :	**Ambient Noise Level Monitoring**	**Receipt Date:**	**20/03/2026**

General Information:-

Sample collected by	**: VTL Team**
Instrument Used	**:Sound Level Meter**
Instrument Calibration Status	**:Calibrated**
Instrument Code	**:VTL/SLM/01**
Meteorological condition during monitoring	**:Clear Sky**
Scope of Monitoring	**: Regulatory Requirement**
Sampling & Analysis Protocol	**: IS 9989-1981 RA: 2020**
Parameter Required	**: As per Work Order**

S. No.	Location	Date of Monitoring	Test Result Db (A)	
			Day Time	Night Time
			Leq	Leq
1.	Village- Biriguda	25-26/03/2026	50.0	38.8

Category of Zones	Leq in dB (A)	
	Day Time	Night Time
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. **Day Time is from 6.00 AM to 10.00 PM.**
2. **Night Time is reckoned between 10.00 PM to 6.00 AM.**
3. **Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.**

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TC-16019

TEST REPORT

Sample Number:	**VTL/FD/01-04**	**Report No.:**	**VTL/FD/2603200001-04**
Name & Address of the Party	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F 02**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
Sample Description :	**Fugitive Emission Monitoring**	**Period of Analysis:**	**20/03/2026-26/03/2026**
		Receipt Date	**20/03/2026**

General Information:-

Sample collected by	: VTL Team
Sampling Equipment used	: RDS
Instrument Code	: VTL/RDS/01
Test Method	: VTL/STP/02/STP/01
Meteorological condition during monitoring	: Clear Sky
Surrounding Activity	: Human, Vehicular& Plant Activities
Method of Sampling	: IS-5182 & CPCB Guidelines
Parameter Required	: As Per Work Order

S. No.	Location	Parameter	Result	Unit
1.	Refinery Area	Suspended Particulate Matter (SPM)	229.0	µg/m3
2.	CPT Area	Suspended Particulate Matter (SPM)	256.0	µg/m3
3.	CEGPP-1 Near Hapour	Suspended Particulate Matter (SPM)	239.0	µg/m3
4.	CEGPP-2 Near Stack Working Area	Suspended Particulate Matter (SPM)	394.0	µg/m3

----------End of the Report----------

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TEST REPORT

VIBRANT

TC-16019

Sample Number:	VTL/GW/02	**Report No.:**	VTL/W/2603200001/A
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Ground Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Mankarhajhola Village (GW-2)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25ºC)	IS 3025 (Part 11) : 2022	7.20	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (Part 4) : 2021	*BLQ(LOQ-1.0)	Hazen	5	15
3.	Turbidity	IS 3025 (Part 10) : 2023	*BLQ(**LOQ-1)	NTU	1	5
4.	Odour	IS 3025 (Part 5) : 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (Part 8) : 2023	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as $CaCO_3$	IS 3025 (Part 21) : 2009, RA : 2019	142	mg/L	200	600
7.	Calcium as Ca	IS 3025 (Part 40) : 1991, RA : 2019	35.3	mg/L	75	200
8.	Alkalinity as $CaCO_3$	IS 3025 (Part 23) : 2023	48.7	mg/L	200	600
9.	Chloride as Cl	IS 3025 (Part 32) : 1988, RA : 2019	31.5	mg/L	250	1000
10.	Residual free Chlorine	IS 3025 (Part 26) : 2021 Clause 7.0	*BLQ(**LOQ-0.2)	mg/L	0.2	1
11.	Magnesium as Mg	APHA, 24th Edition, 3500 Mg B, Calculation Method	13.10	mg/L	30	100
12.	Total Dissolved Solids	IS 3025 (Part 16) :2023	165	mg/L	500	2000
13.	Sulphate as SO_4	IS 3025 (Part 24/Sec 1) : 2022 Clause 5.0	8.9	mg/L	200	400
14.	Fluoride as F	APHA, 24th Edition, 4500F-D : 2023	0.52	mg/L	1.0	1.5
15.	Nitrate as NO_3	IS 3025 (Part 34/Sec 1) : 2023 Clause 6.4	3.43	mg/L	45	No Relaxation
16.	Iron as Fe	APHA 24th Edition, 3111 B, 2023	0.12	mg/L	1.0	No Relaxation
17.	Aluminium as Al	IS 3025 (Part 55) : 2003, RA : 2019	*BLQ(**LOQ-0.05)	mg/L	0.03	0.2
18.	Boron	APHA, 24th Edition, 4500 B-C : 2023	*BLQ(**LOQ-0.20)	mg/L	0.5	2.4
19.	Selenium as Se	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation

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TEST REPORT

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TC-16019

Sample Number:		VTL/GW/02	Report No.:			VTL/W/2603200001/A
20.	Phenolic compound as C_6H_5OH	APHA, 24th Edition, 5530 C : 2023	*BLQ(**LOQ-0.1)	mg/L	0.001	0.002
21.	Anionic Detergent as MBAS	IS 3025 (Part 68) : 2019	*BLQ(**LOQ-0.5)	mg/L	0.2	1.0
22.	Zinc as Zn	APHA, 24th Edition, 3111 B : 2023	0.22	mg/L	5	15
23.	Copper as Cu	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	1.5
24.	Manganese as Mn	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.05)	mg/L	0.1	0.3
25.	Cyanide as CN	IS 3025 (Part 27/Sec 1) : 2022	*BLQ(**LOQ-0.3)	mg/L	0.05	No Relaxation
26.	Cadmium as Cd	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.002)	mg/L	0.003	No Relaxation
27.	Lead as Pb	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
28.	Mercury as Hg	APHA, 24th Edition, 3112 B : 2023	*BLQ(**LOQ-0.001)	mg/L	0.001	No Relaxation
29.	Nickel	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.01)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Total Chromium as Cr	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
32.	Ammonia (NH3)	IS:3025 (P-34)- 1988, Sec.4 RA :2022	*BLQ(**LOQ-0.3)	mg/L	0.5	No Relaxation
33.	Electrical Conductivity	IS: 3025 (P-14): 2013 RA 2019	270	µS/Cm	--	--
34.	Total Coliform	IS 15185 : 2016, RA 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	
35.	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

*****End of Report*****

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Checked By

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT

Sample Number:	**VTL/GW/02**	**Report No.:**	**VTL/W/2603200001/B**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	26/03/2026
Sample Description:	**Ground Water**	**Period of Analysis:**	20 to26/03/2026
Sample Location :	**Mankarhajhola Village (GW-2)**	**Receipt Date:**	20/03/2026
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	18/03/2026
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	Mineral Oil	IS 3025(P-39) RA 2019	*BLQ(**LOQ-0.05)	mg/L	0.5	No Relaxation
2.	Polynuclear-aromatic Hydroccarbon (PAH)	APHA, 24th Edition 5175/6630 2023	*BLQ(**LOQ-0.0001)	mg/L	0.0001	No Relaxation

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

*****End of Report*****

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TEST REPORT

VIBRANT

Sample Number:	**TC-16019 VTL/GW/03**	**Report No.:**	**VTL/W/2603200002/A**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
Sample Description:	**Ground Water**	**Period of Analysis:**	**20 to26/03/2026**
Sample Location :	**Haridabhata Village (GW-3)**	**Receipt Date:**	**20/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	**18/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25°C)	IS 3025 (Part 11) : 2022	7.13	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (Part 4) : 2021	*BLQ(LOQ-1.0)	Hazen	5	15
3.	Turbidity	IS 3025 (Part 10) : 2023	*BLQ(**LOQ-1)	NTU	1	5
4.	Odour	IS 3025 (Part 5) : 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (Part 8) : 2023	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as $CaCO_3$	IS 3025 (Part 21) : 2009, RA : 2019	54	mg/L	200	600
7.	Calcium as Ca	IS 3025 (Part 40) : 1991, RA : 2019	12.6	mg/L	75	200
8.	Alkalinity as $CaCO_3$	IS 3025 (Part 23) : 2023	45.9	mg/L	200	600
9.	Chloride as Cl	IS 3025 (Part 32) : 1988, RA : 2019	21.2	mg/L	250	1000
10.	Residual free Chlorine	IS 3025 (Part 26) : 2021 Clause 7.0	*BLQ(**LOQ-0.2)	mg/L	0.2	1
11.	Magnesium as Mg	APHA, 24th Edition, 3500 Mg B, Calculation Method	5.48	mg/L	30	100
12.	Total Dissolved Solids	IS 3025 (Part 16) :2023	82	mg/L	500	2000
13.	Sulphate as SO_4	IS 3025 (Part 24/Sec 1) : 2022 Clause 5.0	3.4	mg/L	200	400
14.	Fluoride as F	APHA, 24th Edition, 4500F-D : 2023	0.51	mg/L	1.0	1.5
15.	Nitrate as NO_3	IS 3025 (Part 34/Sec 1) : 2023 Clause 6.4	1.36	mg/L	45	No Relaxation
16.	Iron as Fe	APHA 24th Edition, 3111 B, 2023	*BLQ(**LOQ-0.1)	mg/L	1.0	No Relaxation
17.	Aluminium as Al	IS 3025 (Part 55) : 2003, RA : 2019	*BLQ(**LOQ-0.05)	mg/L	0.03	0.2
18.	Boron	APHA, 24th Edition, 4500 B-C : 2023	*BLQ(**LOQ-0.20)	mg/L	0.5	2.4
19.	Selenium as Se	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation

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RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

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TC-16019

Sample Number:		VTL/GW/03	Report No.:			VTL/W/2603200002/A
20.	Phenolic compound as C_6H_5OH	APHA, 24th Edition, 5530 C : 2023	*BLQ(**LOQ-0.1)	mg/L	0.001	0.002
21.	Anionic Detergent as MBAS	IS 3025 (Part 68) : 2019	*BLQ(**LOQ-0.5)	mg/L	0.2	1.0
22.	Zinc as Zn	APHA, 24th Edition, 3111 B : 2023	0.25	mg/L	5	15
23.	Copper as Cu	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	1.5
24.	Manganese as Mn	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.05)	mg/L	0.1	0.3
25.	Cyanide as CN	IS 3025 (Part 27/Sec 1) : 2022	*BLQ(**LOQ-0.3)	mg/L	0.05	No Relaxation
26.	Cadmium as Cd	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.002)	mg/L	0.003	No Relaxation
27.	Lead as Pb	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
28.	Mercury as Hg	APHA, 24th Edition, 3112 B : 2023	*BLQ(**LOQ-0.001)	mg/L	0.001	No Relaxation
29.	Nickel	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.01)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Total Chromium as Cr	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
32.	Ammonia (NH3)	IS:3025 (P-34)- 1988, Sec.4 RA :2022	*BLQ(**LOQ-0.3)	mg/L	0.5	No Relaxation
33.	Electrical Conductivity	IS: 3025 (P-14): 2013 RA 2019	130	µS/Cm	--	--
34.	Total Coliform	IS 15185 : 2016, RA 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	
35.	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

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RK Yadav
Lab Incharge
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TEST REPORT

Sample Number:	**VTL/GW/03**	Report No.:	VTL/W/2603200002/B
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	Format No.:	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	**Ground Water**	Period of Analysis:	20 to26/03/2026
Sample Location :	**Haridabhata Village (GW-3)**	Receipt Date:	20/03/2026
Sample Collected by:	**Vibrant Techno Lab Representative**	Sampling Date:	18/03/2026
Preservation:	**Suitable Preservation**	Sampling Quantity:	2.0 Ltr.
Parameter Required:	**As Per Work Order**	Sampling Type:	Grab
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	Mineral Oil	IS 3025(P-39) RA 2019	*BLQ(**LOQ-0.05)	mg/L	0.5	No Relaxation
2.	Polynuclear-aromatic Hydroccarbon (PAH)	APHA, 24th Edition 5175/6630 2023	*BLQ(**LOQ-0.0001)	mg/L	0.0001	No Relaxation

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

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Authorized Signatory

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TEST REPORT

TC-16019

Sample Number:	**VTL/GW/04**	**Report No.:**	**VTL/W/2603200003/A**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
Sample Description:	**Ground Water**	**Report Date:**	**26/03/2026**
Sample Location :	**Bariguma Village (GW-4)**	**Period of Analysis:**	**20 to26/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Receipt Date:**	**20/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Date:**	**18/03/2026**
Parameter Required:	**As Per Work Order**	**Sampling Quantity:**	**2.0 Ltr.**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**	**Sampling Type:**	**Grab**

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25°C)	IS 3025 (Part 11) : 2022	6.18	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (Part 4) : 2021	*BLQ(LOQ-1.0)	Hazen	5	15
3.	Turbidity	IS 3025 (Part 10) : 2023	*BLQ(**LOQ-1)	NTU	1	5
4.	Odour	IS 3025 (Part 5) : 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (Part 8) : 2023	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as $CaCO_3$	IS 3025 (Part 21) : 2009, RA : 2019	280	mg/L	200	600
7.	Calcium as Ca	IS 3025 (Part 40) : 1991, RA : 2019	75.8	mg/L	75	200
8.	Alkalinity as $CaCO_3$	IS 3025 (Part 23) : 2023	220	mg/L	200	600
9.	Chloride as Cl	IS 3025 (Part 32) : 1988, RA : 2019	85.0	mg/L	250	1000
10.	Residual free Chlorine	IS 3025 (Part 26) : 2021 Clause 7.0	*BLQ(**LOQ-0.2)	mg/L	0.2	1
11.	Magnesium as Mg	APHA, 24th Edition, 3500 Mg B, Calculation Method	22.08	mg/L	30	100
12.	Total Dissolved Solids	IS 3025 (Part 16) :2023	440	mg/L	500	2000
13.	Sulphate as SO_4	IS 3025 (Part 24/Sec 1) : 2022 Clause 5.0	23.9	mg/L	200	400
14.	Fluoride as F	APHA, 24th Edition, 4500F-D : 2023	0.59	mg/L	1.0	1.5
15.	Nitrate as NO_3	IS 3025 (Part 34/Sec 1) : 2023 Clause 6.4	5.88	mg/L	45	No Relaxation
16.	Iron as Fe	APHA 24th Edition, 3111 B, 2023	0.21	mg/L	1.0	No Relaxation
17.	Aluminium as Al	IS 3025 (Part 55) : 2003, RA : 2019	*BLQ(**LOQ-0.05)	mg/L	0.03	0.2
18.	Boron	APHA, 24th Edition, 4500 B-C : 2023	*BLQ(**LOQ-0.20)	mg/L	0.5	2.4
19.	Selenium as Se	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation

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TEST REPORT

Sample Number:		TC-16019 VTL/GW/04	Report No.:			VTL/W/2603200003/A
20.	Phenolic compound as C_6H_5OH	APHA, 24th Edition, 5530 C : 2023	*BLQ(**LOQ-0.1)	mg/L	0.001	0.002
21.	Anionic Detergent as MBAS	IS 3025 (Part 68) : 2019	*BLQ(**LOQ-0.5)	mg/L	0.2	1.0
22.	Zinc as Zn	APHA, 24th Edition, 3111 B : 2023	0.21	mg/L	5	15
23.	Copper as Cu	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	1.5
24.	Manganese as Mn	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.05)	mg/L	0.1	0.3
25.	Cyanide as CN	IS 3025 (Part 27/Sec 1) : 2022	*BLQ(**LOQ-0.3)	mg/L	0.05	No Relaxation
26.	Cadmium as Cd	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.002)	mg/L	0.003	No Relaxation
27.	Lead as Pb	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
28.	Mercury as Hg	APHA, 24th Edition, 3112 B : 2023	*BLQ(**LOQ-0.001)	mg/L	0.001	No Relaxation
29.	Nickel	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.01)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Total Chromium as Cr	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
32.	Ammonia (NH3)	IS:3025 (P-34)- 1988, Sec.4 RA :2022	*BLQ(**LOQ-0.3)	mg/L	0.5	No Relaxation
33.	Electrical Conductivity	IS: 3025 (P-14): 2013 RA 2019	670	µS/Cm	--	--
34.	Total Coliform	IS 15185 : 2016, RA 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	
35.	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

*****End of Report*****

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TEST REPORT

VIBRANT

Sample Number:	**VTL/GW/04**	**Report No.:**	**VTL/W/2603200003/B**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	26/03/2026
Sample Description:	**Ground Water**	**Period of Analysis:**	20 to26/03/2026
Sample Location :	**Bariguma Village (GW-4)**	**Receipt Date:**	20/03/2026
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	18/03/2026
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	Mineral Oil	IS 3025(P-39) RA 2019	*BLQ(**LOQ-0.05)	mg/L	0.5	No Relaxation
2.	Polynuclear-aromatic Hydroccarbon (PAH)	APHA, 24th Edition 5175/6630 2023	*BLQ(**LOQ-0.0001)	mg/L	0.0001	No Relaxation

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

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Lab Incharge
Authorized Signatory

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TC-16019

TEST REPORT

Sample Number:	VTL/GW/05	**Report No.:**	VTL/W/2603200004/A
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Ground Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Pardigurha Village (GW-5)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	pH (at 25°C)	IS 3025 (Part 11) : 2022	7.31	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (Part 4) : 2021	*BLQ(LOQ-1.0)	Hazen	5	15
3.	Turbidity	IS 3025 (Part 10) : 2023	*BLQ(**LOQ-1)	NTU	1	5
4.	Odour	IS 3025 (Part 5) : 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (Part 8) : 2023	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as $CaCO_3$	IS 3025 (Part 21) : 2009, RA : 2019	115	mg/L	200	600
7.	Calcium as Ca	IS 3025 (Part 40) : 1991, RA : 2019	28.6	mg/L	75	200
8.	Alkalinity as $CaCO_3$	IS 3025 (Part 23) : 2023	60.1	mg/L	200	600
9.	Chloride as Cl	IS 3025 (Part 32) : 1988, RA : 2019	35.8	mg/L	250	1000
10.	Residual free Chlorine	IS 3025 (Part 26) : 2021 Clause 7.0	*BLQ(**LOQ-0.2)	mg/L	0.2	1
11.	Magnesium as Mg	APHA, 24th Edition, 3500 Mg B, Calculation Method	10.60	mg/L	30	100
12.	Total Dissolved Solids	IS 3025 (Part 16) :2023	205	mg/L	500	2000
13.	Sulphate as SO_4	IS 3025 (Part 24/Sec 1) : 2022 Clause 5.0	14.6	mg/L	200	400
14.	Fluoride as F	APHA, 24th Edition, 4500F-D : 2023	0.51	mg/L	1.0	1.5
15.	Nitrate as NO_3	IS 3025 (Part 34/Sec 1) : 2023 Clause 6.4	2.11	mg/L	45	No Relaxation
16.	Iron as Fe	APHA 24th Edition, 3111 B, 2023	0.16	mg/L	1.0	No Relaxation
17.	Aluminium as Al	IS 3025 (Part 55) : 2003, RA : 2019	*BLQ(**LOQ-0.05)	mg/L	0.03	0.2
18.	Boron	APHA, 24th Edition, 4500 B-C : 2023	*BLQ(**LOQ-0.20)	mg/L	0.5	2.4
19.	Selenium as Se	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation

Checked By

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
www.vibranttechnolab.com

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TEST REPORT

Sample Number:		TC-16019 VTL/GW/05	Report No.:			VTL/W/2603200004/A
20.	Phenolic compound as C_6H_5OH	APHA, 24th Edition, 5530 C : 2023	*BLQ(**LOQ-0.1)	mg/L	0.001	0.002
21.	Anionic Detergent as MBAS	IS 3025 (Part 68) : 2019	*BLQ(**LOQ-0.5)	mg/L	0.2	1.0
22.	Zinc as Zn	APHA, 24th Edition, 3111 B : 2023	0.20	mg/L	5	15
23.	Copper as Cu	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	1.5
24.	Manganese as Mn	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.05)	mg/L	0.1	0.3
25.	Cyanide as CN	IS 3025 (Part 27/Sec 1) : 2022	*BLQ(**LOQ-0.3)	mg/L	0.05	No Relaxation
26.	Cadmium as Cd	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.002)	mg/L	0.003	No Relaxation
27.	Lead as Pb	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
28.	Mercury as Hg	APHA, 24th Edition, 3112 B : 2023	*BLQ(**LOQ-0.001)	mg/L	0.001	No Relaxation
29.	Nickel	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.01)	mg/L	0.02	No Relaxation
30.	Arsenic as As	APHA, 24th Edition, 3114 C : 2023	*BLQ(**LOQ-0.005)	mg/L	0.01	No Relaxation
31.	Total Chromium as Cr	APHA, 24th Edition, 3111 B : 2023	*BLQ(**LOQ-0.02)	mg/L	0.05	No Relaxation
32.	Ammonia (NH3)	IS:3025 (P-34)- 1988, Sec.4 RA :2022	*BLQ(**LOQ-0.3)	mg/L	0.5	No Relaxation
33.	Electrical Conductivity	IS: 3025 (P-14): 2013 RA 2019	340	µS/Cm	--	--
34.	Total Coliform	IS 15185 : 2016, RA 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	
35.	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	Per 100 ml	Shall not be Detectable in Any 100 ml sample	

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

*****End of Report*****

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Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
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TEST REPORT

VIBRANT

Sample Number:	**VTL/GW/05**	**Report No.:**	**VTL/W/2603200004/B**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
Sample Description:	**Ground Water**	**Period of Analysis:**	**20 to26/03/2026**
Sample Location :	**Pardigurha Village (GW-5)**	**Receipt Date:**	**20/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	**18/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit	Limits of IS:10500-2012 RA 2023	
					Requirement (Acceptable Limits)	Permissible Limit in the Absence of Alternate Source
1.	Mineral Oil	IS 3025(P-39) RA 2019	*BLQ(**LOQ-0.05)	mg/L	0.5	No Relaxation
2.	Polynuclear-aromatic Hydroccarbon (PAH)	APHA, 24th Edition 5175/6630 2023	*BLQ(**LOQ-0.0001)	mg/L	0.0001	No Relaxation

***BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification**

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TEST REPORT

VIBRANT

TC-16018

Sample Number:	**VTL/SW/01**	**Report No.:**	**VTL/W/2603200005/A**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
Sample Description:	**Surface Water**	**Period of Analysis:**	**20 to26/03/2026**
Sample Location :	**Mankarhajhola Village (SW-1)**	**Receipt Date:**	**20/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	**18/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit
1.	pH value	IS : 3025 (P-11) : 2022	7.30	--
2.	Turbidity	IS : 3025 (P- 10) : 2023	*BLQ(**LOQ-1.0)	NTU
3.	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 2023	30	mg/L
4.	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	3.5	mg/L
5.	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	*BLQ(**LOQ-1.0)	mg/L
6.	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	*BLQ(**LOQ-5.0)	mg/L
7.	Electrical Conductance	IS: 3025 (P-14): 2013 RA 2019	52	µS/cm
8.	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	12	mg/L
9.	Calcium (as Ca)	IS : 3025 (P-40) : 2024	2.5	mg/L
10.	Magnesium (as Mg)	IS : 3025 (P- 46) : 2023	*BLQ(**LOQ-2.0)	mg/L
11.	Fluoride (as F)	APHA 24th Edition, 4500F-D: 2023	*BLQ(**LOQ-0.2)	mg/L
12.	Nitrate (as NO3)	IS 3025 (P-34): Sec 1 : 2023 (Clause 6.4)	0.55	mg/L
13.	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.8	mg/L
14.	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 2023	*BLQ(**LOQ- 2.0)	mg/L
15	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2023	*BLQ(**LOQ- 5.0)	mg/L
16	Total Coliform	IS 15185: 2016 RA 2021	Absent	P-A/100 ML
17	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	P-A/100 ML
18	Iron (as Fe)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 10)	mg/L
19	Zinc (as Zn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.2)	mg/L
20	Copper (as Cu)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.02)	mg/L
21	Manganese (as Mn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.05)	mg/L
22	Lead (as Pb)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.005)	mg/L
23	Arsenic (as As)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
24	Boron (as B)	APHA 24th Edition 4500B-C : 2023	*BLQ(**LOQ- 0.2)	mg/L
25	Cadmium (as Cd)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.002)	mg/L
26	Selenium (as Se)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
27	Mercury (as Hg)	APHA 24th Edition 3112B: 2023	*BLQ(**LOQ- 0.001)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

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TEST REPORT

VIBRANT

Sample Number:	**VTL/SW/01**	**Report No.:**	**VTL/W/2603200005/B**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
		Report Date:	**26/03/2026**
Sample Description:	**Surface Water**	**Period of Analysis:**	**20 to26/03/2026**
Sample Location :	**Mankarhajhola Village (SW-1)**	**Receipt Date:**	**20/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Sampling Date:**	**18/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Quantity:**	**2.0 Ltr.**
Parameter Required:	**As Per Work Order**	**Sampling Type:**	**Grab**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**		

S.No.	Parameters	Test-Method	Results	Unit
1.	Colour	IS 3025 (Part 4) : 2021	2	Hazen
2.	Phosphate (as PO4)	IS:3025 (P- 31) Sec 1 : 2022	*BLQ(**LOQ- 0.02)	mg/L
3.	Cyanide (as CN)	IS 3025 (P-27/Sec 1) :2021	*BLQ(**LOQ- 0.03)	mg/L
4.	Hexavalent Chromium (as cr+6)	APHA 24th Edition, 3500 Cr-B : 2023	*BLQ(**LOQ- 0.05)	mg/L
5.	Aluminium (Al)	IS : 3025 (P-55) : 2003, RA :2019	*BLQ(**LOQ- 0.03)	mg/L
6.	Oil & Grease	IS 3025(P- 39):2021	*BLQ(**LOQ 4.0)	mg/L
7.	Anionic Detergents (MBAS)	IS 3025 : (P-68) : 2019	*BLQ(**LOQ 0.02)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

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TEST REPORT

VIBRANT

Sample Number:	VTL/SW/02	**Report No.:**	VTL/W/2603200006/A
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Surface Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Phulajuba Village (SW-2)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit
1.	pH value	IS : 3025 (P-11) : 2022	7.14	--
2.	Turbidity	IS : 3025 (P- 10) : 2023	*BLQ(**LOQ-1.0)	NTU
3.	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 2023	40	mg/L
4.	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	14.9	mg/L
5.	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	*BLQ(**LOQ-1.0)	mg/L
6.	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	*BLQ(**LOQ-5.0)	mg/L
7.	Electrical Conductance	IS: 3025 (P-14): 2013 RA 2019	75	µS/cm
8.	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	24.0	mg/L
9.	Calcium (as Ca)	IS : 3025 (P-40) : 2024	7.1	mg/L
10.	Magnesium (as Mg)	IS : 3025 (P- 46) : 2023	5.41	mg/L
11.	Fluoride (as F)	APHA 24th Edition, 4500F-D: 2023	*BLQ(**LOQ-0.2)	mg/L
12.	Nitrate (as NO3)	IS 3025 (P-34): Sec 1 : 2023 (Clause 6.4)	0.89	mg/L
13.	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.9	mg/L
14.	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 2023	*BLQ(**LOQ- 2.0)	mg/L
15	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2023	*BLQ(**LOQ- 5.0)	mg/L
16	Total Coliform	IS 15185: 2016 RA 2021	Absent	P-A/100 ML
17	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	P-A/100 ML
18	Iron (as Fe)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 10)	mg/L
19	Zinc (as Zn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.2)	mg/L
20	Copper (as Cu)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.02)	mg/L
21	Manganese (as Mn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.05)	mg/L
22	Lead (as Pb)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.005)	mg/L
23	Arsenic (as As)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
24	Boron (as B)	APHA 24th Edition 4500B-C : 2023	*BLQ(**LOQ- 0.2)	mg/L
25	Cadmium (as Cd)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.002)	mg/L
26	Selenium (as Se)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
27	Mercury (as Hg)	APHA 24th Edition 3112B: 2023	*BLQ(**LOQ- 0.001)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

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TEST REPORT

Sample Number:	VTL/SW/02	**Report No.:**	VTL/W/2603200006/B
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Surface Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Phulajuba Village (SW-2)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit
1.	Colour	IS 3025 (Part 4) : 2021	3	Hazen
2.	Phosphate (as PO4)	IS:3025 (P- 31) Sec 1 : 2022	*BLQ(**LOQ- 0.02)	mg/L
3.	Cyanide (as CN)	IS 3025 (P-27/Sec 1) :2021	*BLQ(**LOQ- 0.03)	mg/L
4.	Hexavalent Chromium (as cr+6)	APHA 24th Edition, 3500 Cr-B : 2023	*BLQ(**LOQ- 0.05)	mg/L
5.	Aluminium (Al)	IS : 3025 (P-55) : 2003, RA :2019	*BLQ(**LOQ- 0.03)	mg/L
6.	Oil & Grease	IS 3025(P- 39):2021	*BLQ(**LOQ 4.0)	mg/L
7.	Anionic Detergents (MBAS)	IS 3025 : (P-68) : 2019	*BLQ(**LOQ 0.02)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

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TEST REPORT

Sample Number:	VTL/SW/03	**Report No.:**	VTL/W/2603200007/A
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Surface Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Podapadi Village (SW-3)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit
1.	pH value	IS : 3025 (P-11) : 2022	7.19	--
2.	Turbidity	IS : 3025 (P- 10) : 2023	*BLQ(**LOQ-1.0)	NTU
3.	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 2023	23	mg/L
4.	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	8.5	mg/L
5.	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	*BLQ(**LOQ-1.0)	mg/L
6.	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	*BLQ(**LOQ-5.0)	mg/L
7.	Electrical Conductance	IS: 3025 (P-14): 2013 RA 2019	44	µS/cm
8.	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	18	mg/L
9.	Calcium (as Ca)	IS : 3025 (P-40) : 2024	4.1	mg/L
10.	Magnesium (as Mg)	IS : 3025 (P- 46) : 2023	*BLQ(**LOQ-2.0)	mg/L
11.	Fluoride (as F)	APHA 24th Edition, 4500F-D: 2023	*BLQ(**LOQ-0.2)	mg/L
12.	Nitrate (as NO3)	IS 3025 (P-34): Sec 1 : 2023 (Clause 6.4)	0.59	mg/L
13.	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.7	mg/L
14.	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 2023	*BLQ(**LOQ- 2.0)	mg/L
15	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2023	*BLQ(**LOQ- 5.0)	mg/L
16	Total Coliform	IS 15185: 2016 RA 2021	Absent	P-A/100 ML
17	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	P-A/100 ML
18	Iron (as Fe)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 10)	mg/L
19	Zinc (as Zn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.2)	mg/L
20	Copper (as Cu)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.02)	mg/L
21	Manganese (as Mn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.05)	mg/L
22	Lead (as Pb)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.005)	mg/L
23	Arsenic (as As)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
24	Boron (as B)	APHA 24th Edition 4500B-C : 2023	*BLQ(**LOQ- 0.2)	mg/L
25	Cadmium (as Cd)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.002)	mg/L
26	Selenium (as Se)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
27	Mercury (as Hg)	APHA 24th Edition 3112B: 2023	*BLQ(**LOQ- 0.001)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked By

JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
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TEST REPORT

Sample Number:	**VTL/SW/03**	**Report No.:**	**VTL/W/2603200007/B**
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**1327311457**
Sample Description:	**Surface Water**	**Report Date:**	**26/03/2026**
Sample Location :	**Podapadi Village (SW-3)**	**Period of Analysis:**	**20 to26/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Receipt Date:**	**20/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Date:**	**18/03/2026**
Parameter Required:	**As Per Work Order**	**Sampling Quantity:**	**2.0 Ltr.**
Sampling and Analysis Protocol:	**APHA 24th Edition 2023**	**Sampling Type:**	**Grab**

S.No.	Parameters	Test-Method	Results	Unit
1.	Colour	IS 3025 (Part 4) : 2021	2	Hazen
2.	Phosphate (as PO4)	IS:3025 (P- 31) Sec 1 : 2022	*BLQ(**LOQ- 0.02)	mg/L
3.	Cyanide (as CN)	IS 3025 (P-27/Sec 1) :2021	*BLQ(**LOQ- 0.03)	mg/L
4.	Hexavalent Chromium (as cr+6)	APHA 24th Edition, 3500 Cr-B : 2023	*BLQ(**LOQ- 0.05)	mg/L
5.	Aluminium (Al)	IS : 3025 (P-55) : 2003, RA :2019	*BLQ(**LOQ- 0.03)	mg/L
6.	Oil & Grease	IS 3025(P- 39):2021	*BLQ(**LOQ 4.0)	mg/L
7.	Anionic Detergents (MBAS)	IS 3025 : (P-68) : 2019	*BLQ(**LOQ 0.02)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

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TEST REPORT

VIBRANT

Sample Number:	~~TC-16010~~ VTL/SW/05	**Report No.:**	VTL/W/2603200008/A
Name & Address of the Party:	M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015	**Format No.:**	7.8 F-01
		Party Reference No.:	1327311457
		Report Date:	26/03/2026
Sample Description:	Surface Water	**Period of Analysis:**	20 to26/03/2026
Sample Location :	Khajuriguma Village (SW-5)	**Receipt Date:**	20/03/2026
Sample Collected by:	Vibrant Techno Lab Representative	**Sampling Date:**	18/03/2026
Preservation:	Suitable Preservation	**Sampling Quantity:**	2.0 Ltr.
Parameter Required:	As Per Work Order	**Sampling Type:**	Grab
Sampling and Analysis Protocol:	APHA 24th Edition 2023		

S.No.	Parameters	Test-Method	Results	Unit
1.	pH value	IS : 3025 (P-11) : 2022	6.86	--
2.	Turbidity	IS : 3025 (P- 10) : 2023	*BLQ(**LOQ-1.0)	NTU
3.	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 2023	45	mg/L
4.	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	11.0	mg/L
5.	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	*BLQ(**LOQ-1.0)	mg/L
6.	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	*BLQ(**LOQ-5.0)	mg/L
7.	Electrical Conductance	IS: 3025 (P-14): 2013 RA 2019	80	µS/cm
8.	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	25	mg/L
9.	Calcium (as Ca)	IS : 3025 (P-40) : 2024	4.5	mg/L
10.	Magnesium (as Mg)	IS : 3025 (P- 46) : 2023	3.35	mg/L
11.	Fluoride (as F)	APHA 24th Edition, 4500F-D: 2023	*BLQ(**LOQ-0.2)	mg/L
12.	Nitrate (as NO3)	IS 3025 (P-34): Sec 1 : 2023 (Clause 6.4)	0.85	mg/L
13.	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.9	mg/L
14.	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 2023	*BLQ(**LOQ- 2.0)	mg/L
15	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2023	*BLQ(**LOQ- 5.0)	mg/L
16	Total Coliform	IS 15185: 2016 RA 2021	Absent	P-A/100 ML
17	E.Coli	IS : 15185 : 2016 RA: 2021	Absent	P-A/100 ML
18	Iron (as Fe)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 10)	mg/L
19	Zinc (as Zn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.2)	mg/L
20	Copper (as Cu)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.02)	mg/L
21	Manganese (as Mn)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.05)	mg/L
22	Lead (as Pb)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.005)	mg/L
23	Arsenic (as As)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
24	Boron (as B)	APHA 24th Edition 4500B-C : 2023	*BLQ(**LOQ- 0.2)	mg/L
25	Cadmium (as Cd)	APHA 24th Edition 3111 B, 2023	*BLQ(**LOQ- 0.002)	mg/L
26	Selenium (as Se)	APHA 24th Edition 3114 C, 2023	*BLQ(**LOQ- 0.005)	mg/L
27	Mercury (as Hg)	APHA 24th Edition 3112B: 2023	*BLQ(**LOQ- 0.001)	mg/L

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

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VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

Sample Number:	**VTL/SW/05**	Report No.:	VTL/W/2603200008/B
Name & Address of the Party:	**M/s Aditya Alumina Refinery, Project- Kansariguda Hindalco Industries Ltd, At/PO- Kansariguda, Podapadi, Dist- Raagada, Odisha -765015**	Format No.:	7.8 F-01
		Party Reference No.:	**1327311457**
Sample Description:	**Surface Water**	**Report Date:**	**26/03/2026**
Sample Location :	**Khajuriguma Village (SW-5)**	**Period of Analysis:**	**20 to26/03/2026**
Sample Collected by:	**Vibrant Techno Lab Representative**	**Receipt Date:**	**20/03/2026**
Preservation:	**Suitable Preservation**	**Sampling Date:**	**18/03/2026**
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4.	Hexavalent Chromium (as cr+6)	APHA 24th Edition, 3500 Cr-B : 2023	*BLQ(**LOQ- 0.05)	mg/L
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6.	Oil & Grease	IS 3025(P- 39):2021	*BLQ(**LOQ 4.0)	mg/L
7.	Anionic Detergents (MBAS)	IS 3025 : (P-68) : 2019	*BLQ(**LOQ 0.02)	mg/L

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5.0 RECOMMENDATION

The environmental monitoring results of all the monitoring stations reveal that the pollution levels are within the standard norms of CPCB. The particulate matter & gaseous pollutants like SO2, NOx, CO are well below the CPCB norms and NH3, 03, Pb, Ni, As, BaP & C6 H6 are Below Detection Limit.

In order to suppress the dust concentration & minimize noise level in the monitoring stations various steps should be taken. The steps like regular and frequent water sprinkling in the transportation roads and dust generation points under proper supervision, road side plantation, development of road conditions, green belt development surrounding the transportation roads etc. ear plug are providing to employee, regular maintenance of vehicle should be carried out to minimize the pollution level.

GHG REPORT

For

Hindalco Industries Limited (HIL), a flagship company of the Aditya Birla Group, is developing a 3.0 MTPA Alumina Refinery along with a 150 MW Captive Power Plant (CPP)

LOCATED AT

Village – Kansarigurha, Post – Podapadi,

District – Rayagada, Odisha.

PROJECT PROPONENT

M/s. Hindalco Industries Limited

(Unit: Aditya Alumina Refinery)

ENVIRONMENTAL CONSULTANT

M/s. ANACON LABORATORIES PVT. LTD., NAGPUR

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ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Lab. & Consultancy: FP-34, 35, Food Park,
MIDC, Butibori, Nagpur – 441122
Mob.: +91-9372960077
Email: ngp@anacon.in
Website: www.anaconlaboratories.com

Report No. Anqr/PD/20A/S-111

DECEMBER- 2025

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Chapter 1
Introduction and Background

Hindalco Industries Limited (HIL), a flagship company of the Aditya Birla Group, is developing a 3.0 MTPA Alumina Refinery along with a 150 MW Captive Power Plant (CPP) at Kansarigurha Village, Podapadi Post, Rayagada District, Odisha. The project aims to utilize bauxite from the nearby mines and produce alumina for downstream aluminium production. Alumina refineries are energy- and emission-intensive facilities due to high-temperature calcination processes and significant fossil fuel consumption.

The captive power plant will provide reliable electricity and steam required for refining operations, ensuring uninterrupted production and process stability. The project also includes facilities for red mud disposal, ash management, water treatment, and ancillary infrastructure.

1.1 Project description and Site Details

M/s Hindalco Industries Ltd. (Aditya Alumina Refinery Project – HIL-AARP) proposes an integrated alumina refinery of 3.0 MTPA capacity with a 150 MW captive co-generation power plant at Kansarigurha Village, Podapadi Post, Rayagada District, Odisha. The total project area is ≈ 859.84 Ha, distributed across Rayagada and Koraput Districts. The project includes the core refinery, captive power plant, R&R colonies, skill-development centre, ash pond, red-mud pond, water-pipeline corridor and associated conveyor corridors.

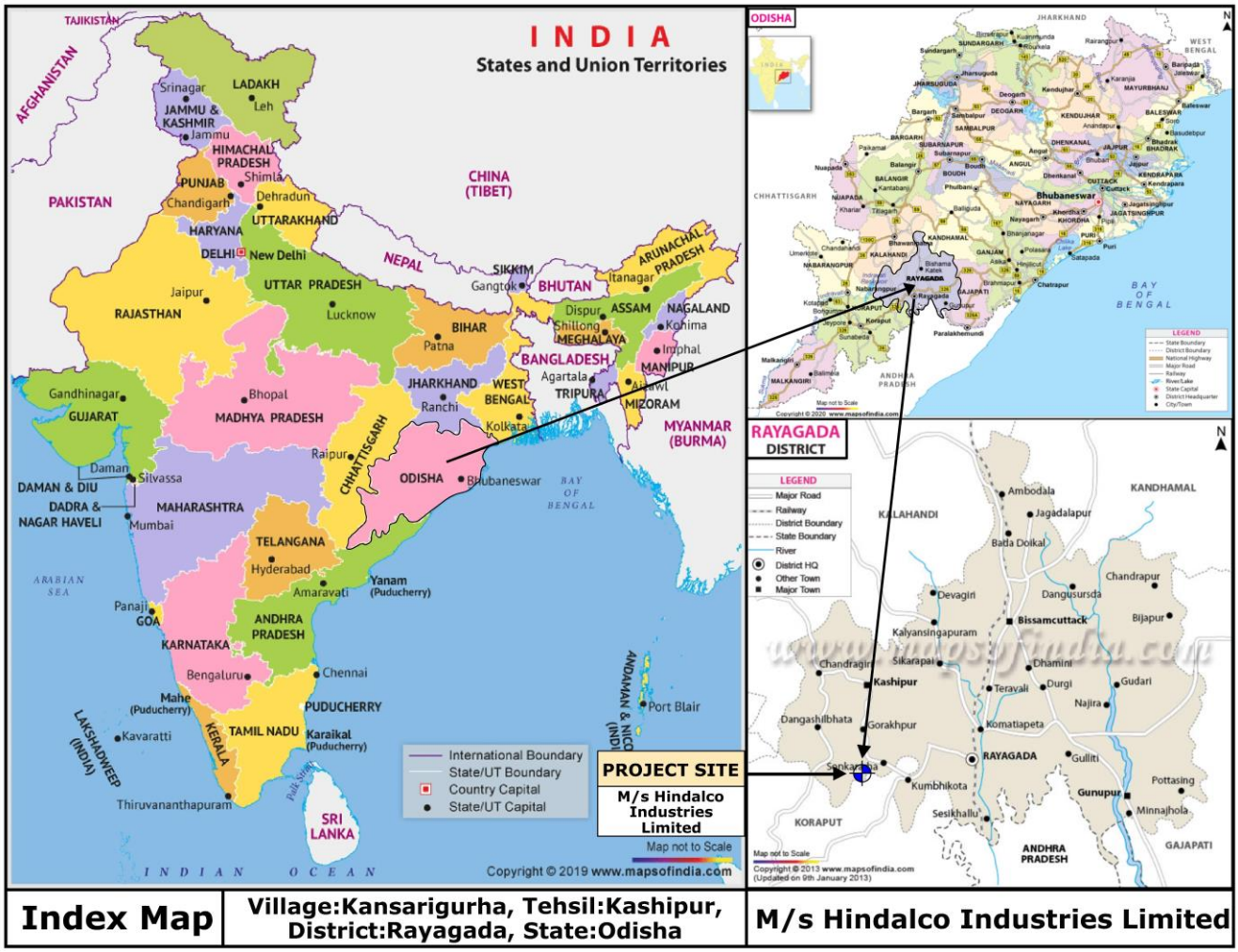


FIGURE 1: INDEX MAP OF THE PROJECT

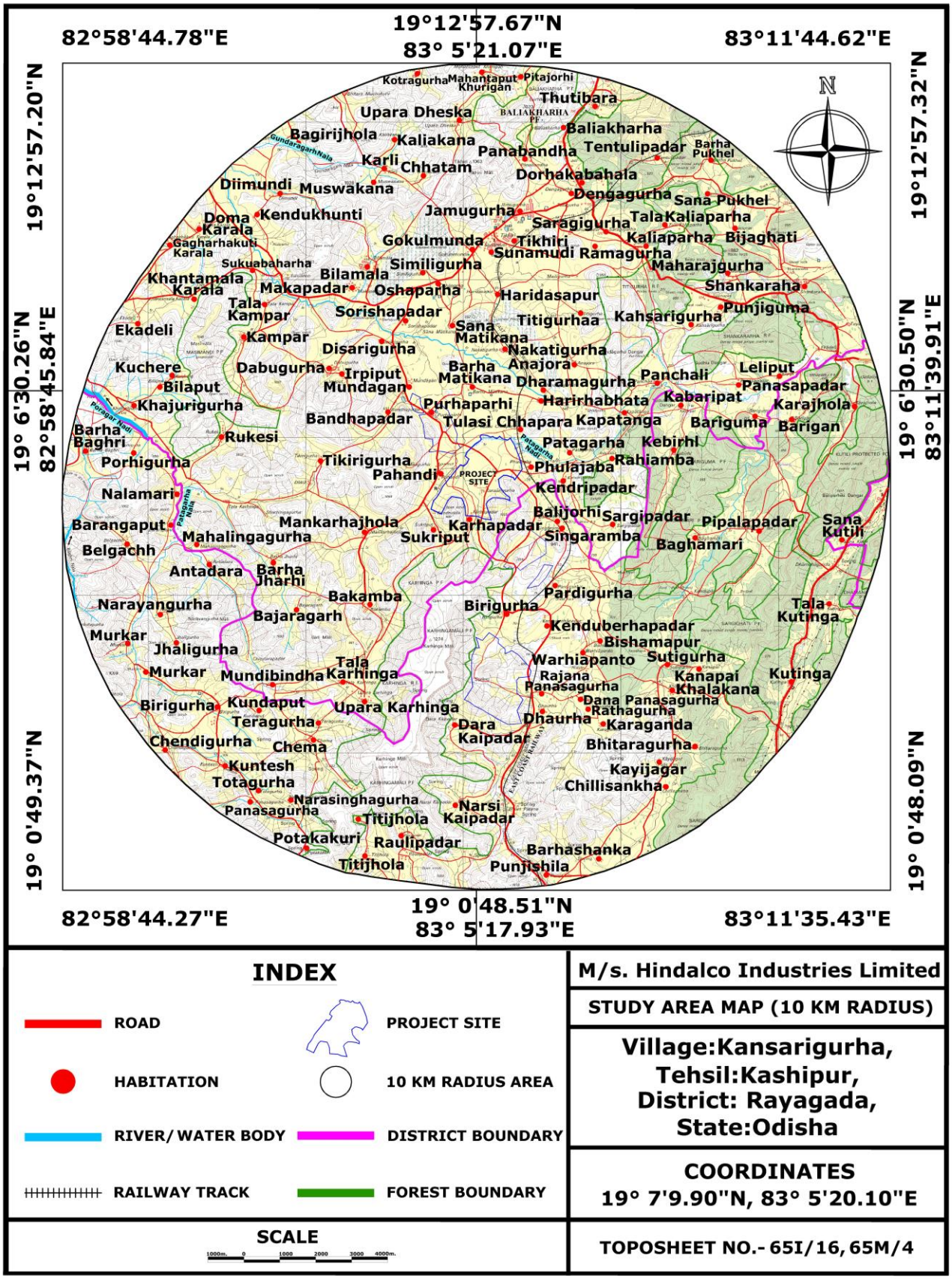


FIGURE 2: STUDY AREA MAP OF PROJECT SITE

TABLE 1: SITE LOCATION AND SETTING

Sl. No.	Particulars	Description
1	Project Name	Hindalco Industries Limited – Aditya Alumina Refinery Project (AARP)
2	Geographical Coordinates (Core Plant)	19°06′29″ N – 19°07′29″ N, 83°04′36″ E – 83°06′01″ E
3	Administrative Jurisdiction	Kansarigurha, Biriguda, Pardiurha and Rajana Panasgurha villages, Podapadi Post, Rayagada District, Odisha
4	Total Project Area	Approximately 859.84 hectares (including core plant, CPP, red mud and ash disposal areas, and allied facilities)
5	Neighboring Villages	Puhandi (~0.2 km West), Karhapadar (adjacent South), Phulajuba (~0.2 km East); nearest Town: Tikri (~6 km North)
6	Accessibility	Koraput–Rayagada Railway: ~0.5 km East Nearest Railway Station: Singaramba (~1.6 km SE) State Highway-4: ~6.2 km NE State Highway-51: ~13.4 km SE Jeypore Airstrip: ~60 km SW Visakhapatnam Airport: ~152 km South
7	Land Use Pattern	Mixed forest (~38 ha) and non-forest government/private land including gharabari, agriculture, jungle, and revenue land
8	Topography and Drainage	Undulating terrain with gentle south-eastern slope; no major surface water body within the core zone; Sentinel-1 radar imagery (2023) confirms non-flood-prone area
9	Land Acquisition Status	753 Ha in possession (IDCO letter dated 31.07.2024); 58 Ha under transfer; 11 Ha under alienation
10	Environmental Setting	Non-flood-prone, non-seismic sensitive area with adequate buffer from human habitation and ecological hotspots
Project Connectivity and Infrastructure		
1	**Road Connectivity**	Connected via State Highway-4 (6.2 km NE) and State Highway-51 (13.4 km SE) Internal approach road developed from Tikri to plant site
2	**Rail Connectivity**	Koraput–Rayagada Railway Line: ~0.5 km East Nearest Railway Station: Singaramba (~1.6 km SE) Facilitates raw material and product transport via rail siding
3	**Air Connectivity**	Nearest Airstrip: Jeypore (~60 km SW) Nearest Commercial Airport: Visakhapatnam (~152 km South)
4	**Water Supply Source**	Raw water drawn from River Nagavali (Pathagarha intake point) through ~16 km dedicated pipeline; ~19,800 m³/day total requirement for refinery and CPP
5	**Power Supply & Distribution**	150 MW Captive Co-generation Power Plant (CPP) – 5 × 30 MW units using high-efficiency boilers (68 bar, 495°C) ensuring self-sufficiency in energy demand
6	**Fuel Supply**	Coal: ~1.4 MTPA from Ib Valley Coalfields (MCL) LSHS: ~0.21 MTPA for boiler start-up, procured from IOCL

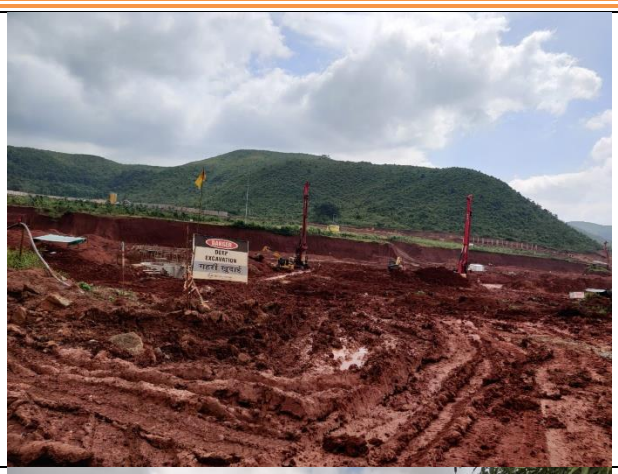
Sl. No.	Particulars	Description
7	**Communication Facilities**	Optical fibre-based high-speed data and telecommunication connectivity; SCADA and DCS systems for process control
8	**Drainage and Storm Water Management**	Site designed with contour-based drainage; separate stormwater network with oil–water separators to prevent contamination
9	**Residue and Ash Disposal Infrastructure**	Red Mud Pond: Engineered containment with HDPE lining and decant water recovery system Ash Pond: Constructed near Singaramba Village with leachate control measures
10	**Green Belt & Buffer Zone**	Progressive greenbelt development over >33% of total area; three-tier plantation around periphery and infrastructure corridors

Plant Layout

The refinery is organised into distinct functional blocks:

1. **Core Refinery Area** – digestion, precipitation, calcination, alumina storage.
2. **Co-generation Power Plant (150 MW)** – 5 × 30 MW turbo-generator sets with 5 × 300 TPH boilers.
3. **Residue Management** – Red-mud Pond (≈ Koraput Dist.) and ash pond (Singaramba Village).
4. **Infrastructure** – workshops, warehouses, administration block, water reservoir (N of refinery).
5. **Skill Development Centre and R&R Colonies** for project-affected families.
6. **Conveyor & Pipeline Corridors** linking Kodingamali Bauxite Mines (~8 km) and residue storage areas.

PLATE 1: SITE AND GREENBELT DEVELOPMENT PHOTOGRAPHS




CAUTION
Blasting Area
Keep Away


DANGER

On-Site Plantation Nursery

Greenbelt Development

Proposed R&R Colony

Process Description – Alumina Refinery

Technology

Process: Bayer's process with medium-pressure digestion (Alcan/Rio Tinto Alcan licensed).

The alumina refinery is planned to be developed in a phased manner, with each phase adding 1 MTPA of alumina production capacity until reaching a total of 3 MTPA. The feedstock requirements and the corresponding generation of products and by-products scale proportionally with each phase. The primary raw material, gibbsite-rich bauxite from the Kodingamali Mines, along with key outputs such as alumina, red mud, ash, and lime grit, have been quantified for each phase to provide clarity on resource utilization and waste generation across the project's progressive expansion. The phase-wise details are presented in the table below.

Parameter	Phase-1 (1 MTPA Alumina)	Phase-2 (1 MTPA Alumina)	Phase-3 (1 MTPA Alumina) = Total 3 MTPA
Bauxite Requirement (Feedstock)	~3.1 Mt/year	~6.2 Mt/year	~9.3 Mt/year
Alumina Production (Product)	1.0 MTPA	2.0 MTPA (1 + 1)	3.0 MTPA (1 + 1 + 1)
Red Mud Generation (By-product)	~1.7 MTPA	~3.4 MTPA	~5.1 MTPA
Ash Generation (By-product)	~0.19 MTPA	~0.38 MTPA	~0.58 MTPA
Lime Grit (By-product)	~6,000 TPA	~12,000 TPA	~18,000 TPA
Year of Phasewise Implementation of the Project	2027-28	2028-29	2029-30

Major Process Steps

The Hindalco Aditya Alumina Refinery, located in Rayagada District of Odisha, is designed with an installed capacity of **3.0 million tonnes per annum (MTPA)** of metallurgical grade alumina. The plant adopts the **Bayer Process**, which is the most widely used and scientifically established method for extracting alumina (Al_2O_3) from bauxite ore. The process converts gibbsite-rich bauxite, obtained from the nearby Kodingamali Bauxite Mines, into anhydrous alumina through a series of physicochemical steps involving digestion, clarification, precipitation, and calcination. The entire operation is supported by modern automation, heat recovery, and closed-loop liquor management systems that ensure high efficiency and environmental sustainability.

Raw Material Characteristics

The bauxite used as feedstock is of gibbsite-rich lateritic origin with an average alumina content of 43–45% and a reactive silica content of around 2.5–3.0%. The material also contains approximately 23–25% iron oxide, 2–3% titanium dioxide, and 25–28% loss on ignition. The high Al_2O_3/SiO_2 ratio, generally exceeding 10, ensures excellent digestion efficiency and reduced caustic consumption. These characteristics make the ore particularly suitable for the Bayer process, which requires low silica and high alumina content for optimal operation and yield.

Parameter	Unit	Typical Value
Available Alumina (Al_2O_3)	%	43–45
Reactive Silica (SiO_2)	%	2.5–3.0
Iron Oxide (Fe_2O_3)	%	23–25
Titanium Dioxide (TiO_2)	%	2–3
Loss on Ignition (LOI)	%	25–28
Mineralogical Type	—	Gibbsite-rich lateritic bauxite

General Process Description

The refinery operates on the Bayer process flow scheme which involves the following major steps: **bauxite handling and grinding**, **digestion of alumina using caustic soda**, **separation of red mud residue**, **precipitation of alumina hydrate**, and **calcination to produce anhydrous alumina**. Each of these steps is interlinked through a well-integrated liquor circuit designed for caustic recovery and zero liquid discharge. The process transforms raw bauxite into high-purity alumina suitable for aluminum smelting while generating red mud as a by-product, which is managed through engineered containment systems.

Bauxite Handling and Grinding

Bauxite mined from the Kodingamali hills is transported to the refinery through a closed conveyor system approximately 8 km in length. The material is stored in covered stockpiles designed for a minimum of thirty days of operation. From the stockyard, bauxite is fed into primary and secondary crushers that reduce the size to less than 30 mm. It is then mixed with recycled caustic liquor and finely ground in wet ball mills to achieve a slurry with particles smaller than 1 mm. The grinding operation is carried out in the presence of spent liquor to minimize dust generation and ensure uniform slurry consistency. This bauxite slurry is then pumped to the digestion area for alumina extraction.

Digestion (Red Area Operations)

The digestion process involves dissolving alumina from bauxite into a sodium aluminate solution using caustic soda under elevated temperature and pressure. The reaction follows the basic equation:

$$Al_2O_3 + NaOH \rightarrow NaAlO_2 + 2H_2O$$

The finely ground bauxite slurry is mixed with concentrated caustic soda and heated in digesters operating at temperatures of 145–150°C and pressures of 5–6 bar. The residence time is typically 60–90 minutes to ensure complete dissolution of alumina. During digestion, the alumina in bauxite reacts with caustic soda to form soluble sodium aluminate, while impurities such as iron, titanium, and silica remain undissolved as residue known as red mud. The hot, pressurized slurry exiting the digester is flashed in multiple stages to recover heat and reduce pressure before it enters the clarification section.

Clarification and Mud Washing

The digestion product, called pregnant liquor, is a mixture of dissolved sodium aluminate and insoluble red mud. The clarification stage separates these two components. The slurry is first conditioned with flocculants to promote rapid settling and then transferred to high-rate thickeners where the solid red mud settles at the bottom, and clear sodium aluminate liquor overflows from the top. The settled red mud is washed multiple times in a counter-current decantation (CCD) system to recover residual caustic soda and dissolved alumina. The recovered liquor is recycled to the process, while the washed mud, containing 50–60% solids, is pumped to the Red Mud Pond through dedicated pipelines. The red mud pond is lined with HDPE to prevent seepage and includes a decant water recovery system to reclaim and reuse supernatant liquor. Thus, the clarification stage ensures efficient recovery of caustic soda and minimizes losses to waste streams.

Precipitation (White Area Operations)

The clear sodium aluminate liquor obtained after clarification is supersaturated with dissolved alumina. To precipitate alumina hydrate, the liquor is cooled and seeded with fine alumina trihydrate crystals in large agitated tanks. The precipitation reaction is the reverse of digestion and follows the equation:

$$NaAlO_2 + 2H_2O \rightarrow Al(OH)_3 + NaOH$$

This process takes place at temperatures of 55–60°C with a retention time of 30–40 hours. Under controlled conditions of cooling and agitation, alumina trihydrate crystallizes out of the solution. The coarse hydrate crystals are separated from the mother liquor, washed, and sent to the calcination unit, while the fine particles are recycled as seed material to maintain continuous crystal growth. The spent liquor containing regenerated caustic soda is concentrated in evaporators and reused in digestion, ensuring closed-loop operation and reduced chemical consumption.

Calcination

The alumina trihydrate obtained from precipitation contains about 34% water of crystallization, which must be removed to produce pure anhydrous alumina. This is achieved through calcination in fluidized bed gas suspension calciners. The hydrate is preheated and then exposed to temperatures of 950–1,050°C in the calciner where it undergoes endothermic decomposition:

$$Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$$

The use of fluidized bed technology ensures uniform heating, efficient energy transfer, and a consistent product quality with high surface area and low soda content. The hot gases for calcination are derived from the captive power plant boilers, and waste heat is recovered for preheating purposes to improve energy efficiency. The water vapor released during calcination is vented through electrostatic precipitators and scrubbers, ensuring particulate emissions are within regulatory limits. The finished alumina is cooled, stored in silos, and dispatched to aluminum smelters via rail or road transport.

Liquor Evaporation and Caustic Recovery

After precipitation, the mother liquor is relatively dilute in caustic concentration and must be reconcentrated before being recycled to the digestion stage. This is accomplished in a multiple-effect evaporation system, which uses low-pressure steam to remove water in successive stages, thereby improving energy efficiency. Condensate from the evaporators is reused as process water. The evaporated liquor, now enriched in sodium hydroxide, is returned to the digestion circuit. Continuous monitoring of sodium oxide and caustic ratios ensures optimal chemical balance and process stability throughout the circuit.

Residue and Ash Management

The principal solid waste from the refinery is red mud, which is a mixture of iron oxides, silica, titanium, and residual caustic soda. It is transported as thickened slurry through pipelines to engineered red mud ponds located within the designated waste management area. The ponds are designed with double HDPE liners, leachate collection systems, and embankment stabilization measures to prevent contamination of soil and groundwater. Decant water from the ponds is continuously recycled to the refinery. The fly ash and bottom ash generated from the captive power plant are collected through electrostatic precipitators and are proposed to be fully utilized in brick manufacturing, cement blending, and land reclamation activities. This integrated waste management approach ensures compliance with the Zero Waste and Zero Liquid Discharge (ZLD) concept.

Utilities and Energy Systems

The refinery is supported by a robust utility infrastructure that ensures uninterrupted operation. A 150 MW captive co-generation power plant (CPP) supplies both electrical power and process steam to the refinery. The boilers use a combination of coal and LSHS as fuel, with advanced pollution control equipment including ESPs and bag filters. Water for process and cooling requirements is sourced from the Pathagarha intake point on the River Nagavali through a 16 km pipeline. Closed-loop water circuits, condensate recovery, and rainwater harvesting systems significantly reduce freshwater consumption.

Compressed air, fuel handling, cooling water, and water treatment systems are integrated with automated control and monitoring mechanisms to optimize efficiency and minimize emissions.

Process Control and Automation

The refinery is equipped with a modern Distributed Control System (DCS) that monitors and regulates temperature, pressure, flow, and chemical concentrations in real time. Automated feedback loops and advanced analytics ensure steady operation and prevent process deviations. Predictive maintenance and AI-assisted optimization tools are integrated to reduce energy consumption, minimize downtime, and enhance product quality. This high degree of automation contributes significantly to lowering specific energy use and the associated GHG emissions, thereby aligning the refinery with the corporate sustainability and Net-Zero objectives.

Environmental and Energy Efficiency Features

The alumina refinery has been designed to operate on the principles of cleaner production and resource efficiency. Continuous emission monitoring systems (CEMS) are installed at all major emission sources, including calciners and boilers. Condensate recovery systems minimize thermal and water losses, while green belt development along the plant boundary helps absorb dust and CO_2. Waste heat recovery from flash tanks and condensers enhances the thermal efficiency of the process. Together, these measures not only ensure compliance with environmental standards but also reduce the carbon footprint of the refinery operations.

The Hindalco Aditya Alumina Refinery represents a modern, energy-efficient, and environmentally responsible industrial complex that utilizes advanced Bayer process technology for alumina production. From bauxite handling to calcination, every stage is optimized for maximum resource recovery and minimal waste generation. The process design incorporates integrated water and caustic recovery systems, efficient red mud management, and automated energy control mechanisms. By aligning operational efficiency with environmental stewardship, the refinery serves as a model for sustainable alumina production and a critical contributor to India's low-carbon industrial growth trajectory.

Co-Generation Power Plant

Parameter	Specification
Boilers	5 × 300 TPH, 68 bar, 495 °C
Turbo-Generators	5 × 30 MW = 150 MW
Steam Requirement	Avg 380 TPH (MP 140 TPH + LP 240 TPH); Peak 455 TPH
Fuel	Coal (~1.4 Mt yr^{-1}, Ib Valley Coalfields) + LSHS for start-up
Cooling System	Induced-draft cooling towers with recirculating water
Control System	Integrated Boiler-Turbine Master Control for load sharing

Power generated meets total process demand; excess steam feeds process heating loops (12 bar MP & 4.2 bar LP headers).

Material and Energy Balances

Material Balance (for 3 MTPA Alumina Production i.e., at its peak production):

Input	Specific Consumption (t/t Al_2O_3)	Annual Qty (t)
Bauxite	3.104	9,310,704
Lime	0.076	227,354
Caustic Soda	0.130	391,416
Total	3.31	9,929,474

Input	Specific Consumption (t/t Al_2O_3)	Annual Qty (t)
Output	**Specific Generation (t/t Al_2O_3)**	**Annual Qty (t)**
Alumina	1.000	3,000,000
Red Mud	1.700	5,100,000
Losses	0.610	1,829,474

Thermal Energy Demand: ≈ 14 GJ t^{-1} Al_2O_3 (mainly in digestion & calcination).

Power Requirement: ≈ 450 kWh t^{-1} Al_2O_3 (self-sufficient via captive plant).

TABLE 2: UTILITIES AND RESOURCE REQUIREMENTS

Utility	Requirement (m^3/day or TPA)	Source / Notes
Water	19,800 m^3/day (10,900 refinery + 8,500 CPP + 400 domestic)	16 km pipeline from Pathagarha River (renewal applied 2023)
Fuel – Coal	1.405 Mt/y	Ib Valley Coalfields – Rail/Road
Fuel – LSHS	0.213 Mt/y	Indian Oil Refineries – Rail/Road
Power	Self-generated (150 MW)	Captive use
Employment	≈ 750 permanents + contractual labor	Operations phase
Project Cost	₹ 11,000 crore	Implementation period ≈ 66 months

Salient Features and Environmental Safeguards

- Modern Bayer technology with medium-pressure digestion and efficient liquor recovery.
- Thickened slurry disposal system for red mud minimizing land footprint and seepage.
- Co-generation unit for steam and power efficiency.
- Zero Liquid Discharge (ZLD) design with maximum water recycle.
- ESP and bag filter systems for air emission control from boilers and calciners.
- Comprehensive rainwater harvesting system: ~1.1 million m^3/y effective run-off capture.
- Green belt development covering > 33 % of total land.

1.2 Purpose of the Report

This Greenhouse Gas (GHG) Assessment Report is prepared to:

- Quantify annual GHG emissions from the alumina refinery and captive power plant.
- Categorize emissions into **Scope 1 (direct), Scope 2 (indirect from purchased energy), and Scope 3 (value chain emissions)**.
- Benchmark emission intensity against global and national best practices.
- Identify potential mitigation strategies to align with **India's Nationally Determined Contributions (NDCs)** under the **Paris Agreement** and the **COP-26 commitments**.
- Provide a long-term climate action framework consistent with India's Net-Zero by 2070 roadmap.

1.3 Climate Change and the Industrial Context

Climate change has emerged as one of the most pressing global challenges. The industrial sector, particularly energy-intensive industries such as aluminium and alumina production, plays a crucial role in determining the trajectory of national and global GHG emissions. According to the International Aluminium Institute (IAI), alumina refineries contribute nearly 15–20% of the total GHG footprint of the aluminium value chain.

Given this context, Hindalco recognizes the importance of integrating climate considerations into its operational strategy. By undertaking a robust GHG inventory and developing a mitigation roadmap, the

company not only fulfills compliance obligations but also demonstrates leadership in corporate sustainability.

1.4 Alignment with COP-26 and India's NDC

At the **26th Conference of Parties (COP-26)** in Glasgow (2021), India announced its **"Panchamrit" climate commitments**, which include:

- Achieving **500 GW of non-fossil fuel-based power capacity by 2030**.
- Meeting **50% of energy requirements from renewable sources by 2030**.
- Reducing **carbon intensity of GDP by 45% by 2030** (compared to 2005 levels).
- Reducing projected carbon emissions by **1 billion tonnes by 2030**.
- Achieving **Net Zero emissions by 2070**.

This project's GHG assessment is therefore framed not only as a compliance exercise but as a forward-looking strategy to align industrial growth with climate responsibility.

1.5 Regulatory Framework and Guidelines

The GHG inventory has been prepared using:

- **IPCC 2006 Guidelines for National GHG Inventories (Vol. 2 – Energy, Vol. 3 – Industrial Processes)**.
- **ISO 14064-1:2018 standards** for organizational GHG quantification and reporting.
- The **GHG Protocol – Corporate Standard** for Scope 1, 2, and 3 classifications.
- National frameworks including the **MoEFCC Guidelines** and the emerging **Indian Carbon Market framework**.

1.6 Significance of this Study

The significance of this GHG assessment lies in:

- Establishing a baseline inventory for the refinery and CPP operations.
- Providing transparency and accountability in environmental performance.
- Enabling mitigation strategies such as fuel switching, energy efficiency, renewable integration, and carbon capture.
- Supporting the company's sustainability disclosures to investors, regulators, and stakeholders.
- Contributing to the national climate agenda and global efforts under the UNFCCC.

Chapter 2
Objectives of the GHG Assessment

The primary objective of this Greenhouse Gas (GHG) Assessment is to develop a **comprehensive, transparent, and verifiable inventory** of greenhouse gas emissions arising from the proposed 3.0 MTPA Alumina Refinery and 150 MW Captive Power Plant at Rayagada, Odisha. The study also aims to evaluate mitigation opportunities and ensure alignment with national and international climate commitments.

The specific objectives are described below:

2.1 Quantification of GHG Emissions

- To calculate annual GHG emissions from all significant sources within the project boundary, including combustion, process, fugitive, and auxiliary activities.
- To adopt the **IPCC 2006 Guidelines for National GHG Inventories** for emission factor selection and activity data conversion.
- To quantify emissions in terms of **CO_2-equivalent (CO_2e)**, covering carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), using their respective Global Warming Potentials (GWPs) as per the **IPCC AR6** values.

2.2 Classification of Emission Sources

- To classify emissions into **Scope 1 (direct on-site emissions), Scope 2 (indirect emissions from purchased energy), and Scope 3 (value-chain emissions)** as per the **GHG Protocol Corporate Standard**.
- To identify major contributors to emissions, such as:
  - ✓ **Coal and LSHS combustion** in boilers, calciners, and CPP.
  - ✓ **Process CO_2** from calcination of aluminium hydroxide.
  - ✓ **Auxiliary fuels** in DG sets and startup operations.
  - ✓ **Fugitive emissions** during material handling, storage, and waste management.
  - ✓ **Transport and logistics** emissions from raw material supply and product dispatch.

2.3 Establishment of a Baseline Inventory

- To create a **baseline GHG inventory** for the refinery and CPP during full-capacity operations.
- To serve as a **reference point** for future monitoring, reporting, and verification (MRV).
- To support **sustainability disclosures** to regulatory agencies (MoEFCC), investors, lenders, and stakeholders.

2.4 Benchmarking and Performance Evaluation

- To compare emission intensity (tCO_2e/tonne alumina, tCO_2e/MWh electricity) with **national and international best practices**.
- To assess alignment with **Best Available Techniques (BAT)** for alumina refineries and captive power generation.
- To identify gaps and opportunities for emission intensity reduction in line with **COP-26 targets** and **India's NDCs**.

2.5 Identification of Mitigation Opportunities

- To evaluate technological, operational, and strategic options for emission reduction, including:
  - ✓ **Fuel switching** from coal/LSHS to natural gas or biomass.
  - ✓ **Renewable energy integration** (solar PV, solar thermal, biomass co-firing).
  - ✓ **Energy efficiency enhancements** in boilers, calciners, and process units.
  - ✓ **Waste heat recovery systems (WHRS)**.
  - ✓ **Carbon Capture and Utilisation (CCU)** for process emissions.
  - ✓ **Utilisation of red mud and fly ash** in cement and construction sectors.

2.6 Support to National and International Commitments

- To align project emissions with India's **Nationally Determined Contributions (NDCs)** under the **Paris Agreement**.
- To ensure consistency with the **Net Zero by 2070 commitment** announced at COP-26.
- To prepare the company for participation in **domestic carbon markets** and potential opportunities under **Article 6 of the Paris Agreement**.

2.7 Facilitation of Corporate Sustainability Reporting

- To generate reliable data for disclosure under:
  - ✓ SEBI's Business Responsibility and Sustainability Report (BRSR).
  - ✓ CDP (Carbon Disclosure Project) submissions.
  - ✓ GRI (Global Reporting Initiative) standards.
- To enhance transparency and strengthen investor confidence by demonstrating proactive climate action.

2.8 Capacity Building and Long-Term Roadmap

- To establish internal systems for **GHG monitoring, reporting, and verification (MRV)**.
- To train staff in GHG accounting and sustainability reporting.
- To provide a **long-term climate action roadmap** that integrates business growth with environmental responsibility.

Chapter 3
Policy Context – COP 26, Paris Agreement & India's NDCs

3.1 Global Climate Policy Landscape

The challenge of climate change is governed by international agreements negotiated under the United Nations Framework Convention on Climate Change (UNFCCC). These agreements provide a common framework for countries to collectively mitigate GHG emissions and adapt to climate impacts.

The two most significant milestones are:

- The Paris Agreement (2015, COP-21)**,** which established the goal of limiting global temperature rise to well below 2°C above pre-industrial levels, with efforts to limit warming to 1.5°C.
- The Glasgow Climate Pact (2021, COP-26), which strengthened commitments to reduce emissions, phase down coal, scale up renewables, and mobilize climate finance.

Against this backdrop, corporate GHG inventories, such as this report, form a critical building block for accountability, transparency, and alignment with global goals.

3.2 The Paris Agreement (COP-21, 2015)

The Paris Agreement introduced a bottom-up framework where each country submits its own Nationally Determined Contributions (NDCs). Key provisions relevant to industrial projects include:

- **Global Temperature Goal**: Hold the increase in global average temperature to well below 2°C, pursue efforts to limit to 1.5°C.
- **National Contributions**: Countries must submit progressively more ambitious NDCs every five years.
- **Emission Transparency**: Establishment of the Enhanced Transparency Framework (ETF) for reporting and verification of emissions.
- **Carbon Markets (Article 6)**: Facilitates voluntary cooperation among countries through carbon trading and credit mechanisms.
- **Corporate Role**: Encourages private sector to adopt low-carbon technologies and disclose emissions.

For Hindalco's alumina refinery and CPP project, the Paris Agreement provides the overarching climate responsibility framework under which this GHG assessment is positioned.

3.3 COP-26 and the Glasgow Climate Pact (2021)

At COP-26 in Glasgow, global leaders reaffirmed the urgency of climate action and agreed upon the Glasgow Climate Pact. The Pact emphasized:

- **Net-Zero by Mid-Century**: Strong call for all countries to pursue net-zero targets aligned with science-based pathways.
- **Coal Phase-Down**: Agreement to "phase down unabated coal power" and reduce reliance on fossil fuels.
- **Renewables & Efficiency**: Urgent acceleration of renewable energy deployment and energy efficiency.
- **Methane & Deforestation**: Pledges to cut methane emissions by 30% by 2030 (Global Methane Pledge) and halt deforestation by 2030.
- **Finance & Technology**: Commitment of developed countries to mobilize USD 100 billion annually in climate finance, with stronger focus on technology transfer.

For the Indian industrial sector, particularly energy-intensive projects such as alumina refineries, COP-26 reinforced the need to adopt low-carbon pathways. This report demonstrates how the proposed project can align with these global objectives through fuel switching, energy efficiency, and renewable integration.

3.4 India's Climate Commitments and NDCs

India has been a proactive participant in global climate negotiations. At COP-26, Prime Minister Narendra Modi announced the "Panchamrit" strategy, which forms the basis of India's updated NDCs submitted in 2022. The commitments are:

1. Achieve 500 GW of non-fossil energy capacity by 2030**.**
2. Fulfil 50% of total energy requirements from renewables by 2030**.**
3. Reduce total projected carbon emissions by 1 billion tonnes by 2030**.**
4. Reduce the carbon intensity of GDP by 45% from 2005 levels by 2030**.**
5. Achieve Net-Zero emissions by 2070**.**

India's NDCs emphasize a balanced approach: supporting economic growth while gradually decoupling from carbon-intensive energy systems. Heavy industries such as aluminium and alumina have a critical role to play, as they represent significant emission sources but also opportunities for technology-led decarbonisation.

3.5 National Policy and Regulatory Alignment

In addition to international commitments, several national frameworks guide emission management:

- **Energy Conservation Act (2001) & PAT Scheme**: Perform, Achieve, Trade (PAT) sets energy efficiency targets for designated industries.
- **Renewable Energy Obligations (RPOs)**: Mandates use of renewable energy in industrial power consumption.
- **National Action Plan on Climate Change (NAPCC)** and its eight missions, including the **National Mission on Enhanced Energy Efficiency (NMEEE)**.
- **Carbon Market Framework (2023)**: India is developing a formal carbon credit trading system to incentivize emission reductions.
- **MoEFCC Guidelines**: Environmental clearances increasingly require GHG inventories and climate risk assessments.

3.6 Relevance to the Hindalco Alumina Refinery Project

- The project is energy-intensive and relies on fossil fuels (coal, LSHS). By quantifying and reporting emissions transparently, it supports India's ETF obligations under the Paris Agreement.
- The shift towards natural gas and renewable integration aligns with COP-26 calls for cleaner energy.
- The adoption of best practices in waste management (red mud, fly ash) reduces lifecycle emissions and supports the circular economy.
- The project's GHG mitigation roadmap contributes to the national net-zero vision by 2070, ensuring that industrial growth and climate responsibility proceed in tandem.

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Chapter 4
Methodology and Approach
(IPCC 2006 Guidelines, ISO 14064, GHG Protocol)

4.1 Purpose of Methodology

The methodology defines the systematic framework used to quantify, classify, and report greenhouse gas (GHG) emissions from the 3.0 MTPA Alumina Refinery and 150 MW Captive Power Plant (CPP). A transparent methodology is essential for:

- Ensuring accuracy and consistency of emission estimates.
- Enabling comparability with national inventories and international reporting.
- Supporting future monitoring, reporting, and verification (MRV).
- Building credibility for corporate disclosures and sustainability ratings.

4.2 Guiding Standards and References

The GHG inventory has been developed in alignment with the following internationally recognized standards and protocols:

1. **IPCC 2006 Guidelines for National Greenhouse Gas Inventories**

- Provides default emission factors, calculation methodologies, and activity data requirements.
- Relevant volumes:

➢ **Volume 2 – Energy** (stationary combustion in CPP, fuel use in calciners and DG sets).

➢ **Volume 3 – Industrial Processes and Product Use (IPPU)** (process emissions from calcination).

➢ Tier 1 and Tier 2 approaches were adopted depending on data availability.

2. **ISO 14064-1:2018 (Greenhouse Gases – Part 1)**

- Provides principles and requirements for organizational-level GHG inventories.
- Ensures transparency, consistency, completeness, accuracy, and relevance in reporting.

3. **GHG Protocol – Corporate Accounting and Reporting Standard**

- Widely used framework for classifying emissions into Scope 1, Scope 2, and Scope 3.
- Ensures that the inventory is compatible with global corporate reporting systems such as CDP and BRSR.

4. **Aluminium Stewardship Initiative**

- Provides default emission factors, calculation methodologies, for bauxite mining, and alumina refinery.

5. **Government of India Guidance**

- Alignment with the National Communication (NATCOM) methodology used in India's official GHG inventory submitted to the UNFCCC.
- Consistency with emerging Indian Carbon Market (ICM) requirements for emission reporting and credit trading.

4.3 Organizational Boundaries

- Operational Control Approach was used. This means all emissions from facilities and processes operated by Hindalco under this project are included.
- Boundaries include:
  - Bauxite Mining
  - Alumina refinery process units (digestion, precipitation, calcination).
  - Captive power plant (boilers, turbines, WHRB).
  - Ancillary facilities (DG sets).
  - Material handling, transport within the site, and waste management systems.

4.4 Reporting Boundaries

Emissions are categorized into three scopes:

- **Scope 1 (Direct Emissions):**
  - Combustion of coal and LSHS in boilers, calciners, and CPP.
  - Process CO_2 emissions from decomposition of aluminium hydroxide during calcination.
  - Auxiliary diesel combustion in DG sets.
  - Fugitive emissions from material handling and storage.
  - **Scope 2 (Indirect Emissions):**
  - Purchased electricity from the grid (minimal, as CPP supplies most requirements).
- **Scope 3 (Other Indirect Emissions):**
  - Upstream and downstream transport of raw materials and products.
  - Waste disposal (red mud, fly ash).
  - Employee commuting and business travel (indicative, not quantified in this study).

4.5 Data Collection and Sources

- **Activity Data:**
  - Fuel consumption quantities (coal, LSHS) from EIA report and design documents.
  - Alumina production capacity (3.0 MTPA) as baseline throughput.
  - Energy values (GCV) from EIA laboratory reports.
- **Emission Factors:**
  - Adopted from IPCC 2006 default values for relevant fuels.
  - Where available, Indian-specific emission factors from the Central Electricity Authority (CEA) and Bureau of Energy Efficiency (BEE) were cross-checked.
- **Process Data:**
  - Process CO_2 emissions estimated using industry average factors (1.25 tCO_2/t alumina), validated against International Aluminium Institute benchmarks.

4.6 Monitoring, Reporting and Verification (MRV)

- **Monitoring:** Establish continuous monitoring systems for coal consumption, boiler efficiency, and calciner output.
- **Reporting:** Annual GHG Inventory Report to internal sustainability cell and external stakeholders (MoEFCC, CDP, BRSR).
- **Verification:** Independent third-party verification to build credibility and enable eligibility for carbon markets.

4.7 Future Alignment

This methodology positions Hindalco's project to:

- Participate in the upcoming Indian Carbon Market (ICM) by establishing tradable emission reductions.
- Disclose in line with Task Force on Climate-related Financial Disclosures (TCFD).
- Achieve comparability with global peers in the aluminium industry.

Chapter 5
GHG Sources and Categorization (Scope 1, 2, 3)

GHG emissions from industrial and operational activities are classified based on their direct or indirect contribution to climate change. The internationally recognized standard for categorization is provided by the GHG Protocol and ISO 14064. Emissions are generally divided into Scope 1, Scope 2, and Scope 3 as follows:

5.1 Scope 1 – Direct GHG Emissions

Scope 1 emissions are direct emissions from sources owned or controlled by the company. These arise from activities that physically release GHGs into the atmosphere. This includes Alumina refinery, Coal based Co-generation power plant (150 MW/h) and use of fuel oil (LSHS) in DG sets. These can be further classified into following groups:

Stationary Combustion:

- ✓ DG fuel consumption (LSHS)
- ✓ Coal based Co-generation power plant (150 MW/h)

Mobile Combustion:

- ✓ Machinery and equipment operating on fossil fuels

Process Emissions:

Alumina refinery processes i.e., grinding, purification, precipitation and calcination

5.2 Scope 2 – Indirect GHG Emissions from Purchased Energy

Scope 2 covers indirect emissions from the generation of purchased electricity, heat, or steam consumed by the facility. While these emissions occur at the energy generation source, they are attributed to the facility using the energy.

Key sources under Scope 2:

Purchased electricity from the grid

5.3 Scope 3 – Other Indirect GHG Emissions

Scope 3 includes all other indirect emissions that occur in the value chain of the reporting company, both upstream and downstream. Scope 3 emissions are usually optional but critical for understanding the full carbon footprint.

Typical Scope 3 sources:

Upstream Activities:

Production and transportation of purchased fuels and raw materials

Employee commuting

Downstream Activities:

Product transportation and distribution

SUMMARY TABLE 3: GHG SOURCES AND SCOPES (FOR 1 MTPA IN PHASE–1)

Sl.No.	Components	Units	Quantity	Emission Factor	tCO_2/Year
Scope 1 (Direct)					
1	Alumina Refinery	TPA	1000000	1.23 tCO_2/t Alumina	1230000
2	Coal	TPA	468333.3	95.99 kg CO_2/mm BTU	722509
3	LSHS	TPA	71000	74.14 kg CO_2/mm BTU	220379
Scope 2 (Indirect)					
4	Steam	TPA	1092000	66.33 kg CO_2/mm BTU	261055
5	Electricity	MWh	0.250	0.8 tCO_2/MWh	1752
Scope 3 (Indirect)					
6	Bauxite	TPA	3100000	0.035 tCO_2/dmt	104160
7	Transportation				3458
				Total GHG Emission (tCO_2/Year)	2543314
				Total Material Required in the Project (TPA)	3309825
				Total GHG Emission per ton of Material (tCO_2/T of material)	0.77

#Sources: International Aluminium Institute and IPCC 2006.

SUMMARY TABLE 4: GHG SOURCES AND SCOPES (FOR 2 MTPA IN PHASE–2)

Sl.No.	Components	Units	Quantity	Emission Factor	tCO_2/Year
Scope 1 (Direct)					
1	Alumina Refinery	TPA	2000000	1.23 tCO_2/t Alumina	2460000
2	Coal	TPA	936666.7	95.99 kg CO_2/mm BTU	1445018
3	LSHS	TPA	142000	74.14 kg CO_2/mm BTU	440759
Scope 2 (Indirect)					
4	Steam	TPA	2184000	66.33 kg CO_2/mm BTU	522110
5	Electricity	MWh	0.500	0.8 tCO_2/MWh	3504
Scope 3 (Indirect)					
6	Bauxite	TPA	6200000	0.035 tCO_2/dmt	208320
7	Transportation				6917
				Total GHG Emission (tCO_2/Year)	5086627
				Total Material Required in the Project (TPA)	6619649
				Total GHG Emission per ton of Material (tCO_2/T of material)	0.77

#Sources: International Aluminium Institute and IPCC 2006.

SUMMARY TABLE5: GHG SOURCES AND SCOPES (FOR 3 MTPA I.E., AT ITS PEAK PRODUCTION)

Sl.No.	Components	Units	Quantity	Emission Factor	tCO_2/Year
Scope 1 (Direct)					
1	Alumina Refinery	TPA	3000000	1.23 tCO_2/t Alumina	3690000
2	Coal	TPA	1405000	95.99 kg CO_2/mm BTU	2167528
3	LSHS	TPA	213000	74.14 kg CO_2/mm BTU	661138
Scope 2 (Indirect)					
4	Steam	TPA	3276000	66.33 kg CO_2/mm BTU	783165
5	Electricity	MWh	0.750	0.8 tCO_2/MWh	5256
Scope 3 (Indirect)					
6	Bauxite	TPA	9300000	0.035 tCO_2/dmt	312480

Sl.No.	Components	Units	Quantity	Emission Factor	tCO_2/Year
7	Transportation				10375
				Total GHG Emission (tCO_2/Year)	7629941
				Total Material Required in the Project (TPA)	9929474
				Total GHG Emission per ton of Material (tCO_2/T of material)	0.77

#Sources: International Aluminium Institute and IPCC 2006.

Notes / assumptions

- ✓ Emission scaling is strictly proportional to capacity (1:2:3 for Phases 1 to 3).
- ✓ The **Alumina** quantity is presented as 1,000,000 TPA for Phase–1 (so Phase–2 = 2,000,000; Phase–3 = 3,000,000).
- ✓ Small rounding differences may lead to ±1 tCO_2 in final totals.

As the refinery expands from Phase–1 to Phase–2 and ultimately to Phase–3, the total GHG emissions increase proportionally with production capacity; however, the tCO_2 emission intensity per tonne of material handled can be progressively reduced through technological optimisation, energy efficiency improvements, and economies of scale. Large-scale operations enable better heat integration, reduced specific fuel consumption, and improved process stability, all of which contribute to lower emissions per tonne of alumina produced. By adopting measures such as upgrading to high-efficiency boilers, increasing the share of renewable power in the electricity mix, enhancing waste heat recovery, switching from high-carbon fuels to cleaner fuels, optimising calcination temperatures, improving red-mud disposal efficiency, and digitising operational controls through real-time monitoring systems, the refinery can achieve year-on-year reductions in specific tCO_2 emissions. Further reductions can be realised through ongoing measures including equipment retrofits, process automation, enhanced maintenance practices, fleet optimisation for raw material transport, and participation in carbon offset or carbon credit mechanisms. These strategies collectively position the project for continual decarbonisation as it transitions across phases.

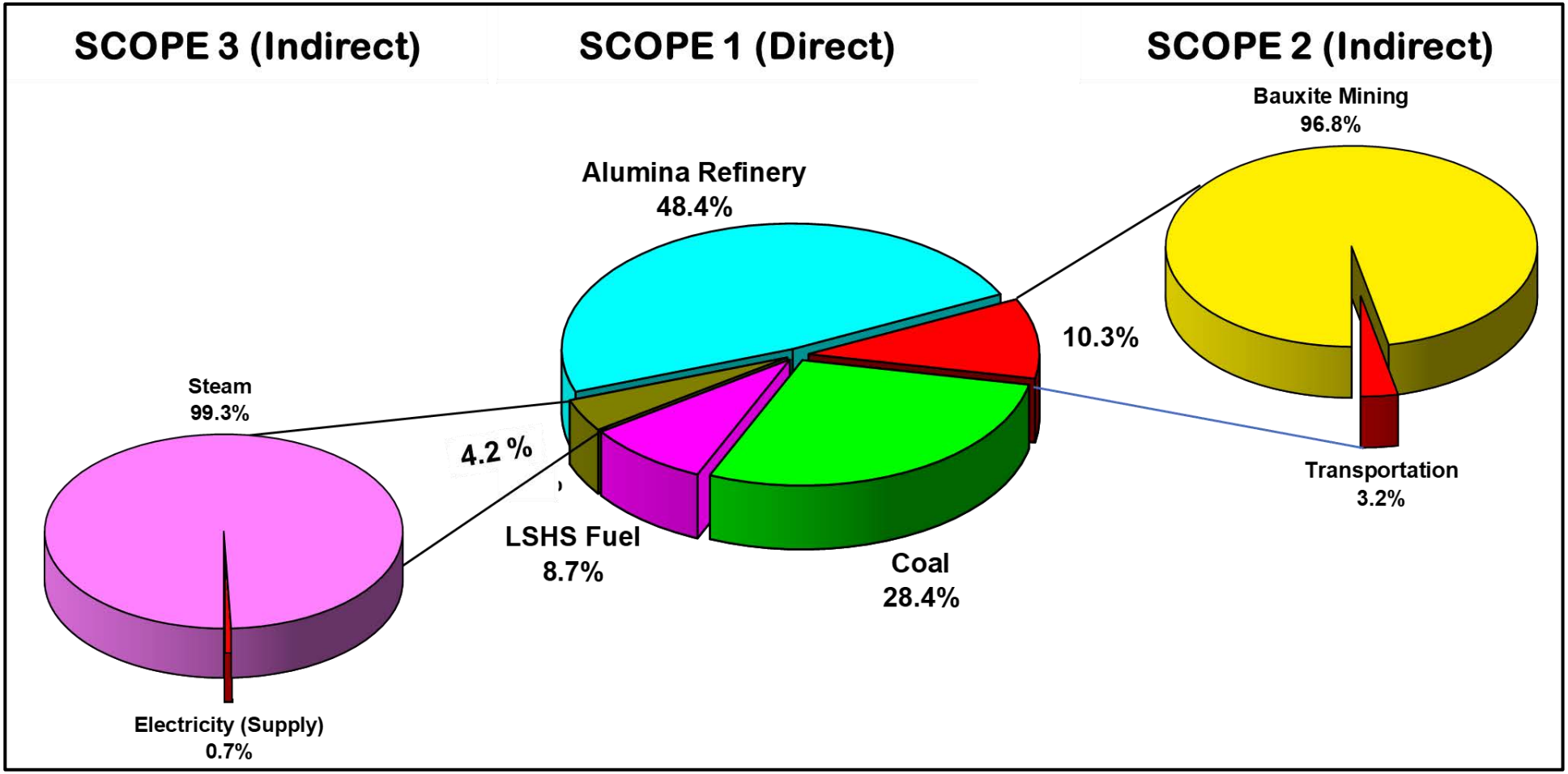

FIGURE 3: DEMONSTRATING OVERALL GHG EMISSION

The above illustration presents a comparative breakdown of GHG emissions under Scope 1, Scope 2, and Scope 3 categories as defined by the GHG Protocol. Scope 1 emissions, represented by the central pie chart, cover direct emissions from onsite fuel combustion and industrial processes. The chart highlights multiple contributing sources, where process-related emissions dominate the share, followed by fuel combustion and other minor contributors. The labelled 4.2% indicates a relatively small proportion of emissions arising from a specific activity category within Scope 1, demonstrating that emission sources are varied but not equally significant.

Scope 2 and Scope 3 emission distributions are distinctly highlighted on either side of the Scope 1 chart. Scope 2, illustrated in yellow, represents indirect emissions from purchased electricity, which shows a major share originating from power consumption, emphasizing reliance on grid energy as a key emission driver. In contrast, Scope 3 emissions, shown in pink, account for additional indirect emissions occurring across the upstream and downstream value chain. The minimal red slice indicates that only a very small fraction of total Scope 3 emissions is attributable to the evaluated activity. Together, the visual comparison emphasizes that effective decarbonization requires targeted reduction strategies across all scopes, particularly focusing on major contributors under Scope 1 and Scope 2.

Chapter 6
Strategic Alignment with Global and National Climate Frameworks

6.1 Alignment with India's Net-Zero by 2070 Commitment

At the 26th Conference of Parties (COP-26) held in Glasgow in 2021, the Hon'ble Prime Minister of India announced that the country will achieve Net-Zero GHG emissions by 2070. This long-term vision forms the cornerstone of India's sustainable development strategy and complements near-term goals of reducing the emissions intensity of GDP by 45% by 2030 (from 2005 levels).

The Net-Zero by 2070 roadmap emphasizes:

- Decarbonisation of the power, industrial, and transport sectors.
- Accelerated deployment of renewables (solar, wind, hydro, green hydrogen).
- Electrification of industrial processes and mobility.
- Carbon capture, utilization, and storage (CCUS) for hard-to-abate sectors.
- Climate-resilient infrastructure and circular economy integration.

6.1.1 Role of the Alumina and Aluminium Sector

The aluminium industry is categorized among the hard-to-abate industrial sectors, accounting for approximately 2% of global anthropogenic CO_2 emissions. Within this, alumina refining and smelting are the two largest contributors due to their reliance on fossil energy and process emissions. By adopting a structured GHG inventory and mitigation roadmap, the Hindalco Industries Limited contributes to India's Net-Zero pathway by:

- Quantifying and monitoring emissions accurately to establish baselines for reduction.
- Switching fuels from coal and LSHS to cleaner alternatives such as natural gas and biomass.
- Integrating renewable energy sources into captive power and auxiliary systems.
- Recovering waste heat and enhancing process efficiency to minimize energy intensity.
- Exploring carbon capture from calciners and boilers for reuse in industrial applications.

6.1.2 Industrial Decarbonisation Roadmap

In line with India's Long-Term Low Emission Development Strategy (LT-LEDS) submitted to the UNFCCC, the alumina refinery's decarbonisation actions are structured across three-time horizons:

Time Frame	Key Action Areas	Indicative Outcomes
Short-Term (2025–2030)	Baseline GHG inventory, energy audits, partial fuel switching to gas, renewable integration	10–15% emission reduction intensity
Medium-Term (2030–2040)	Complete transition to low-carbon fuels, green hydrogen trials, waste heat utilization	30–40% reduction intensity
Long-Term (2040–2070)	Full decarbonisation through CCUS, carbon neutrality via offsets and removals	Net-Zero emissions

Thus, the project not only fulfills immediate regulatory compliance but positions itself as a pioneer in low-carbon alumina refining consistent with national and global climate objectives.

6.2 Alignment with UN Sustainable Development Goals (SDGs 7, 9, 12, and 13)

The UN Sustainable Development Goals (SDGs) provide an integrated framework for global sustainability.
The GHG assessment and mitigation strategy for the Hindalco Alumina Refinery directly supports four key SDGs:

6.2.1 SDG 7 – Affordable and Clean Energy

- **Energy Efficiency:** Implementation of efficient boilers, calciners, and WHRB systems reduces fuel consumption per tonne of alumina.
- **Renewable Integration:** Adoption of solar PV and waste heat-to-power reduces dependence on fossil fuels.
- **Clean Fuel Transition:** Gradual replacement of LSHS and coal with natural gas and biomass supports India's clean energy transition.

6.2.2 SDG 9 – Industry, Innovation, and Infrastructure

- **Innovation in Process Design:** Introduction of advanced Bayer process control systems and digital monitoring improves efficiency.
- **Sustainable Infrastructure:** The captive power plant and utility systems are designed with pollution control and resource recovery units.
- **Research & Development:** Continuous improvement in low-carbon calcination and red mud utilization technologies enhances competitiveness and sustainability.

6.2.3 SDG 12 – Responsible Consumption and Production

- **Waste Utilization:** Conversion of red mud and fly ash into construction material aligns with circular economy principles.
- **Resource Optimization:** Closed-loop water recycling, energy recovery, and raw material efficiency reduce lifecycle environmental impacts.
- **Transparency:** Annual GHG and sustainability reporting strengthens accountability across the value chain.

6.2.4 SDG 13 – Climate Action

- **GHG Mitigation:** Quantified emission reductions through energy efficiency and renewable deployment.
- **Climate Resilience:** Incorporation of climate risk assessment into design ensures operational resilience under extreme weather events.
- **Carbon Management:** Establishment of internal carbon accounting systems supports long-term climate strategy and disclosure.

By aligning with these SDGs, the project demonstrates that industrial development, environmental protection, and social responsibility can coexist through innovation and governance.

6.3 Carbon Market and Credit Opportunities (Article 6 of the Paris Agreement)

6.3.1 Overview of Article 6

Article 6 of the Paris Agreement establishes mechanisms that enable countries and entities to cooperate in achieving emission reduction targets through market and non-market approaches. It consists of:

- **Article 6.2 – Internationally Transferred Mitigation Outcomes (ITMOs):** Allows bilateral transfer of verified emission reductions between countries or corporates.
- **Article 6.4 – Mechanism for Sustainable Development (successor to CDM):** Creates a centralized crediting mechanism under UNFCCC oversight.
- **Article 6.8 – Non-market Approaches:** Encourages cooperative policy measures, such as technology partnerships and joint research.

6.3.2 Opportunities for Hindalco Project

The GHG assessment positions the project to generate carbon credits under both voluntary and compliance schemes.

Potential opportunities include:

- **Fuel Switching Projects:** Transition from coal/LSHS to natural gas or renewable biomass can generate measurable CO_2 reductions.
- **Energy Efficiency Improvements:** Upgrading calciners, boilers, and heat recovery systems can yield verifiable energy savings.
- **Renewable Integration:** Captive solar and WHRB installations can qualify as emission reduction projects.
- **CCUS Initiatives:** Future carbon capture and reuse in construction or chemical industries may be eligible for carbon offsets.

6.3.3 Indian Carbon Market (ICM) Framework

In 2023, the Government of India notified the **Indian Carbon Market (ICM)** mechanism under the Bureau of Energy Efficiency (BEE) and Ministry of Power. The ICM integrates the earlier **Perform, Achieve and Trade (PAT)** scheme with broader carbon trading.

Participation in ICM offers:

- Monetization of verified emission reductions.
- Cross-sectoral credit trading.
- Incentives for overachievement of emission reduction targets.

Through accurate GHG accounting, this project can become a carbon credit generator in the medium term, creating financial and reputational value while contributing to national goals.

6.4 Green Finance and ESG Implications

6.4.1 Importance of Green Finance

Global investors and financial institutions increasingly prioritize Environment, Social, and Governance (ESG) performance. Access to green finance—such as sustainability-linked loans, green bonds, and blended finance—is contingent upon credible emission reduction and climate disclosure frameworks.

6.4.2 ESG Integration

The GHG inventory and mitigation roadmap support ESG goals by:

- **Environmental (E):** Reducing emissions, improving resource efficiency, and managing waste responsibly.
- **Social (S):** Protecting worker health, supporting local communities, and enhancing skill development in sustainability.
- **Governance (G):** Establishing transparent reporting, policy compliance, and risk management structures.

6.4.3 Financing Opportunities

- **Green Bonds:** The project can attract institutional investors seeking low-carbon industrial portfolios.
- **Sustainability-Linked Loans:** Financial terms can be tied to verified emission reductions or renewable integration milestones.
- **Carbon Revenue Streams:** Verified carbon credits can serve as additional financial instruments.
- **Multilateral Support:** Eligible for funding or technical assistance from organizations such as IFC, ADB, and GCF.

6.4.4 Disclosure Frameworks

- **SEBI's Business Responsibility and Sustainability Reporting (BRSR)** mandates disclosure of emissions and energy performance.
- **CDP and GRI** frameworks enable international comparability of environmental data.
- **TCFD (Task Force on Climate-related Financial Disclosures)** encourages disclosure of climate-related financial risks and transition strategies.

6.4.5 Strategic Outlook

By integrating GHG assessment into financial and ESG planning, Hindalco positions itself as a climate-resilient and investment-ready organization. This enhances stakeholder trust, reduces risk premiums, and ensures compliance with evolving global finance standards.

Chapter 7
Implementation Roadmap and Action Plan

7.1 Overview

This chapter outlines the stepwise approach for implementing the greenhouse gas (GHG) mitigation measures, monitoring progress, and achieving long-term sustainability goals for the 3.0 MTPA Alumina Refinery and 150 MW Captive Power Plant (CPP)**.** The roadmap integrates technical interventions, institutional arrangements, financial planning, and research initiatives to ensure continuous improvement in environmental and climate performance.

The action plan is designed to:

- Translate strategic climate commitments (Net-Zero, SDGs, COP-26 alignment) into measurable outcomes.
- Enhance resource efficiency through water-energy optimization and waste utilization.
- Maximize environmental, social, and economic co-benefits of GHG mitigation.
- Create institutional capacity and financial frameworks for long-term implementation.

7.2 Implementation Roadmap and Action Plan

Time Horizon	Key Focus Areas	Major Actions	Expected Outcomes
Short-Term (2025–2030)	Establish Baseline and Optimize Efficiency	Complete GHG inventory; introduce energy-efficient calciners and boilers; pilot renewable energy (solar PV, WHRB); partial fuel switch to natural gas	10–15% reduction in emission intensity
Medium-Term (2030–2040)	Deep Decarbonisation and Resource Recovery	Full conversion to gas/biomass hybrid systems; expand renewable portfolio; implement carbon capture feasibility study; scale red mud utilization	30–40% reduction in total emissions
Long-Term (2040–2070)	Net-Zero Emission	Integrate CCUS; achieve carbon neutrality through offsets; establish closed-loop energy-water-waste system	Net-Zero emission operations

7.3 Water–Energy Nexus and GHG Co-Benefits

The water–energy nexus highlights the interdependence between energy generation, water use, and GHG emissions. In alumina refineries, water is required for digestion, precipitation, cooling, and dust suppression, while energy is consumed to pump, heat, and treat water. By improving water efficiency, the project can simultaneously reduce energy consumption and GHG emissions.

Key Interventions and Co-Benefits

Area of Improvement	Intervention	GHG Co-Benefit
Process Cooling and Condensate Recovery	Closed-loop cooling and condensate reuse	Reduces energy demand for water heating; ~1–2% CO_2 reduction
Zero Liquid Discharge (ZLD) System	Recovery and reuse of treated effluent	Saves freshwater and energy associated with pumping and treatment
Water Pumping Systems	High-efficiency motors and variable frequency drives (VFDs)	Lowers indirect energy use and electricity-based CO_2 emissions
Steam Condensate Recovery	Heat recovery and reuse in process	2–3% reduction in fuel-based emissions
Rainwater Harvesting and Groundwater Recharge	Offset's freshwater withdrawals	Indirect energy and emissions saving by reducing pumping distance

7.3.1 Integration into GHG Management

Improved water management thus provides dual benefits—reducing both operational costs and carbon emissions—making it a key part of the integrated mitigation roadmap.

7.4 Air Quality and GHG Co-Benefits

7.4.1 Link Between Local Air Pollutants and GHGs

Air pollutants (SO_2, NO_x, PM, CO) and GHGs often share common sources—particularly fossil fuel combustion. Therefore, emission control technologies also contribute to GHG mitigation.

Technological and Operational Measures

Action	Primary Benefit	Secondary (GHG) Benefit
Installation of high-efficiency ESPs and bag filters	Reduces particulate matter (PM_{10}, $PM_{2.5}$)	Improves boiler efficiency and reduces fuel use
Low-NO_x burners and staged combustion	Lowers NO_x emissions	Reduces excess air and improves combustion efficiency
Fuel quality improvement (switch to NG/biomass)	Eliminates SO_2 and PM emissions	30–40% CO_2 reduction
Optimized air-fuel ratio and O_2 trim controls	Improves combustion	Reduces CO_2 per unit of heat
Greenbelt development	Air pollutant sequestration	Carbon sink and aesthetic improvement

7.4.2 Co-Benefit Assessment

Integrated air quality and GHG management ensures that local environmental benefits (cleaner air, public health) align with global climate benefits, creating synergy across environmental objectives.

7.5 Social and Economic Co-Benefits of GHG Mitigation

7.5.1 Employment and Skill Development

The proposed alumina refinery and captive power plant project by Hindalco is expected to generate extensive direct and indirect employment opportunities that will significantly uplift the socio-economic conditions of communities in Rayagada and surrounding regions. During the construction phase, employment will be created across civil works, equipment erection, logistics, safety management, and material handling. Upon commissioning, the operational phase will continue to provide sustainable employment in key process areas such as digestion, precipitation, calcination, utilities, maintenance, laboratory operations, safety, environment management, and administrative functions. Additionally, ancillary activities such as transportation, catering, fabrication, warehousing, and equipment servicing will create a substantial number of indirect jobs, supporting livelihoods beyond the core refinery operations.

Hindalco's commitment to capacity building is reflected in its comprehensive skill development strategy, which prioritizes locally affected communities and youth, particularly those from project-influenced villages. Through a dedicated Skill Development Centre within the project area, the company will offer technical training in electrical and mechanical trades, boiler operation, instrumentation, welding, fabrication, HSE practices, and digital literacy. These training programs will be aligned with national frameworks such as the National Skill Development Corporation (NSDC) and designed in collaboration with ITIs, polytechnics, and technical universities. Special initiatives will also target women's empowerment through vocational training, entrepreneurship development, and livelihood diversification. Collectively, these initiatives will enhance employability, build a skilled local workforce, and ensure inclusive and sustainable community development.

7.5.2 Community and Health Benefits

Hindalco's ESG-aligned social development framework places strong emphasis on strengthening community well-being and workforce development as part of its Social (S) pillar. The company prioritizes hiring from surrounding villages and project-affected households to ensure inclusive benefit-sharing and create sustainable livelihoods within the region. A central component of this approach is the establishment of a permanent Skill Development Centre that delivers NSDC-aligned training in technical trades, digital literacy, and soft skills for both youth and women. Complementing this, Hindalco promotes community health through regular health camps, mobile medical services, occupational health surveillance, and preventive healthcare awareness initiatives. The company also supports educational upliftment through scholarships, infrastructure support for local schools and hostels, and technology-enabled learning programs. Women's empowerment is further advanced through the strengthening of self-help groups (SHGs), promotion of micro-enterprises, financial literacy sessions, and targeted vocational training, all designed to enhance gender equity and long-term social resilience. The Environmental (E) and Governance (G) pillars of the framework reinforce ethical, transparent, and environmentally responsible development across all project-influenced areas. Environmental stewardship is embedded through community-based awareness on water conservation, waste management, afforestation, and adoption of clean energy practices. Sustainable agriculture and watershed management initiatives are promoted to enhance climate resilience and strengthen rural livelihoods. On the governance front, Hindalco has established a structured Community Engagement and Grievance Redressal Mechanism to ensure continuous dialogue, transparency, and responsiveness to community concerns. The company commits to publishing annual sustainability disclosures covering employment, health, safety, CSR, and environmental performance, ensuring accountability to stakeholders. Strong partnerships with panchayats, district authorities, technical institutes, NGOs, and academic bodies further strengthen governance systems and ensure that the benefits of industrial development are equitably shared and sustainably managed.

7.5.3 Economic Competitiveness

The alumina refinery project significantly enhances the economic competitiveness of the region by fostering industrial growth, generating employment, and creating a robust ecosystem of ancillary businesses. By adopting advanced Bayer process technology, efficient boilers, waste heat recovery systems, and optimized process automation, the project reduces operational costs and improves productivity—leading to a more efficient cost-per-tonne of alumina production. Additionally, the project stimulates local economic activity through the development of transport services, equipment maintenance enterprises, and supply-chain industries, thereby creating an industrial multiplier effect in Rayagada and surrounding districts.

Long-term economic competitiveness is further reinforced through investments in energy efficiency, renewable energy integration, and circular economy initiatives such as red-mud and fly-ash utilization. These sustainability-driven measures reduce dependency on fossil fuels, minimize waste management costs, and enhance compliance with evolving environmental regulations—ultimately lowering the carbon intensity of operations. Importantly, the company's focus on skill development, workforce training, and community capacity building ensures a steady supply of skilled labor, reducing recruitment and outsourcing costs while improving operational reliability. By integrating environmental stewardship, technological innovation, and community empowerment, the project positions itself as a future-ready industrial hub capable of attracting green finance, carbon credit revenue, and long-term investor confidence, thereby strengthening both corporate competitiveness and regional economic resilience.

7.5.4 Long-Term Sustainability

Beyond employment, the project is poised to improve regional infrastructure and overall quality of life through better roads, transportation facilities, communication networks, and social amenities developed in coordination with district authorities. Long-term CSR interventions—spanning education support, digital learning, healthcare access, sanitation, clean drinking water systems, and youth empowerment—will contribute to improved human development indicators in the region. Health services initiated by the company, including medical camps, mobile health units, and occupational health monitoring, are expected to deliver lasting benefits by reducing disease burden and improving community well-being. Additionally, improved access to reliable electricity and enhanced economic activity will stimulate local markets, boost small-scale industries, and encourage rural entrepreneurship. Over the long term, as red-mud and fly-ash utilization initiatives evolve, the region may attract new industries based on residue valorization, fostering circular-economy driven industrial clusters.

Environmentally responsible operations—such as afforestation, water conservation, waste minimization, and pollution control—will contribute to improved ecological conditions, creating healthier living environments for local communities. The establishment of green belts and watershed development measures will gradually improve soil quality, reduce erosion, and enhance local biodiversity. Community awareness programs on climate resilience, sustainable farming, energy efficiency, and natural resource management will help rural households adapt to climate variability. The project's integration with India's Net-Zero and sustainability goals will pave the way for future investments and technological innovations in green energy, low-carbon manufacturing, and carbon credit markets. As Hindalco continues to adopt advanced technologies, the surrounding region will evolve into a model for sustainable industrialization, strengthening long-term economic stability, environmental resilience, and social well-being. Ultimately, the cumulative socio-economic gains will contribute to a more empowered, skilled, healthy, and economically vibrant community ecosystem.

7.6 Institutional Mechanism and Responsibility Allocation

7.6.1 Governance Structure

Implementation of the GHG management plan requires a clear **institutional framework**. The following structure is proposed:

Level	Entity/Department	Key Responsibilities
Corporate Level	Hindalco Sustainability & Climate Cell	Policy formulation, reporting, carbon strategy, and alignment with corporate sustainability goals
Plant Level	Environment & Energy Management Cell	Inventory maintenance, monitoring of energy and emissions data, and coordination of audits
Operational Departments	Production, Utilities, Maintenance	Execution of efficiency and fuel-switch projects
External Partners	Accredited Verifiers, R&D Institutions	Third-party validation, research collaborations, and technology integration

7.6.2 Coordination Mechanisms

- Quarterly GHG Review Meetings chaired by the Plant Head.
- Annual GHG Inventory Audit for verification.
- Integration with ISO 14001 Environmental Management System for cross-functional synergy.

7.7 Budgetary Allocations for GHG Mitigation

7.7.1 Financial Planning Principles

- Mitigation investments should be treated as capital for long-term savings, not merely compliance costs.
- Projects prioritized based on GHG reduction per unit cost (cost per tCO_2 saved).
- Blending of internal funds with **green financing instruments** to optimize expenditure.

7.7.2 Illustrative Budget Allocation

The budgetary provision for activities such as Fuel Switch to Natural Gas, Solar PV Installation, WHRS & energy-efficiency retrofits, R&D/CCUS pilot, MRV systems, and Development of Plantation in Degraded Hills will be finalized at a later stage. The detailed cost estimates will be worked out during the project design and engineering phase, based on technical feasibility, vendor assessment, and site-specific requirements. Accordingly, the investment plan will be updated as part of the final implementation roadmap."

7.7.3 Financial Co-Benefits

- Reduction in fuel costs and electricity imports.
- Revenue from carbon credits under the Indian Carbon Market.
- Enhanced eligibility for sustainability-linked loans.

7.8 Research, Development & Innovation Opportunities

7.8.1 Focus Areas

1. **Low-Carbon Process Technologies:**
- Advanced calcination systems with reduced specific fuel consumption.
- Utilization of renewable heat (solar thermal, green hydrogen).
2. **Carbon Capture, Utilization, and Storage (CCUS):**
- Pilot-scale CO_2 capture from boiler flue gas.
- Conversion into soda ash, precipitated calcium carbonate, or synthetic fuels.
3. **Waste Utilization and Circular Economy:**
- Red mud valorization in cement, bricks, and metal recovery.
- Fly ash reuse in construction and soil conditioning.
4. **Digital Monitoring and AI Integration:**
- Real-time emission monitoring and predictive maintenance using digital twins.
- AI-driven optimization of process parameters to minimize GHG intensity.
5. **Collaborative Research:**
- Partnerships with institutions such as TERI, CSIR-NEERI, IITs, and BEE.
- Participation in national and international innovation platforms for industrial decarbonisation.

7.8.2 Expected Outcomes

- Continuous reduction in emission intensity.
- Development of intellectual property (IP) in low-carbon technologies.
- Enhanced competitiveness and brand reputation as a leader in sustainable industrial innovation.

7.9 Corporate Sustainability Reporting and CDP/BRSR

7.9.1 Importance of Corporate Sustainability Reporting

Corporate sustainability reporting has evolved from a voluntary disclosure practice to a strategic business requirement. It enhances transparency, builds investor confidence, and ensures alignment with environmental, social, and governance (ESG) principles. For a resource-intensive operation like the Hindalco Alumina Refinery, structured sustainability reporting ensures that all environmental and climate performance indicators are systematically monitored, verified, and communicated to stakeholders.

7.9.2 Key Reporting Frameworks

(a) CDP (Carbon Disclosure Project)

- CDP is a global disclosure system through which companies measure and report their environmental impact, focusing on climate change, water security, and deforestation.
- Hindalco's GHG inventory developed under this report aligns with CDP Climate Change Questionnaire parameters, covering:
  - ✓ Direct (Scope 1), indirect (Scope 2), and value-chain (Scope 3) emissions.
  - ✓ Energy intensity, renewable integration, and emission reduction initiatives.
  - ✓ Climate risk management and governance structure.
- Regular submission of verified GHG data enhances Hindalco's CDP Score, improving visibility among investors and sustainability indices (like DJSI and FTSE4Good).

(b) BRSR (Business Responsibility and Sustainability Report – SEBI Framework)

- The **SEBI** has mandated BRSR reporting for the top 1,000 listed entities.
- BRSR covers nine principles under the National Guidelines on Responsible Business Conduct (NGRBC), integrating environmental stewardship, ethical governance, and stakeholder welfare.
- This GHG assessment fulfills several key BRSR metrics:
  - ➢ Energy consumption and efficiency improvement initiatives.
  - ➢ Scope 1 and Scope 2 emissions quantification.
  - ➢ Waste and effluent management practices.
  - ➢ Renewable energy usage and transition planning.
  - ➢ Governance mechanisms for sustainability oversight.

7.9.3 Integration of GHG Management into Corporate Reporting

The plant-level GHG management system will feed directly into the corporate sustainability data management system, enabling consistent reporting across Hindalco's business units.

Key actions include:

- Establishing an annual GHG inventory cycle and data validation process.
- Integrating GHG metrics into corporate KPI dashboards and sustainability scorecards.
- Aligning reporting cycles with financial year-end disclosures for seamless CDP and BRSR submissions.

- Utilizing digital tools and environmental management software (EMS) for data consolidation and reporting accuracy.

7.9.4 Stakeholder Engagement and Transparency

Sustainability reporting is not only about compliance—it is about **stakeholder communication**. By disclosing verified GHG data and mitigation performance, Hindalco strengthens trust with:

- **Regulators**, through compliance and transparency.
- **Investors**, by demonstrating ESG readiness and climate resilience.
- **Communities**, by communicating tangible environmental benefits.
- **Employees**, by reinforcing a culture of accountability and innovation.

7.10 Future Expansion and Long-Term GHG Management

7.10.1 Vision for Long-Term Sustainability

The long-term vision for the Hindalco Alumina Refinery is to evolve into a net-zero, circular, and climate-resilient industrial complex by mid-century. Future expansion plans will integrate sustainability as a core design principle, ensuring that every new facility or capacity addition contributes to emission reduction rather than intensification.

7.10.2 Integration of Climate Considerations in Expansion Planning

Future project expansions and process modifications will include:

- **GHG Impact Screening:** Every major modification will undergo a pre-feasibility GHG impact assessment.
- **Low-Carbon Design:** New units (e.g., additional calciners or boilers) will use best available technologies with high thermal efficiency and minimal leakage.
- **Renewable Energy Integration:** Progressive increase in captive solar/wind capacity to meet incremental energy demand.
- **Material Efficiency:** Enhanced bauxite utilization rate and recovery of alumina to reduce per-tonne emissions.
- **Circular Economy Practices:** Increased utilization of red mud and fly ash to achieve near-zero waste disposal.

7.10.3 Long-Term GHG Management Framework

To sustain emission reductions, a dynamic GHG management system will be institutionalized, built on five pillars:

Pillar	Description	Key Tools
Measurement	Continuous improvement of GHG inventory accuracy and data granularity	Digital monitoring, fuel sampling, stack testing
Mitigation	Implementation of fuel-switching, efficiency, renewable, and CCUS projects	Clean energy, energy recovery, process optimization
Monitoring & Verification	Periodic third-party audits and carbon footprint verification	ISO 14064, CDP verification
Reporting & Disclosure	Transparent communication through sustainability reports and CDP/BRSR	ESG dashboards, web-based disclosures
Offset & Neutralization	Investment in carbon sinks, reforestation, and verified offsets	Carbon credit trading, Article 6 projects

7.10.4 Technological Pathways for Future

- **Green Hydrogen Integration:** Substitution of fossil fuels in calcination and power generation.
- **Electrification of Processes:** Use of renewable electricity for auxiliary systems and low-temperature heating.
- **CCUS Deployment:** Capture of process CO_2 for conversion into value-added products.
- **AI-Based Energy Optimization:** Predictive energy management using machine learning algorithms.

7.10.5 Long-Term Monitoring and Review

A five-year review cycle will be established to reassess progress against emission targets, technology advancements, and policy developments.

Each review will include:

- Updated emission inventory and recalculated baselines.
- Progress evaluation against reduction targets.
- Revision of the action plan and budgetary allocations.
- Stakeholder consultation and disclosure through corporate reports.

7.10.6 Contribution to National and Global Goals

The project's long-term GHG management strategy supports:

- India's Net-Zero 2070 commitment.
- Sectoral decarbonisation pathways for metals and mining industries.
- Global goals under SDG 13 – Climate Action **and** SDG 9 – Industry, Innovation, and Infrastructure.

Through robust corporate sustainability reporting, proactive emission reduction planning, and integration of long-term GHG management practices, the Hindalco Alumina Refinery ensures that it remains future-ready, compliant, and climate-resilient. The continued focus on innovation, renewable integration, and circular economy principles will help the project emerge as a benchmark for sustainable alumina refining in India and the global south. The implementation roadmap presented here ensures that the project transitions from planning to measurable climate action. Through technological advancement, institutional accountability, and financial innovation, the Hindalco Industries Limited will not only meet regulatory obligations but also serve as a model of industrial sustainability and low-carbon leadership in India's Net-Zero journey.

7.11 Action Plan (Short-term, Medium-term, Long-term)

7.11.1 Short-Term Action Plan (1–3 Years)

Objective: Strengthen baseline performance, improve efficiency, establish systems, and accelerate low-cost GHG reduction measures.

- Implement advanced process control (APC) and process optimized boilers, calciners, and steam networks.
- Expand waste heat recovery systems for process heating and power co-generation.
- Improve auxiliary consumption efficiency through VFDs, high-efficiency motors, and pump/turbine optimization.

- Enhance measurement systems by upgrading energy meters, flowmeters, CEMS.
- Conduct fuel quality management (coal blending optimization, moisture reduction, calorific value enhancement).
- Implement community-based carbon sequestration programs (greenbelt development, watershed plantations).
- Strengthen internal carbon accounting as per ISO 14064.

7.11.2 Medium-Term Action Plan (3–7 Years)

Objective: Deploy structural decarbonisation technologies and scale renewable energy integration.

- Transition boilers and calciners to partial biomass co-firing (15–25%) and/or natural gas hybrid fuel systems.
- Commission solar power plants and/or hybrid renewable systems.
- Gradually electrify internal logistics (EV forklifts, EV loaders, battery-operated internal transport).
- Develop railway infrastructure and shift a higher proportion of alumina/bauxite transport from road to rail to reduce Scope 3 emissions.
- Strengthen circular economy initiatives: red mud utilization, ash utilization, and caustic/chemical recovery enhancements.
- Strengthen ESG-linked governance including transparency, disclosure, and sustainability audits.

7.11.3 Long-Term Action Plan (7–15+ Years)

Objective: Position the refinery as a low-carbon, future-ready operation aligned with Net-Zero pathways.

- Achieve 40–50% renewable electricity share through utility-scale solar, wind-solar hybrids, or off-site RE procurement.
- Integrate green hydrogen blending in calcination and boiler systems (10–30% substitution).
- Deploy Carbon Capture, Utilisation, and Storage (CCUS) pilot projects.
- Develop a Zero Emission Refinery roadmap by 2070 with electrified production processes and decarbonized heat supply.
- Shift all fleet and internal mining/logistics to EV or hydrogen-based mobility.
- Achieve near-100% residue utilization through partnerships with cement, construction, metal recovery and geopolymer industries.
- Full alignment with global standards (TCFD, SBTi, CDP-Leadership score, BRSR-Core).
- Establish long-term carbon sinks through afforestation, green landscape development, community forestry, and land restoration.

7.12 Action Plan for Plantation in Degraded / Denuded Hills within the Study Area

The study area is characterized by the presence of various hills and hillocks, many of which have undergone significant degradation and denudation over a period of time. Due to reduced vegetation cover, soil erosion, grazing pressures, and limited natural regeneration, these hill slopes have become ecologically fragile. The degradation of such terrain not only impacts soil stability and biodiversity but also influences the region's **Greenhouse Gas (GHG) profile**.

Vegetation loss results in reduced carbon sequestration, thereby decreasing the natural ability of the landscape to absorb atmospheric CO_2. Additionally, exposed and eroded soils are prone to carbon loss, indirectly contributing to GHG emissions. To offset these impacts, restoring degraded and denuded hills through structured plantation programs becomes essential.

For Hindalco Industries Limited (HIL), which is developing a **3.0 MTPA Alumina Refinery and 150 MW Captive Power Plant** at Village Kansarigurha, Post Podapadi, District Rayagada, Odisha, this initiative forms an integral part of its environmental stewardship and climate-mitigation strategy. The plantation in degraded and denuded hills will enhance natural carbon sinks, strengthen ecological resilience, and support commitments to GHG reduction.

7.12.1 Objectives of Plantation in Degraded Hills

- Restore degraded and denuded hill slopes through eco-restoration plantation.
- Enhance natural carbon sequestration to support GHG mitigation.
- Reduce soil erosion, improve slope stability, and revive hydrological balance.
- Enrich biodiversity and promote habitat recovery.
- Engage local communities in sustainable landscape restoration.

7.12.2 Species Selection Criteria

- Indigenous to Odisha
- High carbon sequestration potential
- Soil binders and fast-growing
- Drought and slope-tolerant
- Ecologically beneficial and wildlife-friendly

Suggested Species:

Sal, Neem, Gambhari, Jamun, Bamboo, Acacia auriculiformis, Gmelina arborea, Cassia fistula, Bahada, Harida, Amla, bel, tendu, palash,etc.

7.12.3 Plantation Strategy

Techniques

- Contour trenches (0.5 m × 0.5 m × 3 m)
- Staggered pits (45 cm × 45 cm × 45 cm)
- 3 m × 3 m spacing
- Vetiver grass for slope stabilization

Soil & Water Conservation

- Contour bunds
- Stone checks
- Mulching
- Organic compost

Implementation Timeline

- **Pre-monsoon:** Pit preparation
- **Monsoon:** Plantation and mulching
- **Post-monsoon:** Gap filling and survival assessment

7.12.4 Community Engagement

- Involvement of local villagers, SHGs, and forest-dependent communities.
- Employment generation through nursery operations and plantation work.
- Awareness programs on biodiversity restoration and climate benefits.

Chapter 8
Conclusion and Recommendation

The proposed alumina refinery and captive power plant represent a major industrial investment that is poised to deliver significant long-term economic, environmental, and social benefits to Rayagada and the wider region. Through the adoption of modern Bayer process technology, advanced pollution control systems, energy-efficient operations, and a robust environmental management framework, the project demonstrates strong alignment with India's national commitments under the Paris Agreement, COP-26, and the country's Net-Zero by 2070 vision.

The project's emphasis on resource optimization, waste minimization, renewable energy integration, and green belt development reflects a responsible approach to environmental stewardship.

Additionally, the plantation program in degraded and denuded hills within the study area will significantly contribute to **enhancing natural carbon sinks**, improving vegetation cover, and stabilizing soil. By increasing carbon sequestration and reducing the risk of soil carbon release, these restoration activities directly support the project's **GHG mitigation strategy** and reinforce the company's climate action commitments.

Furthermore, the project focus on employment generation, skill development, community health, women empowerment, and education position the refinery as a catalyst for inclusive and sustained socio-economic upliftment of local communities. The initiatives undertaken by the company lay a strong foundation for long-term regional development, improved quality of life, and enhanced industrial competitiveness, while also contributing positively to the global climate agenda.

Recommendation Matrix

Category	Recommendation	Timeline
Energy Efficiency	Implement APC & digital optimization	Short-term
	Expand WHRS & condensate recovery	Short-term
Renewable Energy	Install solar power plants	Short/Medium
Fuel Switch	Biomass co-firing	Medium
	Natural gas transition	Medium/Long
Value Chain	Shift transport from road to rail	Medium
	Products with Low-carbon footprint	Short-term
Circular Economy	Red Mud & Fly Ash utilization	Medium
Governance	Strengthen ESG disclosure (BRSR/CDP)	Short/Medium
	Carbon market participation	Short-term

Monitoring Mechanism

Monitoring Item	Frequency	Method/Tool	Responsible Department
GHG emissions	Annual	ISO 14064-based MRV System	Sustainability + Environment
Fuel & energy data	Monthly	Meters, logs, DCS	Energy Management Cell
Renewable energy	Monthly	Plant electrical data	Electrical Dept.
Waste utilization	Quarterly	Laboratory & dispatch records	Environment & R&D
Social KPIs	Quarterly	CSR MIS system	CSR/HR
ESG reporting	Annual	CDP/BRSR reporting tools	ESG/Sustainability

ସର୍ବସାଧାରଣ ବିଜ୍ଞପ୍ତି

ସାଧାରଣ ଜନତାଙ୍କୁ ସୂଚନା ଦିଆଯାଇଛି ଯେ, ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରଣାଳୟର ଚିଠି ନମ୍ବର J-11011-141-2004-IA-II (I) ମାଧ୍ୟମରେ ଆଦିତ୍ୟ ଆଲୁମିନା ରିଫାଇନାରୀ ପାଇଁ ପରିବେଶ କ୍ଲିୟରାନ୍ସ ପ୍ରଦାନ କରାଯାଇଛି । 3.0 MTPA ର କ୍ଷମତା ଏବଂ 150 ମେଗାୱାଟ CGPP । ଏହି ପ୍ରକଳ୍ପ ଜିଲ୍ଲା ରାୟଗଡାର କାଶୀପୁର ତହସିଲର କନସାରିଗୁଡା ଗ୍ରାମରେ ମି/ହିଣ୍ଡାଲକୋ ଇଣ୍ଡଷ୍ଟ୍ରିଜ୍ ଲିମିଟେଡ୍ ଦ୍ୱାରା ନିର୍ମାଣ କରାଯାଉଛି । ମଞ୍ଜୁରର ଏକ ନକଲ ରାୟଗଡାର ଓଡ଼ିଶା ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡର ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟରେ ଏବଂ ଭାରତ ସରକାରଙ୍କ ଜଙ୍ଗଲ ଓ ପରିବେଶ ମନ୍ତ୍ରଣାଳୟ ୱେବସାଇଟ୍‌ରେ ଉପଲବ୍ଧ : https://parivesh.nic.in/ । ଏହା ମଧ୍ୟ ହିଣ୍ଡାଲ୍‌କୋ ୱେବ୍‌ସାଇଟ୍ **www.hindalco.com**ରେ ଉପଲବ୍ଧ ।

ଜେନେରାଲ ମ୍ୟାନେଜର, ଆଦିତ୍ୟ ଆଲୁମିନା ରିଫାଇନାରୀ ପ୍ରକଳ୍ପ, କନସାରିଗୁଡା ଗ୍ରାମ

ed areas, he said.

PUBLIC NOTICE

The general public is informed that, through letter number J-11011-141-2004-IA-II(I) from the Ministry of Environment, Forest and Climate Change, Government of India, Environmental Clearance has been granted for the Aditya Alumina Refinery with a capacity of 3.0 MTPA and a 150 MW CGPP. This project is being constructed by M/s Hindalco Industries Limited in Kansariguda Village, Kashipur Tehsil, District Rayagada. A copy of the clearance is available at the Regional Office of the Odisha State Pollution Control Board in Rayagada and on the Government of India's Ministry of Forest and Environment website: https://parivesh.nic.in/. A copy of the clearance is available also in the Hindalco website ie www.hindalco.com.

General Manager,
Aditya Alumina Refinery Project,
Kansariguda Village

OFFICE OF THE DEPUTY

70 ill after drinking contaminated water

Kalghatgi: More than 70 people fell ill after drinking contaminated water at Mutagi village of Kalghatgi taluk in Dharwad district on Wednesday and Thursday. Forty six people are still being treated at the hospitals, sources said.

TN cops trace 'Fedex' cyber fraud kingpin to Bangladesh, 7 held

EXPRESS NEWS SERVICE @ Chennai

IN a major breakthrough in 'digital arrest scam', the Tamil Nadu police's cyber crime wing has traced the tentacles of a 'Fedex' fraud, in which a Chennai resident lost ₹1.18 crore, to a kingpin in Bangladesh.

An official release issued on Friday, however, did not say whether the police have uncovered the identity of the kingpin.

The breakthrough came during the investigation of the Chennai case in which seven men from Maharashtra and Gujarat were arrested recently. Based on investigation and interrogation of the suspects, the state police have uncovered the network operated by the kingpin from Dhaka, Bangladesh, and how he coordinated with his agents in India in orchestrating the scam.

The release said the Chennai resident was cheated by multiple accused who posed as FedEx executives and cybercrime officers to manipulate the resident into transferring large sums of money to prove her "innocence" in a fake criminal investigation in August. The modus operandi of claiming that a parcel in her name contained banned goods and transferring the call to a "cybercrime officer" was used to extort ₹1.18 crore from her.

Based on her complaint, the cyber crime cops arrested Ramesh Bhadabhai, to whose account the scammed money was transferred, and two cyber criminal agents, Vivek Beladiya Damajbhai and Paresh Narshibhai Kalsaria.

Further investigation led to the arrest of Vipul Bhagubhai Kovadiya of Darang in Bhuj, Gujarat, who acted as a mediator between the agents and the cybercriminals.

Vipul revealed that two more agents based in Maharashtra were involved and they were the main Face to Face (F2F) agents in the case and that they would have the contact of the main accused in Dhaka.

The police later arrested two F2F agents, Sahil Khudbuddin Attar (24) of Solapur and Shahrukha Ebrahim Shaikh (27) of Kurduvadi. Police said that Sahil had installed an OTP APK file on the account holders' phone allowing fraudulent transfers. The investigation found that the kingpin in Dhaka coordinated with agents like Sahil, who in turn worked as F2F agent to interact with account holders. Further investigation is on, the cops said.

LAND SCAM

Lokayukta police question Siddu's wife in MUDA case

EXPRESS NEWS SERVICE @ Mysuru

THE Lokayukta police on Friday questioned Karnataka Chief Minister Siddaramaiah's wife Parvathy in the alleged irregularities in allotment of 14 sites to her by MUDA (Mysore Urban Development Authority). She is accused No 2 in the case. Mallikarjuna Swamy, Siddaramaiah's brother-in-law, was questioned last week.

An FIR was filed against Siddaramaiah and three others following a special court order to submit a report after conducting a probe into a complaint filed by activist Snehamayi Krishna of Mysuru.

Sources said a team led by Lokayukta Superintendent of Police T J Udesh questioned Parvathy in the morning. Parvathy was interrogated for three hours and the questions focused on her decision to return the 14 sites to MUDA, the manner in which sites were allotted, and land acquired from her for formation of a residential layout, sources told this newspaper.

The Lokayukta police also questioned her regarding allegations of a sub-registrar visiting her house to complete the land registration and cancellation procedures.

The Lokayukta SP issued a notice on Thursday asking Parvathy to appear in person for questioning.

Rlys ministry sanctions ₹12 cr for Paralakhemundi station

EXPRESS NEWS SERVICE @ Bhubaneswar

PARALAKHEMUNDI station in Gajapati district is all set to get a facelift. The Ministry of Railways has sanctioned ₹12 crore for development of the station under Amrit Station scheme.

Strategically located near the Andhra Pradesh border, Paralakhemundi is separated from the neighbouring town of Pathapatnam by Mahendra Tanaya. The town is well-connected via state highway-4 and national highway-326A, linking key areas within Odisha and Andhra Pradesh.

The proposed development plan for Paralakhemundi railway station includes a new building covering 1,375 sq m, featuring a commercial area of 72 sq m. It will have a 12 mtr wide foot over bridge, providing single-span access between platform 1 and 2.

Sources said, the circulating area spanning 14,326.9 sq m is being developed as part of the project apart from a well-planned parking area of 2711.9 sq m, new premium toilet block of 104 sqm, premium lounge and both first and second class waiting halls.

"So far, the project has achieved 80 per cent physical progress," said an official.

UNTIRING HAN...

A 93-year old man makes flower pots on Potters Street a... ...arthy in Visakhapatnam, on Friday | G SATYANARAYANA

8 lakh people shifted: CM

FROM P1...

The government claimed all road blocks due to felled trees were cleared by evening. Electricity supply to 22.43 lakh consumers was disrupted due to cyclone, out of which 14.8 lakh connections have been restored. "Power restoration work was affected because of heavy rains in some areas. We hope electricity will be restored to all consumers by Saturday afternoon," the CM said.

About 7,000 pregnant women were shifted from vulnerable places and taken to hospitals and Maa Gruhas (maternity waiting homes) in the state and at least 2,211 children were born during the period. Train and flight services also resumed on the day.

Majhi said, the government had evacuated more than eight lakh people to cyclone shelters. As danger from cyclone receded, some of them returned home after taking permission. The government has, however, decided to run the shelters for seven more days, he said.

Revenue minister Suresh Pujari said intensity of rain and wi... velocity will decrease as the storm was ... enin... ...fall.

Te... and Ru... ing to restore ... moving uprooted tr... ed areas, he said.

EXPRESS READ

50 monkeys killed in Vemulawada

Rajanna-Sircilla: As many as 50 monkeys were found dead in an open area at Santinagar (Nampally village) within Vemulawada Municipality limits on Friday. The monkeys appear to have been brutally killed by unknown miscreants. Animal activist A Goutham, filed a complaint at the Vemulawada town police station which registered an FIR under Section 325 BNS and Section 11 (1) (a) (1) of Prevention of Cruelty to Animals Act, 1960, said SI J Ramesh.

Cyclone could not sustain strength to trigger heavy rains

FROM P1...

Associate professor of IIT's School of Earth, Ocean and Climate Sciences Sandeep Pattnaik said environmental parameters such as diminished vertical wind shear, elevated oceanic heat potential, and increased sea surface temperatures enhance moisture availability, thereby facilitating moist convection and the formation of intense cloud structures.

"Additionally, the Madden-Julian Oscillation (MJO) was situated in a conducive phase over the east-central Bay of Bengal, which enabled the system to escalate from a low-pressure region to cyclonic storm Dana," he explained.

However, a high pressure zone over the Arabian Sea led to influx of hot and arid north-westerly winds towards the cyclone which was moving into the north-western Bay of Bengal. The incursion of dry air into the cyclone's core impeded moist convection, acting as a countervailing force against further intensification. Another high-pressure system over Myanmar persistently pushed the cyclone towards the Odisha coast, he pointed out.

"Due to an insufficient expanse of oceanic distance and inhospitable environment, the cyclone did not maturate into an organised system while approaching the Odisha coastline and was unable to surmount the resistance posed by north-westerly winds to penetrate into the state," Pattnaik noted.

SOA University's Centre for Environment and Climate (CEC) director Sarat Chandra Sahu said environmental conditions were conducive for the system till it was over the east-central Bay of Bengal.

"After it reached the northwest Bay of Bengal, a high pressure area over the Arabian Sea triggered dry northwesterly winds towards the system. The dry northwesterly winds pulled moisture from the surface and up to the mid-level which did not help the storm to thrive," he said.

Dana developed an eye only for a brief period and eventually could not sustain strength to trigger heavy rains ahead and during landfall. It rapidly weakened into a deep depression by 2.30 pm on the day.

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ଏନ୍‌ବିସିସିକୁ ୪୧ କୋଟିର ପ୍ରକଳ୍ପ

ENVIRONMENT POLICY

We, at Hindalco Industries Limited, operating across the process chain from mining to semi-fabricated products in non-ferrous metals, will strive to continually improve our environmental performance for sustainable operations and responsible growth globally, by integrating sound environmental systems & practices and Pollution Prevention approach.

To achieve this, we shall:

- Continue to comply with all applicable legal and other requirements on environment.
- Continually improve environmental performance by strengthening the Environmental Management System conforming to national /international standards, including setting up and reviewing targets and measuring, monitoring and reporting their progress.
- Allocate sufficient resources such as organisational structure, technology and funds for implementation of the policy and for regular monitoring of performance.
- Adopt pollution prevention approach for all our processes; enhance material efficiency and achieve high productivity.
- Conserve key resources like electricity, coal, water, oil, and raw materials, by promoting efficient technologies and manufacturing process improvements, water conservation programmes, and efficient use of raw materials.
- Adopt energy efficient and cleaner technologies based on techno-economic viability, appropriate to the region in which we operate, and in line with our growth and diversification plans.
- Promote the principles of waste prevention, reduction, reuse, recycling and recovery to minimize waste generation and strengthen the practices for management of wastes.
- Work in partnership with regulatory authorities, relevant suppliers, contractors, distributors and logistics partners and all other stakeholders, as applicable, to understand and initiate improvement actions.
- Engage with internal and external stakeholders including key business partners such as joint venture partners, licensees and outsourcing partners and wider communities, to broaden our understanding of environmental priorities and initiate actions on key environmental challenges.
- Adapt environmental performance over life cycle as an important input to the decision-making processes in the organization.
- Raise environmental awareness at all levels of our operations, through training and effective communication, participation and consultation.
- Communicate this Policy within the Organization. Develop and follow appropriate communication system to inform other stakeholders, as applicable, about our environmental commitment and performance.
- Conduct environmental, health and safety due diligence before undergoing any mergers and acquisitions.

This policy shall be made available to all employees, suppliers, customers, community and other stakeholders, as appropriate. The implementation of this policy is the responsibility of respective heads of units with the monitoring and tracking done by the Apex Sustainability Committee under the guidance of the Managing Director.

Satish Pai
MD, Hindalco Industries Limited
Date : 9th August, 2022

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE) & CHIEF WILDLIFE WARDEN, ODISHA

Government of Odisha, Forest, Environment & Climate Change Department
PRAKRUTI BHAWAN, PLOT NO.1459, SAHEED NAGAR, BHUBANESWAR- 751007
Phone: 0674-2602250, Website: www.wildlife.odisha.gov.in, Email: odishawildlife@gmail.com

No. 12144 / CWLW-FDWC-FD-0048-2022
Dated, Bhubaneswar the 09 October, 2024

To

The Assistant Vice-President (Corporate Affairs)
M/s. Aditya Alumina Limited,
J-6, Jayadev Vihar, Bhubaneswar- 751013

Sub: Diversion of 38.062 ha. of forest land for establishment of Alumina Refinery Plant at Kansariguda by M/s Hindalco Industries Ltd.- Aditya Alumina Refinery Project: Approval of SSWLCP.

Sir,

I am directed to convey the approval of PCCF (WL) & CWLW, Odisha for the Site Specific Wildlife Conservation Plan at a total financial outlay of ₹505.50 Lakh (Rupees Five Crore Five Lakh Fifty Thousand) only as per the details of activities mentioned in Chapter-VI of the Plan prepared in compliance to Condition No. A(vi) of the Stage-I approval granted by MoEF&CC, RO, Bhubaneswar vide Letter No. 5-ORC-568/2023-BHU dated 29.12.2023. A sum of ₹505.50 Lakh (Rupees Five Crore Five Lakh Fifty Thousand) only may be deposited in the State CAMPA fund through portal (https://parivesh.nic.in) for the purpose of implementation of various activities within the project impact area in Rayagada and Koraput Forest Division as detailed below:

Sl. No.	Name of the Division	Approved Cost
1.	Rayagada Forest Division	₹250.350 Lakh
2.	Koraput Forest Division	₹255.150 Lakh
	TOTAL:	₹505.50 Lakh

2. Activities in the project area as per Chapter-VI of the Plan will be executed by the Project Proponent under the guidance of the concerned DFOs. Further, the User Agency shall deposit 5% of the plan cost over and above in the A/c. of the society "The Wildlife Odisha" maintained in this office towards unforeseen interventions.

P.T.O.

3.The Plan period is five years and will be revisited by the concerned DFOs at least one year before expiry of its implementation. The User Agency will bear the cost of such Plan on its approval. Further, the User Agency will bear additional cost, if any, towards enhancement of wage rate and escalation of price of materials at the time of implementation of this Plan.

In case of any deviation, it will be dealt as per law for violations of Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, Environment (Protection) Act 1986 and Wildlife (Protection) Act 1972.

Encl.: Copy of the approved SSWLCP.

Yours faithfully,

09/10/2024

Chief Conservator of Forests (WL-III)

Memo. No. 10145 / Dt. 09/10/2024

Copy forwarded for information and necessary action to the: -

1. OSD-cum-Special Secretary to Government of Odisha, FE&CC Department, Bhubaneswar with reference to that Department Memo No. 17138/ FE&CC dated 05.09.2024 addressed to this office.
2. PCCF (FD & NO, FC Act), O/o the PCCF & HoFF, Odisha, Bhubaneswar with reference to Memo No. 17138/ FE&CC dated 05.09.2024 of FE&CC Department, Odisha.
3. Regional Chief Conservator of Forests, Koraput Circle along with copy of the approved SSWLCP with reference to his office Memo No. 3493 dated 30.09.2024.
4. Divisional Forest Officer, Rayagada / Koraput Forest Division along with copy of the approved SSWLCP with reference to Memo No. 3495 & 3496 dated 30.09.2024 of the RCCF, Koraput Circle.
5. Deputy Conservator of Forests (Administration), O/o. the PCCF(WL) & CWLW, Odisha. He is requested to raise demand to the User Agency for deposition of ₹25.275 Lakh as contribution to the account of the society "The Wildlife Odisha".

09/10/2024

Chief Conservator of Forests (WL-III)