VL/MOEF/006 2025 - 19
November 22, 2025

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office,
A 3, Chandersekharpur,
Bhubaneswar, Odisha – 751023

Sub: Submission of Half-Yearly Compliance Report of Smelter & CPP of Vedanta Limited, Jharsuguda for the period from April 2025 to September 2025

Ref: 1. Environment Clearance letter No. J-11011/144/2006-IA.II (I) dated 07.03.2007
2. Environment Clearance letter No. J-13011/10/2006-IA.II (T) dated 14.03.2007
3. Environment Clearance letter No. J-11011/29/2007-IA.II (I) dated 11.06.2008
4. Environment Clearance letter No. J-11011/29/2007-IA.II (I) dated 05.05.2022

Dear Sir,

This has reference to the above subject, cited reference and as per the provision of Environment Clearance and EIA notification 2006, we are herewith submitting the half-yearly compliance status for conditions in the Environment Clearance for 2.5 LTPA Aluminium Smelter, Captive Power Plant 675 MW, expansion of Aluminium Smelter (2.5 to 16 LTPA) and Captive Power Plant (675 MW to 1350 MW), Aluminium Smelter 18 LTPA (16 to 18 LTPA) and Captive Power Plant.

We would like to draw your attention towards the fact that we are facing problem during uploading of half-yearly compliance report at Parivesh 2.0 Portal. Moreover we are also facing problem in raising the ticket on Parivesh 2.0 Portal for the above issue (screenshot enclosed). We will upload the documents as soon as the issue will be resolved. In order to meet the stipulated timeline of submission, we are hereby submitting the half-yearly compliance reports via email and hardcopies of the Annexures will be submitted due to constraints of size of files.

Thanking You,

Yours Faithfully,
For Vedanta Limited

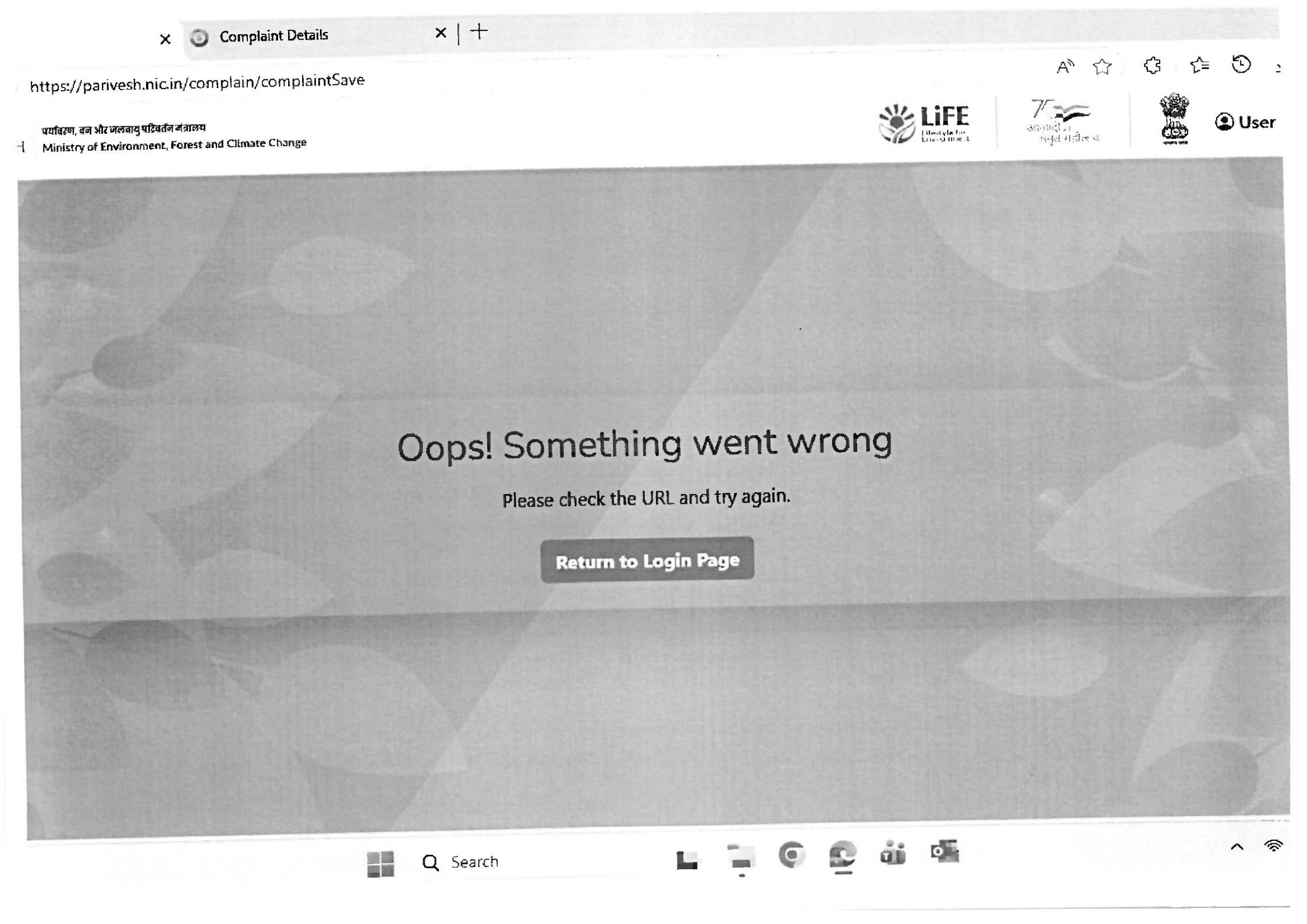
Dr. Amit Kumar Tyagi
Head- Environment

CC: 1. The Director, I.A. Division, Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi – 110003
2. The Member Secretary, Central Pollution Control Board, "Paribesh Bhawan", CBD-Cum Office Complex, East Arjun Nagar, New Delhi-110032
3. The Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar

Enclosed: As above

VEDANTA LIMITED ,JHARSUGUDA
Vill- Bhurkamunda, P.O- Kalimandir, Dist- Jharsuguda (Odisha)- 768202
T +91-664 566 6000 F +91-664 566 6267 www.vedantalimited.com

REGISTERED OFFICE : Vedanta Limited 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atul Projects, Chakala, Andheri (East), Mumbai 400093, Maharashtra, India.
CIN: L13209MH1965PLC291394


Complaint Details
https://parivesh.nic.in/complain/complaintSave
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest and Climate Change
LiFE
User
Oops! Something went wrong
Please check the URL and try again.
Return to Login Page
Search

VEDANTA LIMITED, JHARSUGUDA

Compliance Status on Environment Clearance - Expansion of Aluminium Smelter from 16 LTPA to 18 LTPA and existing 1215 MW CPP vide letter No. F. No. J-11011/29/2007-IA II(I) dated 5th May 2022

S. No.	CONDITIONS	COMPLIANCE STATUS
A. Specific conditions		
i	The project proponent shall abide by all orders and judicial pronouncements, made from time to time in OA No. 10/2021/EZ pending before the National Green Tribunal (NGT), Eastern Zone, Kolkata.	All the orders and judicial pronouncements by NGT in the OA No. 10/2021/EZ has been complied with. **Details of Court cases are enclosed as Annexure-1.**
ii	The poly-aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) shall not exceed 2 mg/Nm3. The data on PAH shall be monitored quarterly and report shall be submitted regularly to the Ministry/Regional Office at Bhubaneshwar and Odisha Pollution Control Board.	Poly-Aromatic Hydrocarbons (PAH) is being monitored in the stack of Bake Oven and is in the range of 0.21 to 0.26 mg/Nm^3. The same is monitored regularly and report is submitted quarterly, six monthly to MoEFCC and regional office of the Ministry and monthly to the OSPCB. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
iii	A nallah is passing through the project site, PP shall maintain the nallah in its natural form and provide the green buffer zone of 10 m on both side of the nallah.	Nallah is maintained in its natural form with 10 m green buffer zone on both side of the nallah. In compliance with this condition, we had submitted report to RO, MoEFCC office vide letter no. VL/MOEF/006/2024-04 dated 30.03.2024. **Study Report enclosed as Annexure-3.**
iv	Particulate fluoride emissions shall not be more than 0.65 mg/Nm3 and fugitive particulate fluoride emissions from pot room shall not be more than 1.85 mg/Nm3.	The particulate fluoride emission ranges between 0.042 to 0.069 mg/Nm^3. Roof monitoring system through cassette method has been installed for fugitive fluoride (gaseous and particulate) monitoring and the same is being carried out by MoEFCC approved lab and fugitive particulate fluoride emissions ranges between 0.268 to 0.689 mg/Nm^3. Moreover, laser-based fluoride monitoring system has also been installed in pot rooms for monitoring of fugitive fluoride and online data transmitted on OSPCB server. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
v	Project proponent shall maintain the Fluoride consumption less than 10 kg/tone of Aluminium production by April, 2022 and reduce further at 8.0 kg/t by April, 2023 as committed by PP.	MoEF&CC has notified revised standards dated 21.07.25 for Aluminium Smelters and this condition has been replaced by AlF3 consumption of 20 kg/ton of Al from the date of notification. Further, we have submitted letter dated 04.08.25 to your good office for using the new standard and as per new standard our AlF3 consumption from Apr'25-Sep'25 ranges between 16.631 to 18.905 kg/MT of Al. **Notification copy enclosed as Annexure-4.**
vi	Three tier Green Belt shall be developed in a time frame of one year covering 33% of total area with native species all along the periphery of the project site of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt	33 percent Green belt has been developed all along the plant periphery and plant area. Efforts have been made to cover three-tier green belt all along the periphery. High potential local species have been planted to attenuate the pollutants as per the CPCB guidelines. We would like to bring

	developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years. This shall include development of green belt of 50 width from the project site towards the Jharsuguda village located at 0.2km from the site. In addition to this, following activities shall also be undertaken as committed by the proponent: • Green cover on reclaimed ash ponds over an area of 40 Ha shall be developed by June 2022. • PP shall undertake plantation over 37.5 ha outside plant premises in consultation with DFO, Jharsuguda.	your kind notice towards the fact that Jharsuguda town is situated more than 3 Km. Moreover, as a responsible corporate, we have taken up plantation activities in Jharsuguda at various locations. **Green Belt photos are enclosed as Annexure-5a.** Further, we have completed the Green cover on reclaimed ash ponds over an area of 40 Ha as committed and **OSPCB compliance letter is enclosed as Annexure-5b.** We have also completed plantation over 37.5 ha outside plant premises in consultation with DFO, Jharsuguda. **Compliance letter submitted to DFO office dated 25.09.25 enclosed as Annexure-5c.**
vii	Present stock of SPL carbon (36320 T) and legacy SPL stock shall be liquidated by Sep, 2023 as committed.	We are regularly disposing the SPL Carbon stock to OSPCB authorized recycler. The details are given below from FY 2022 to FY 2025. In FY 2021-22, SPL Carbon disposal was 31230.16 MT. In FY 2022-23, SPL Carbon disposal was 21683.72 MT. In FY 2023-24, SPL Carbon disposal was 14389.44 MT. In FY 2024-25, SPL Carbon disposal was 11914.30 MT. From Apr'25-Sep'25, SPL Carbon disposal is 8986.96 MT. Total SPL Carbon disposal since commitment is 88204.58 MT which includes the liquidation of legacy stock of SPL carbon of 36320 MT. **Annual Return (Form-4) of FY-22, FY-23, FY-24 and FY-25 are enclosed as Annexure-6.**
viii	Refractory SPL stock (40000 T) stored in covered shed on concrete floors shall be disposed of Dec, 2025 as committed.	CPCB developed the SOP for only SPL Carbon utilization in March 2021 and SPL Refractory Silicon Carbide waste in Dec 2021. Please find below our initiatives/efforts towards the sustainable utilization of SPL refractory. 1. Successfully disposed of the entire SPL Refractory Silicon Carbide waste to authorized recyclers. 2. Utilization of SPL refractory mixed fines for co-processing in cement industries. **MOU/Work order enclosed as Annexure-7.** 3. We have already disposed 9858.46 MT of Refractory SPL in FY'25 and 32718.66 MT of Refractory SPL in FY'26 till Sept'25 to Re Sustainability TSDF (formerly known as RAMKY TSDF) as per the Hazardous Waste Authorization.

		We are committed to liquidate the entire SPL Refractory stock once the SOP will be developed/available by CPCB.
ix	PM levels shall be less than 30 mg/Nm3 for all units under expansion. In case of older units, PP shall initiate retrofitting/modification action to achieve the PM emission level of 30 mg/Nm3 by October, 2024.	We are achieving PM levels of 30 mg/Nm^3 in all existing as well as in expansion units of our Aluminium Smelter Plant. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.** With respect to the 1215 MW Captive Power Plant, we would like to submit that efforts in the form of installation of Hybrid ESPs have already been taken and the PM level of 50 mg/Nm^3 as per the CTO condition has already been achieved. However, we would like to submit that beyond the modification/ retrofitting that has been done during plant inception, there is no further scope for modification.
x	Wastes shall be sent to RAMKY TSDF located at Sukinda. Further, waste disposed in this SLF shall be evacuated and disposed to authorized agency for detoxification as committed by PP.	We would like to submit that disposal of hazardous waste is being carried out as per the Hazardous Waste Authorization to the authorized agencies including Re Sustainability TSDF (formerly known as RAMKY TSDF). We had already discontinued the SPL disposal in this SLF since 2016-17 onwards. As per CPCB SOP, we have evacuated and disposed off the SPL Carbon portion to OSPCB authorized agency. Since there is no CPCB SOP for SPL Refractory portion, we are in process to take approval from OSPCB for capping the SLF Phase 2.
xi	PP shall use Roof Top Rainwater Harvesting systems with a total capacity of around 10000 m3 of rainwater and re-use the water in the plant.	We have installed 7 nos. of roof top rainwater harvesting structure with a total capacity of more than 10000 m^3 of rainwater for reuse. The details of all rainwater harvesting measures adopted in our complex has been submitted to CGWA vide letter no VL/CGWB/003/2024-01 dated August 05, 2024 **enclosed as Annexure-8a.** Moreover, we have completed cleaning and restoration of various community ponds and farm ponds thereby augmenting the capacity for rainwater harvesting in the surrounding villages. **Photos of few ponds are enclosed as Annexure-8b.**
xii	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector shall be strictly implemented.	The recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector and its subsequent amendments is being implemented at site. **Status of CREP compliance is enclosed as Annexure-9.**
xiii	PP shall utilize 100% ash as per Fly Ash Notification 2021 and its subsequent amendments. Further, legacy ash shall be	Fly ash is being collected in dry form in silos of capacity 12000 m^3. Ash is being utilized in cement, brick manufacturing, road and

	utilized completely by 31/05/2027 as committed by PP.	infrastructure activities, reclamation of low-lying areas and the balance is disposed off to the ash pond in the form of High Concentration Slurry disposal. As per MoEFCC Fly ash amendment notification dated 30th December 2022, we have declared that all our ash ponds and dykes are operational in nature. The communication letter sent to the OSPCB and CPCB office vide letter no VL/AU/22-23/117/OPCB dated 30th March 2023. **Letter is enclosed as Annexure-10a.** As per Fly ash notification 2021 and its subsequent amendments, more than 100 percent ash was utilized in FY'25 and the same is planned for FY26 also. Monthly fly ash utilization report has been uploaded in CPCB portal. Moreover, continuous efforts have been made to utilize fly ash in different sustainable avenues as per enclosed plan for 100 percent Fly ash utilization/disposal, in close coordination with the statutory bodies. **Ash Utilization Plan of FY-26 and request letters are enclosed as Annexure-10b and Annexure-10c respectively.**
xiv	Dust Suppression measures such as water sprinkling through mobile tankers is being carried out especially during the dry season. Ash laden trucks are covered with tarpaulin to avoid spillage.	Water sprinkling is being done for dust suppression through mobile tankers on regular basis and mobile mist canon has also been deployed to arrest fugitive emissions. Tarpaulin covering is being ensured for ash trucks. **Photos enclosed as Annexure-11.**
xv	Regular monitoring of Air, Water & Soil quality shall be carried out in the Ash Pond area.	The monitoring of air, water and soil quality is being carried out regularly in the Ash Pond Areas. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
xvi	Performance monitoring of pollution control equipment shall be taken up yearly and compliance status in this regard shall be reported to RO.	Performance monitoring of pollution control equipment has been completed and report has been submitted to RO, MoEFCC office vide letter no. VL/MoEF/006/2025 - 13 dated 28th June 2025. **Performance Evaluation report enclosed as Annexure-12.**
xvii	The recommendations of the approved Site-Specific Conservation Plan / 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.	The Principal Chief Conservator of Forests, (Wildlife) and Chief Wildlife Warden, Odisha has approved the site-specific wildlife conservation plan on 30.04.2021 with a financial forecast of Rs. 610.894 lakhs to be spent for implementation by the Forest Department (Both Jharsuguda and Sambalpur Forest Division) for this plan. Accordingly, as per the demand raised by the Divisional Forest Officer, Jharsuguda, an amount of Rs. 530.904 lakhs have been deposited on 17.05.2021 towards implementation of the above -mentioned plan

		over a period of 10 years. The plan is under implementation by Forest Department. Moreover, the recommendations given in the wildlife management plan to be executed by Vedanta Ltd. have been completed except compliance of condition for providing the software for WL-Anukampa and its maintenance. We are continuously taking follow-up with the DFO office for the implementation status and way forward to comply with the WL-Anukampa and its maintenance condition. **Latest communication and implementation status are enclosed as Annexure-13.**
xviii	The area of sampling and analysis of fluoride in soil and forage should extend up to 10 kilometres radius of plant premises covering upwind and downwind directions. Further, fluoride sampling and analysis should be taken quarterly at the nearest irrigated lands growing crops, vegetables, and other products of human consumption.	Monthly sampling and analysis of fluoride in soil and forage has been extended up to 10 Kilometres radius covering upwind and downwind directions. Reports are regularly being submitted to the statutory bodies. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
xix	The major emissions are from the pot room roof. The sampling frequency should be increased, and sampling is done at multiple locations. The laser-based advance technology shall be adopted to continuously monitor gaseous fluoride emissions from pot rooms on real time basis by March, 2023.	Laser Based continuous online monitoring system has been installed and commissioned at all the pot rooms to monitor gaseous fluoride emissions and the same is also connected to OSPCB server. **Photos are enclosed as Annexure-14.**
xx	Wheel Washing mechanism shall be provided in entry and exit gates with complete water recirculation system.	Operational Wheel washing system has been provided at the main entry/ exit gate with water recirculation system. Moreover, operational wheel washing systems are also provided at Ash Handling Plant and Coal Handling Plant area of CPP and TPP. Since we do not have separate entry and exit from main gate for material movement, so all incoming and outgoing vehicles passes through the existing wheel wash system. **Wheel Wash photos enclosed as Annexure-15.**
xxi	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	Greening and Paving has been implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.
B. General conditions		
I. Statutory compliance		
i	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	Noted.

	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.	
II. Air quality monitoring and preservation		
i	The project proponent shall install 24x7 Continuous Emission Monitoring System (CEMS) at process stacks to monitor stack emission as well as 4 Nos. Continuous Ambient Air Quality Station (CAAQS) 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.	All the process stacks have been equipped with Continuous Emission Monitoring System (CEMS). Four (4 nos.) of Continuous Ambient Air Quality Monitoring Station has been installed as per the guidelines. All the CEMS and CAAQMS are connected to SPCB and CPCB online servers and are being calibrated from time to time.
ii	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986.	The source of Fugitive emission in Aluminium industries is from Potroom and we are regularly monitoring the same. Roof monitoring system through cassette method has been installed for fugitive fluoride (gaseous and particulate) monitoring and the same is being carried out by MoEFCC approved and NABL Accredited lab. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.** Moreover, laser-based fluoride monitoring system have been installed in pot room for monitoring of fugitive fluoride and online data transmitted on OSPCB server.
iii	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	Leakage Detection and Mechanized bag cleaning facilities have been provided for maintenance of bags.
iv	The project proponent shall ensure covered transportation and conveying of ore, coal and other raw material to prevent spillage and dust generation; Use closed bulkers for carrying fly ash;	Coal, other raw material and fly ash are being transported and conveyed in covered trucks and railway rakes. Closed Bulkers are used for the Fly ash transportation, which are directly filled pneumatically from Silos and disposed in the nearby Cement Industries. However, transportation of fly ash through closed bulkers is practically not possible except in the case of cement industries due to non-availability of Silo

		and pneumatic system at receiver/user end. Accordingly, the conditioned fly ash which is being transported in covered trucks are used in nearby Brick manufacturing industries, NHAI Road construction and other sustainable avenues. Further, fly ash is being dispatched through tarpaulin covered Railway wagons to the outside state cement plants for sustainable use. **Photos are enclosed as Annexure-16.**
v	The project proponent shall provide wind shelter fence and chemical spraying on the raw material stockpiles;	The raw material of Aluminium industries is alumina, which comes through BTAP (Bogie Tank wagon for Alumina Powder) rakes and stored pneumatically in the Alumina Silos. The other raw material like coal is also transported in a controlled manner. A concreate boundary wall with additional mitigative measures has also been provided in coal storage area which acts as a wind shelter fence. Further, fixed type mist cannons/sprinklers have been provided at coal handling plant to arrest the emissions and truck mounted mist cannons/water tankers, wheel wash system provided in plant premises. Efforts have also been made to attenuate emissions through Green belt, which has been developed all along the plant premises. **Photos are enclosed as Annexure-17.**
vi	Ventilation system shall be designed for adequate air changes as per the prevailing norms for all tunnels, motor houses, and cement bagging plants.	We have Aluminium Smelter and Power Plant. We do not have cement bagging plants; however, the plant has been designed with proper ventilation systems. **Ventilation Report submitted vide letter dated 31.01.2025 and again enclosed as Annexure-18.**
vii	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.	We have provided dedicated Mechanical Road sweeping machines (7 Nos Large and 16 Nos Small) for housekeeping of the complete plant premises.
viii	Adopt measures to recover fluoride gas from electrolytic cells and recycle the same in the process.	Fluoride gas from electrolytic cells is being captured through Fume Treatment Plants installed in Smelter Plants and recycled back into the system.
ix	Practice use of low-Sulphur tars for baking anodes.	Low Sulphur tar is being used for making anodes. Low Sulphur tar is being used for making anodes. We are procuring low Sulphur Coal Tar Pitch (CT Pitch) from renowned industries and maintaining, the Sulphur less than 1 percent and supplier submitting the reports from accredited laboratory for the Sulphur content. **Accredited laboratory report from the supplier w.r.t. sulphur content is enclosed as Annexure-19.**

x	Make efforts to increase the life of pot lining through better construction and operating techniques.	We have adopted Pre-baked technology with 325/340 KA line current. We are scaling up advanced lining technology using high performance cathode assembly(HPCA) with copper insert collector bars. This technology has been patented by Vedanta. In addition advanced pot controller system (VPC) is being implemented which is also patented. This initiative helps in maximizing the life of potlining.
xi	Design the pot roofs with louvers and roof ventilators.	Louvers with roof ventilators have been provided in the pot rooms.
III. Water quality monitoring and preservation		
i	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R 742 (E) dated 30thAugust 1990 and further amended vide G.S.R 46 (E) dated 3rd February 2006(Aluminium); S.O. 3305 (E) dated 7th December 2015(Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Continuous Effluent monitoring systems have already been provided, and Real time data is being transmitted to CPCB and OSPCB servers.
ii	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 recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.	Regular ground water monitoring is being carried out in the plant and adjacent areas through NABL Accredited/MoEFCC approved laboratory, and the data is being submitted to OSPCB and Regional Office of the Ministry. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
iii	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	Sewage Treatment Plants are in place or the treatment of domestic wastewater. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
iv	Garland drains and collection pits shall be provided for each stock pile to arrest the runoff in the event of heavy rains and to check the water pollution due to surface run off.	Garland drains along with settling ponds have been provided in Coal Storage area and Ash Pond areas. **Photos are enclosed as Annexure-20.**
v	Water meters shall be provided at the inlet to all unit processes in the cement plant.	We have Aluminium Smelter and Power Plant. We do not have cement plant, however, water meters have been provided at the inlet of all the unit processes.
vi	The project proponent shall make efforts to minimize water consumption in the cement	The water consumption of the Smelter and power plants are being monitored on a regular

	plant complex by segregation of used water, practicing cascade use and by recycling treated water.	basis and treated water is being recycled back into the system. **Specific Water Consumption report enclosed as Annexure-21.**
IV. Noise Monitoring & Prevention		
i	Noise quality shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	The overall noise levels are being maintained below the stipulated standards as per EPA Rules, 1989. The ambient noise levels monitored are observed within 52.3 dB(A) to 74.4 dB(A) during daytime and 43.6 dB(A) to 69.6 dB(A) in night time. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
V. Energy conservation measures		
i.	The project proponent shall provide waste heat recovery system (pre-heating of combustion air) at the flue gases.	This condition is not applicable to our plant as the boiler exit flue gas temperature cannot be reduced further from the design level due to below reasons: • The SOx formation due to presence of Sulphur in coal will get condensed with moisture and produce acid which corrode all the metallic structure (Air Pre-heater, duct, ESPs, ID fans etc.) resulting catastrophic failures. • The useful energy available in 138 degrees Celsius is very low and limiting by acid due point temperature which is 130 degrees Celsius.
ii	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;	One Rooftop Solar project of 10 KWH implemented in plant premises. Vedanta Aluminium is the first in India to offer low carbon aluminium, branded Restora and Restora Ultra, for its global customer base, many of whom are focused on ensuring the sustainable provenance of their materials. We have procured 1338.82 million units renewable power in FY'25 and 940.278 million units renewable power in FY'26 till Sept'25 This Renewable Power is being used in plant premises for green product manufacturing and for all common areas. Moreover, as a responsible corporate and to enhance green energy utilization in communities areas, we had distributed more than 200 solar streetlights. **Photos are enclosed as Annexure-22.**
iii	Provide LED lights in their offices and residential areas.	LED lights have been provided in the offices as well as residential areas. **Photos are enclosed as Annexure-23.**
VI. Waste management		
i	Used refractories shall be recycled.	This condition has already been covered in specific condition no. VIII.
ii	Oily scum and metallic sludge recovered from ETP shall be mixed, dried, and briquetted and reused.	As per the Hazardous Waste Management Handling Rules 2016, ETP sludge of Aluminium Smelter comes under hazardous Waste category

		Schedule I, 35.3 and the same is being disposed off to OSPCB authorized agencies.
VII. Green belt		
i	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the Programme for reduction of the same including carbon sequestration including plantation.	The GHG inventory for the plant and program for reduction of the same, including carbon sequestration and plantation have been submitted to RO, MOEF office vide letter no. VL/MOEF/006/2024-04 dated 30.03.2024. **Study Report enclosed as Annexure-3.** Moreover, GHG emissions have been monitored regularly, and the data has been published in the Sustainability Report/TCFD report of the company. You may please refer to the link given of our company website for further details. https://vedantaaluminium.com/sustainability/sustainability-report/
ii	Project proponent shall submit a study report on De-carbonization 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.	We have engaged a recognized consultant to carry out de-carbonization program study and report submitted to RO, MoEFCC office vide letter no. VL/MOEF/006/2024-04 dated 30.03.2024. **Study Report enclosed as Annexure-3.** Moreover, GHG emissions have been monitored regularly, and the data has been published in the Sustainability Report/TCFD report of the company. You may please refer the link given of our company website for further details. https://vedantaaluminium.com/sustainability/sustainability-report/
VIII. Public hearing and human health issues		
i	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Emergency Preparedness Plan based on the HIRA is being implemented at site. Mock Drills are being conducted on regular basis. **Submission letter enclosed as Annexure-24.**
ii	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.	Heat stress analysis of workmen of high temperature work zone is being carried out and PPEs like high temperature resistant suits are being provided as per the norms of Factory Act. **Report enclosed as Annexure-18.**
iii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	Occupational Health Surveillance of the workers is being done on a regular basis and records are being maintained. **Sample Records are enclosed as Annexure-25.**
IX. Environment management		
i	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	At Vedanta we are committed to transforming the lives of the communities in our areas of operations and beyond. We look at our role as making the local people participants in the growth process of the organization while we work as facilitators of socio-economic transformation in rural India.

	survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.	Our social development initiatives are structured along the dimensions of Sustainable Livelihood, Women Empowerment, Quality Education, Health, Water and Sanitation, Community Infrastructure, Agriculture, and Sports and Culture. We strive to identify the needs of communities, plan projects and facilitate their execution, working in close partnership with the government, local administrations, NGOs and implementing agencies, as well as the communities themselves. In Vedanta Jharsuguda, we are covering 79 villages in core, periphery and outer periphery area based on socio-economic survey carried out through renowned third party. **Geo tagged village wise CSR activities details and CSR Annual Report are enclosed as Annexure-26.**
ii	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.	The company has a well-defined Environment policy duly approved by Group C.E.O and Board of Directors and also, we have following environment compliance procedures: • Comprehensive compliance checklist in place for every unit wherein all the applicable laws and regulations are mapped. • Automated compliance monitoring system in place developed by third party covering over 200 Acts and Rules for every unit. • Timely updation and regular review of the compliance checklist from time to time. **Board Resolution and Environment Policy enclosed as Annexure-27.**
iii	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.	Separate Environmental Cell is in place with required qualified personnel and Head of Environment is reporting directly to the Unit Head (CEO). **Organogram Enclosed as Annexure-28.**
X. Miscellaneous		
i	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 days and in addition this shall also be displayed in the project proponent's website permanently.	The grant of Environment Clearance of the expansion project was published in two widely circulated newspaper. 1. The Samaja - 11th May 2022 (Odia) 2. Orissa Post - 11th May 2022 (English) **Advertisement published in the newspapers are enclosed as Annexure-29.**

VEDANTA LIMITED, JHARSUGUDA

Compliance Status on Environment Clearance - Expansion of Aluminium Smelter from 16 LTPA to 18 LTPA and existing 1215 MW CPP vide letter No. F. No. J-11011/29/2007-IA II(I) dated 5th May 2022

ii	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.	The copies of the environmental clearance have been submitted to the Heads of local bodies, Panchayats, Municipal Bodies and relevant Govt. Offices vide Letter No. VL/PH/007/2022-001 dated 14.05.2022. **Letter enclosed as Annexure-30.**
iii	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.	We are uploading half yearly compliance report along with monitoring data and supporting annexures on our website link of the same is as below. https://vedantaaluminium.com/sustainability/compliance-report-jharsuguda/
iv	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.	We are regularly monitoring all the prescribed parameters in stack and ambient stations. Data of the same is being displayed at main gate and company website also for public view. https://vedantaaluminium.com/sustainability/sustainability-report/ **Photos of Main Gate Display Board enclosed as Annexure-31.**
v	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.	We are uploading six-monthly compliance report along with monitoring data and supporting annexures on our website link of the same is as below. And the same is also being uploaded at MoEFCC Parivesh portal. https://vedantaaluminium.com/sustainability/compliance-report-jharsuguda/
vi	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.	The environment statement has been submitted to OSPCB on 22.09.2025 and uploaded on company website. https://vedantaaluminium.com/sustainability/compliance-report-jharsuguda/ **Environment Statement is enclosed as Annexure-32.**
vii	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.	The expansion project of Aluminium Smelters from 16 LTPA to 18 LTPA was approved by MoEFCC vide EC letter no J-11011/29/2007-IA-II (I) dated 05.05.2022 and OSPCB Consent to Establish (CTE) vide letter no 11767/IND-II-CTE-6607 dated 06.07.2022 and OSPCB renewed Consent to Operate (CTO) vide letter no 6536/IND-I-CON-6079 dated 28.03.2025. We have commenced the land development work as per the Consent to Establish and final approval i.e. Consent to Operate.
viii	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	All the commitments and recommendations made in the EIA/EMP report, Public Hearing and during the presentation to the Expert Appraisal Committee are being implemented. **Implementation status report enclosed as Annexure-33.**

VEDANTA LIMITED, JHARSUGUDA

Compliance Status on Environment Clearance - Expansion of Aluminium Smelter from 16 LTPA to 18 LTPA and existing 1215 MW CPP vide letter No. F. No. J-11011/29/2007-IA II(I) dated 5th May 2022

ix	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).	Noted.
x	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.	Noted
xi	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory	Noted
xii	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted
xiii	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.	Noted. Full cooperation will be extended to the Regional Office by furnishing with the requisite data/information/monitoring reports from time to time.
xiv	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.

Ref: **Envlab/25-26/TR-15338** ***Date: 09.10.2025***

VEDANTA LIMITED, JHARSUGUDA
SMELTER & CPP
Half Yearly Environment Quality Report
(April 2025 – September 2025)

1. Stack Emission:

a) Pot Room Fume Treatment Plant (FTP) Outlet

i. Particulate Matter (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	**100**					
FTP 1- Pot Line-1	5.4	5.5	5.0	5.1	5.2	5.4
FTP 2- Pot Line-1	4.7	6.4	5.1	5.3	5.5	5.3
FTP 3- Pot Line-2	5.2	5.8	5.4	5.0	5.1	5.5
FTP 4- Pot Line-2	2.5	5.5	5.2	5.1	5.3	5.2
FTP 5- Pot Line-3	3.0	3.2	2.8	2.6	2.8	2.5
FTP 6- Pot Line-3	2.9	3.3	3.7	3.5	3.0	3.1
FTP 7- Pot Line-4	3.2	3.0	3.1	3.3	3.5	3.2
FTP 8- Pot Line-4	2.7	2.8	2.9	3.0	3.3	3.5
FTP 9- Pot Line-5	3.6	3.2	3.3	3.4	3.2	2.9
FTP 10- Pot Line-5	3.3	2.8	2.9	2.6	2.9	3.0
FTP 11- Pot Line-6	2.8	3.1	3.5	3.2	3.1	3.3
Limit	**30**					
FTP 12- Pot Line-6	2.9	2.9	3.1	3.3	3.4	3.4

ii. Gaseous Fluoride (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
FTP 1- Pot Line-1	0.55	0.51	0.49	0.47	0.45	0.48
FTP 2- Pot Line-1	0.54	0.63	0.43	0.44	0.48	0.46
FTP 3- Pot Line-2	0.53	0.55	0.52	0.50	0.51	0.50
FTP 4- Pot Line-2	0.59	0.60	0.56	0.54	0.55	0.54
FTP 5- Pot Line-3	0.58	0.54	0.53	0.56	0.58	0.55
FTP 6- Pot Line-3	0.59	0.61	0.65	0.69	0.65	0.62
FTP 7- Pot Line-4	0.51	0.55	0.52	0.50	0.56	0.59
FTP 8- Pot Line-4	0.63	0.65	0.51	0.54	0.59	0.58
FTP 9- Pot Line-5	0.64	0.63	0.55	0.58	0.60	0.63
FTP 10- Pot Line-5	0.59	0.62	0.57	0.58	0.61	0.62
FTP 11- Pot Line-6	0.62	0.68	0.65	0.63	0.65	0.60
FTP 12- Pot Line-6	0.48	0.45	0.65	0.68	0.65	0.63

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15339** *Date: 09.10.2025*

iii. Particulate Fluoride (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	0.65					
FTP 1- Pot Line-1	0.058	0.052	0.054	0.050	0.055	0.054
FTP 2- Pot Line-1	0.059	0.051	0.047	0.049	0.042	0.045
FTP 3- Pot Line-2	0.056	0.066	0.058	0.055	0.051	0.050
FTP 4- Pot Line-2	0.052	0.051	0.055	0.053	0.056	0.058
FTP 5- Pot Line-3	0.062	0.059	0.060	0.062	0.064	0.066
FTP 6- Pot Line-3	0.051	0.055	0.052	0.058	0.060	0.063
FTP 7- Pot Line-4	0.061	0.060	0.058	0.055	0.058	0.059
FTP 8- Pot Line-4	0.059	0.054	0.061	0.059	0.062	0.060
FTP 9- Pot Line-5	0.052	0.057	0.062	0.064	0.065	0.061
FTP 10- Pot Line-5	0.055	0.058	0.053	0.056	0.059	0.058
FTP 11- Pot Line-6	0.059	0.055	0.053	0.055	0.058	0.056
FTP 12- Pot Line-6	0.063	0.069	0.062	0.064	0.065	0.066

iv. Total Fluoride (kg/T)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	0.30					
FTP 1- Pot Line-1	0.08	0.08	0.08	0.07	0.07	0.08
FTP 2- Pot Line-1	0.09	0.10	0.07	0.07	0.08	0.07
FTP 3- Pot Line-2	0.08	0.09	0.08	0.08	0.08	0.08
FTP 4- Pot Line-2	0.09	0.09	0.09	0.09	0.09	0.09
Limit	0.20					
FTP 5- Pot Line-3	0.07	0.07	0.07	0.07	0.08	0.07
FTP 6- Pot Line-3	0.07	0.07	0.08	0.08	0.08	0.08
FTP 7- Pot Line-4	0.06	0.07	0.06	0.06	0.07	0.07
FTP 8- Pot Line-4	0.07	0.08	0.06	0.07	0.08	0.07
FTP 9- Pot Line-5	0.08	0.07	0.07	0.07	0.08	0.08
FTP 10- Pot Line-5	0.08	0.08	0.07	0.07	0.08	0.08
FTP 11- Pot Line-6	0.08	0.09	0.08	0.08	0.08	0.08
FTP 12- Pot Line-6	0.07	0.06	0.07	0.08	0.08	0.08

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15340** ***Date: 09.10.2025***

b) Bake Oven Fume Treatment Plant (FTP) Outlet

i. Particulate Matter (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	**100**					
FTP 1 - Bake Oven	5.4	5.3	5.3	5.5	5.4	5.6
FTP 2 - Bake Oven	5.1	5.1	5.1	5.0	5.3	5.1
FTP-3 - Bake Oven	5.1	5.2	5.2	5.4	5.8	5.9
FTP-4 - Bake Oven	5.0	5.0	5.4	5.2	5.0	5.2
FTP-5 - Bake Oven	4.9	5.0	5.1	5.2	5.5	5.6

ii. Gaseous Fluoride (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
FTP 1 - Bake Oven	2.66	2.59	2.51	2.48	2.36	2.29
FTP 2 - Bake Oven	2.42	2.45	2.49	2.45	2.42	2.40
FTP-3 - Bake Oven	2.76	2.46	2.55	2.56	2.55	2.58
FTP-4 - Bake Oven	2.34	2.44	2.32	2.39	2.41	2.46
FTP-5 - Bake Oven	2.47	2.49	2.47	2.51	2.48	2.41

iii. Particulate Fluoride (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	**0.65**					
FTP 1 - Bake Oven	0.52	0.57	0.63	0.62	0.63	0.58
FTP 2 - Bake Oven	0.45	0.51	0.59	0.58	0.60	0.45
FTP-3 - Bake Oven	0.57	0.34	0.37	0.39	0.41	0.43
FTP-4 - Bake Oven	0.49	0.45	0.34	0.37	0.38	0.44
FTP-5 - Bake Oven	0.54	0.53	0.58	0.60	0.61	0.54

iv. Total Fluoride (Kg/T)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	**0.10**					
FTP 1 - Bake Oven	0.03	0.03	0.02	0.02	0.03	0.03
FTP 2 - Bake Oven	0.02	0.03	0.03	0.02	0.03	0.03
FTP-3 - Bake Oven	0.02	0.01	0.02	0.01	0.02	0.01
FTP-4 - Bake Oven	0.01	0.02	0.01	0.01	0.02	0.02
FTP-5 - Bake Oven	0.02	0.02	0.02	0.01	0.02	0.02

v. Total PAH (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	**2**					
FTP 1 - Bake Oven	0.25	0.23	0.24	0.22	0.24	0.26
FTP 2 - Bake Oven	0.23	0.24	0.21	0.24	0.25	0.23
FTP-3 - Bake Oven	0.26	0.25	0.26	0.25	0.22	0.25
FTP-4 - Bake Oven	0.24	0.26	0.24	0.23	0.22	0.26
FTP-5 - Bake Oven	0.25	0.25	0.24	0.25	0.26	0.23

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15341** *Date: 09.10.2025*

c) Captive Power Plant (CPP)

i. Particulate Matter (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	50					
CPP- Unit 1	45.3	46.2	44.5	44.8	42.6	42.2
CPP- Unit 2	44.9	45.6	44.4	45.1	45.5	45.4
CPP- Unit 3	47.0	46.6	46.4	46.9	46.1	45.8
CPP- Unit 4	44.1	44.1	45.3	44.7	45.3	44.9
CPP- Unit 5	46.3	44.8	45.2	46.2	45.0	45.6
CPP- Unit 6	46.0	44.9	45.4	45.9	44.8	45.1
CPP- Unit 7	45.8	45.2	45.0	44.8	44.2	43.8
CPP- Unit 8	43.6	44.1	43.8	42.9	43.6	43.2
CPP- Unit 9	45.6	45.9	45.0	46.1	45.9	45.5

ii. SO2 (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit						
CPP- Unit 1	1359	1364	1356	1344	1350	1362
CPP- Unit 2	1333	1355	1335	1330	1328	1338
CPP- Unit 3	1340	1349	1351	1356	1348	1341
CPP- Unit 4	1358	1331	1341	1338	1330	1322
CPP- Unit 5	1353	1350	1344	1340	1355	1356
CPP- Unit 6	1337	1344	1349	1354	1351	1348
CPP- Unit 7	1333	1337	1320	1336	1328	1316
CPP- Unit 8	1356	1354	1350	1354	1318	1320
CPP- Unit 9	1369	1344	1358	1366	1360	1356

iii. NOx (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	450					
CPP- Unit 1	341	349	356	350	354	352
CPP- Unit 2	358	337	340	336	328	320
CPP- Unit 3	357	357	350	356	360	354
CPP- Unit 4	354	351	348	342	345	338
CPP- Unit 5	350	326	324	332	330	322
CPP- Unit 6	338	350	354	356	351	342
CPP- Unit 7	354	342	344	348	345	331
CPP- Unit 8	336	338	346	342	338	326
CPP- Unit 9	338	355	361	368	370	368

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15342** ***Date: 09.10.2025***

iv. Mercury (mg/Nm^3)

Stack Description	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit	0.03					
CPP- Unit 1	0.0073	0.0073	0.0075	0.0078	0.0081	0.0080
CPP- Unit 2	0.0075	0.0075	0.0076	0.0080	0.0082	0.0079
CPP- Unit 3	0.0076	0.0076	0.0076	0.0072	0.0075	0.0078
CPP- Unit 4	0.0076	0.0079	0.0075	0.0073	0.0070	0.0072
CPP- Unit 5	0.0073	0.0073	0.0078	0.0075	0.0078	0.0075
CPP- Unit 6	0.0077	0.0077	0.0076	0.0078	0.0082	0.0081
CPP- Unit 7	0.0076	0.0076	0.0079	0.0075	0.0079	0.0077
CPP- Unit 8	0.0074	0.0074	0.0075	0.0072	0.0076	0.0072
CPP- Unit 9	0.0074	0.0073	0.0074	0.0075	0.0078	0.0076

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15343** *Date: 09.10.2025*

2. Fugitive Fluoride in Pot rooms

Fugitive Fluoride – Apr'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	10-01-2025	0.437	1.409	0.094	0.303	0.397
Room 2	07-01-2025	0.463	1.198	0.106	0.275	0.381
Room 3	08-01-2025	0.317	1.371	0.074	0.322	0.396
Room 4	09-01-2025	0.335	1.326	0.075	0.298	0.373
Room 5	09-01-2025	0.352	1.065	0.094	0.283	0.377
Room 6	18-01-2025	0.268	1.145	0.075	0.320	0.395
Room 7	14-01-2025	0.292	1.110	0.081	0.309	0.390
Room 8	10-01-2025	0.326	1.020	0.091	0.284	0.375
Room 9	16-01-2025	0.286	1.050	0.078	0.285	0.363
Room 10	12-01-2025	0.325	1.035	0.088	0.280	0.368
Room 11	15-01-2025	0.333	1.005	0.091	0.275	0.366
Room 12	10-01-2025	0.319	1.016	0.087	0.278	0.365

Fugitive Fluoride – May'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	07-05-2025	0.410	1.329	0.091	0.294	0.385
Room 2	09-05-2025	0.499	1.275	0.108	0.275	0.383
Room 3	03-05-2025	0.399	1.351	0.088	0.298	0.386
Room 4	04-05-2025	0.411	1.214	0.094	0.279	0.373
Room 5	13-05-2025	0.393	1.043	0.107	0.284	0.391
Room 6	07-05-2025	0.352	1.055	0.095	0.289	0.385
Room 7	08-05-2025	0.363	1.095	0.096	0.291	0.387
Room 8	09-05-2025	0.404	1.068	0.107	0.283	0.390
Room 9	14-05-2025	0.376	1.147	0.097	0.297	0.394
Room 10	11-05-2025	0.354	0.971	0.101	0.278	0.379
Room 11	20-05-2025	0.422	1.045	0.109	0.270	0.379
Room 12	10-05-2025	0.364	1.054	0.096	0.277	0.373

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15344** *Date: 09.10.2025*

Fugitive Fluoride in Pot rooms: Continued

Fugitive Fluoride – Jun'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	05.06.2025	0.529	1.310	0.111	0.274	0.385
Room 2	06.06.2025	0.547	1.323	0.110	0.267	0.377
Room 3	03.06.2025	0.457	1.226	0.100	0.269	0.369
Room 4	04.06.2025	0.460	1.252	0.099	0.268	0.367
Room 5	12.06.2025	0.392	1.025	0.105	0.275	0.380
Room 6	15.06.2025	0.429	1.035	0.111	0.267	0.378
Room 7	22.06.2025	0.391	0.953	0.107	0.260	0.367
Room 8	14.06.2025	0.413	0.977	0.113	0.267	0.380
Room 9	11.06.2025	0.410	1.035	0.109	0.275	0.384
Room 10	14.06.2025	0.422	1.083	0.108	0.278	0.386
Room 11	15.06.2025	0.398	0.999	0.107	0.268	0.375
Room 12	13.06.2025	0.358	1.035	0.092	0.266	0.358
Fugitive Fluoride – Jul'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	04-07-2025	0.466	1.348	0.100	0.289	0.389
Room 2	08-07-2025	0.447	1.260	0.099	0.279	0.378
Room 3	03-07-2025	0.474	1.456	0.096	0.294	0.390
Room 4	02-07-2025	0.428	1.164	0.098	0.266	0.364
Room 5	23-07-2025	0.332	1.015	0.089	0.274	0.363
Room 6	13-07-2025	0.399	1.154	0.099	0.285	0.385
Room 7	12-07-2025	0.417	1.073	0.109	0.280	0.389
Room 8	18-07-2025	0.360	1.103	0.090	0.274	0.364
Room 9	22-07-2025	0.397	1.083	0.102	0.279	0.381
Room 10	15-07-2025	0.407	1.045	0.109	0.289	0.390
Room 11	24-07-2025	0.370	1.083	0.095	0.279	0.374
Room 12	11-07-2025	0.361	0.973	0.096	0.257	0.353

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15345** *Date: 09.10.2025*

Fugitive Fluoride in Pot rooms: Continued

Fugitive Fluoride – Aug'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	07-08-2025	0.472	1.432	0.096	0.292	0.388
Room 2	03-08-2025	0.535	1.329	0.113	0.281	0.394
Room 3	05-08-2025	0.509	1.288	0.109	0.275	0.384
Room 4	02-08-2025	0.535	1.239	0.116	0.270	0.386
Room 5	17-08-2025	0.404	1.013	0.108	0.271	0.379
Room 6	02-08-2025	0.455	1.026	0.121	0.274	0.395
Room 7	14-08-2025	0.418	1.068	0.109	0.279	0.388
Room 8	17-08-2025	0.431	1.005	0.116	0.270	0.386
Room 9	06-08-2025	0.458	1.116	0.114	0.278	0.392
Room 10	02-08-2025	0.430	1.135	0.103	0.271	0.374
Room 11	20-08-2025	0.452	1.132	0.110	0.275	0.385
Room 12	14-08-2025	0.439	1.079	0.109	0.268	0.377
Fugitive Fluoride – Sep'25						
Potroom	Sampling date	Fugitive Fluoride (mg/Nm^3)		Total Fluoride (Kg/Mt)		Total Fugitive Fluoride (Kg/Mt)
		Particulate Fluoride	Gaseous Fluoride	Particulate Fluoride	Gaseous Fluoride	
Limit		**1.85**				**0.40**
Room 1	04-09-2025	0.527	1.248	0.115	0.272	0.387
Room 2	06-09-2025	0.689	1.169	0.146	0.247	0.393
Room 3	02-09-2025	0.521	1.131	0.119	0.259	0.378
Room 4	07-09-2025	0.550	1.129	0.127	0.261	0.388
Room 5	16-09-2025	0.440	0.951	0.122	0.264	0.386
Room 6	09-09-2025	0.521	1.097	0.126	0.265	0.391
Room 7	13-09-2025	0.399	0.973	0.108	0.263	0.371
Room 8	13-09-2025	0.454	0.979	0.119	0.257	0.376
Room 9	12-09-2025	0.507	1.069	0.125	0.264	0.389
Room 10	12-09-2025	0.433	1.084	0.110	0.275	0.385
Room 11	11-09-2025	0.490	1.048	0.122	0.261	0.383
Room 12	11-09-2025	0.446	0.989	0.118	0.262	0.380

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15346** ***Date: 09.10.2025***

3. Forage Fluoride

Sl. No.	Location	Forage Fluoride (ppm)					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1.	Gudigaon	19.0	19.8	19.5	19.8	19.5	19.9
2.	Kurebaga	19.6	20.2	20.1	20.2	21.0	21.3
3.	Siriapali	20.5	20.6	20.8	20.1	20.5	20.8
4.	Katapali	19.2	21.0	20.9	20.2	20.8	20.2
5.	Katikela	20.9	20.4	20.8	19.9	19.5	20.1
6.	Burkhamunda	20.4	19.2	19.8	19.5	20.0	19.6
7.	R&R Colony	19.6	20.5	21.0	21.3	21.6	21.1
8.	Tumbakela	18.9	21.2	21.1	20.6	20.8	20.2
9.	Brundamal	21.3	19.5	19.6	19.2	19.6	18.9
10.	Sripura	19.1	20.8	20.4	20.2	20.5	20.2
11.	Ghichimura	18.8	19.6	19.9	19.5	19.9	19.4
12.	Lapanga	19.1	20.4	20.7	20.3	20.5	20.3
Average		**19.7**	**20.3**	**20.4**	**20.1**	**20.4**	**20.2**

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15347** ***Date: 09.10.2025***

4. Ambient Air Quality:

i. PM 10 size <10 (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		**100**					
1	Near Carbon Plant, Smelter-1	61.8	62.5	62.3	59.4	59.5	59.0
2	Near Rectifier of Expansion Pot Room	60.8	61.7	61.1	59.5	59.6	58.7
3	Near R & R colony	55.8	54.8	54.1	52.3	53.4	50.9
4	Near China Gate Weigh Bridge	61.7	61.5	60.9	60.0	59.9	59.2
5	Near Cooling Tower IPP	61.7	60.8	61.2	59.1	61.1	60.2
6	Near ETP, Smelter-1	57.8	57.3	57.5	55.3	58.6	57.6
7	Near Cast House, Smelter-1	63.6	60.7	62.0	59.8	60.8	58.7
8	Near Pot Room, Smelter-1	61.6	61.5	61.4	58.5	60.1	59.4
9	Near Coal Yard of CPP	60.7	61.8	62.9	61.2	61.8	61.6
10	Near Cooling Tower of CPP	60.2	60.1	61.0	59.5	61.5	60.4
11	Kurebaga Ash Pond	63.2	63.8	63.8	59.8	60.6	60.3
12	Siriapali Ash Pond	63.0	63.8	65.2	60.3	60.2	60.4
13	Katikela Ash Pond	62.3	63.0	63.1	60.1	60.7	60.3

ii. PM 2.5 size < 2.5 (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		**60**					
1	Near Carbon Plant, Smelter-1	31.3	31.5	32.6	30.0	29.9	29.7
2	Near Rectifier of Expansion Pot Room	30.9	31.1	30.8	30.0	30.1	29.6
3	Near R & R colony	28.3	27.6	27.4	26.3	27.0	25.7
4	Near China Gate Weigh Bridge	31.3	30.9	30.6	30.2	30.3	29.8
5	Near Cooling Tower IPP	31.2	30.8	30.2	29.9	31.0	30.4
6	Near ETP, Smelter-1	29.2	28.6	28.9	28.0	29.6	29.1
7	Near Cast House, Smelter-1	32.2	30.7	31.4	30.2	30.8	29.6
8	Near Pot Room, Smelter-1	31.2	31.1	30.9	29.5	30.3	30.1
9	Near Coal Yard of CPP	30.7	31.2	31.7	30.8	31.2	31.1
10	Near Cooling Tower of CPP	30.6	30.3	30.7	30.0	31.0	30.4
11	Kurebaga Ash Pond	31.9	32.4	32.2	30.2	30.5	30.4
12	Siriapali Ash Pond	31.9	32.3	32.9	30.4	30.4	30.0
13	Katikela Ash Pond	31.8	31.9	31.6	30.2	30.7	30.3

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15348** ***Date: 09.10.2025***

Ambient Air Quality: Continued.

iii. SO_2 (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		**80**					
1	Near Carbon Plant, Smelter-1	21.4	20.9	20.0	19.3	20.2	19.9
2	Near Rectifier of Expansion Pot Room	23.0	23.8	23.3	22.3	23.2	22.9
3	Near R & R colony	22.5	22.5	22.0	20.7	21.5	20.2
4	Near China Gate Weigh Bridge	23.5	23.7	23.3	21.9	22.2	21.8
5	Near Cooling Tower IPP	17.5	17.6	18.4	16.9	18.2	18.2
6	Near ETP, Smelter-1	24.3	24.2	24.4	22.9	22.8	21.7
7	Near Cast House, Smelter-1	21.4	21.5	21.7	19.7	20.7	21.0
8	Near Pot Room, Smelter-1	24.9	25.3	25.2	23.8	24.2	23.1
9	Near Coal Yard of CPP	28.8	28.4	28.6	25.5	26.9	26.0
10	Near Cooling Tower of CPP	24.1	24.3	24.1	23.4	23.9	23.4
11	Kurebaga Ash Pond	22.6	23.8	23.9	21.4	23.7	22.8
12	Siriapali Ash Pond	22.8	23.0	23.5	20.7	22.0	21.7
13	Katikela Ash Pond	23.6	24.0	24.2	22.1	23.0	22.1

v. NO_2 (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		**80**					
1	Near Carbon Plant, Smelter-1	30.3	30.3	28.7	27.7	27.9	26.3
2	Near Rectifier of Expansion Pot Room	31.5	31.6	31.1	29.3	29.8	28.3
3	Near R & R colony	27.2	27.4	26.8	24.8	25.1	24.5
4	Near China Gate Weigh Bridge	30.2	30.0	29.9	28.3	28.7	28.1
5	Near Cooling Tower IPP	24.8	24.3	24.2	22.1	24.3	23.2
6	Near ETP, Smelter-1	32.6	32.7	33.4	29.4	29.1	27.3
7	Near Cast House, Smelter-1	33.3	33.0	33.4	28.2	29.1	29.8
8	Near Pot Room, Smelter-1	29.1	29.9	30.1	27.8	29.3	27.1
9	Near Coal Yard of CPP	32.0	31.9	31.6	27.4	29.6	29.4
10	Near Cooling Tower of CPP	26.8	27.1	27.6	26.0	27.1	26.6
11	Kurebaga Ash Pond	28.0	27.6	28.1	24.6	25.6	25.1
12	Siriapali Ash Pond	30.3	30.9	30.8	24.3	26.2	25.3
13	Katikela Ash Pond	27.8	29.2	30.0	27.1	26.3	25.5

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15349** ***Date: 09.10.2025***

Ambient Air Quality: Continued.

vi. CO (mg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (8 Hours)		**2.0**					
1	Near Carbon Plant, Smelter-1	0.55	0.57	0.58	0.56	0.58	0.58
2	Near Rectifier of Expansion Pot Room	0.58	0.57	0.55	0.53	0.56	0.54
3	Near R & R colony	0.49	0.49	0.51	0.48	0.53	0.51
4	Near China Gate Weigh Bridge	0.59	0.58	0.59	0.55	0.59	0.57
5	Near Cooling Tower IPP	0.59	0.60	0.61	0.57	0.59	0.56
6	Near ETP, Smelter-1	0.61	0.58	0.63	0.59	0.60	0.58
7	Near Cast House, Smelter-1	0.62	0.60	0.61	0.56	0.59	0.58
8	Near Pot Room, Smelter-1	0.56	0.58	0.59	0.58	0.60	0.57
9	Near Coal Yard of CPP	0.59	0.61	0.61	0.57	0.59	0.58
10	Near Cooling Tower of CPP	0.56	0.57	0.60	0.56	0.60	0.58
11	Kurebaga Ash Pond	0.69	0.69	0.65	0.56	0.60	0.59
12	Siriapali Ash Pond	0.68	0.67	0.69	0.60	0.60	0.61
13	Katikela Ash Pond	0.68	0.68	0.67	0.60	0.59	0.58

vii. Pb (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		1.0					
1	Near Carbon Plant, Smelter-1	0.15	0.15	0.13	0.12	0.13	0.13
2	Near Rectifier of Expansion Pot Room	0.17	0.13	0.14	0.14	0.14	0.13
3	Near R & R colony	BDL	BDL	BDL	BDL	BDL	BDL
4	Near China Gate Weigh Bridge	0.17	0.16	0.15	0.13	0.14	0.13
5	Near Cooling Tower IPP	0.16	0.15	0.14	0.12	0.13	0.12
6	Near ETP, Smelter-1	0.15	0.16	0.17	0.13	0.14	0.13
7	Near Cast House, Smelter-1	0.16	0.15	0.16	0.13	0.14	0.13
8	Near Pot Room, Smelter-1	0.15	0.15	0.17	0.14	0.15	0.16
9	Near Coal Yard of CPP	0.17	0.17	0.13	0.12	0.14	0.13
10	Near Cooling Tower of CPP	BDL	BDL	BDL	BDL	BDL	BDL
11	Kurebaga Ash Pond	0.15	0.16	0.13	0.12	0.13	0.14
12	Siriapali Ash Pond	0.17	0.17	0.15	0.13	0.15	0.13
13	Katikela Ash Pond	0.16	0.16	0.14	0.13	0.14	0.14

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15350** ***Date: 09.10.2025***

Ambient Air Quality: Continued.

vii. As (ng/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		06					
1	Near Carbon Plant, Smelter-1	BDL	BDL	BDL	BDL	BDL	BDL
2	Near Rectifier of Expansion Pot Room	BDL	BDL	BDL	BDL	BDL	BDL
3	Near R & R colony	BDL	BDL	BDL	BDL	BDL	BDL
4	Near China Gate Weigh Bridge	BDL	BDL	BDL	BDL	BDL	BDL
5	Near Cooling Tower IPP	BDL	BDL	BDL	BDL	BDL	BDL
6	Near ETP, Smelter-1	BDL	BDL	BDL	BDL	BDL	BDL
7	Near Cast House, Smelter-1	BDL	BDL	BDL	BDL	BDL	BDL
8	Near Pot Room, Smelter-1	BDL	BDL	BDL	BDL	BDL	BDL
9	Near Coal Yard of CPP	BDL	BDL	BDL	BDL	BDL	BDL
10	Near Cooling Tower of CPP	BDL	BDL	BDL	BDL	BDL	BDL
11	Kurebaga Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
12	Siriapali Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
13	Katikela Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL

viii. Ni (ng/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		20					
1	Near Carbon Plant, Smelter-1	0.15	0.15	0.11	0.11	0.12	0.13
2	Near Rectifier of Expansion Pot Room	0.15	0.14	0.13	0.13	0.14	0.14
3	Near R & R colony	BDL	BDL	BDL	BDL	BDL	BDL
4	Near China Gate Weigh Bridge	0.15	0.16	0.15	0.13	0.14	0.13
5	Near Cooling Tower IPP	0.15	0.14	0.12	0.13	0.14	0.12
6	Near ETP, Smelter-1	0.15	0.16	0.17	0.13	0.14	0.13
7	Near Cast House, Smelter-1	0.14	0.12	0.14	0.13	0.14	0.15
8	Near Pot Room, Smelter-1	0.16	0.15	0.16	0.14	0.15	0.13
9	Near Coal Yard of CPP	0.17	0.13	0.14	0.13	0.14	0.13
10	Near Cooling Tower of CPP	0.16	0.17	0.16	0.14	0.15	0.14
11	Kurebaga Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
12	Siriapali Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
13	Katikela Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15351** ***Date: 09.10.2025***

Ambient Air Quality: Continued.

ix. BaP (ng/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		01					
1	Near Carbon Plant, Smelter-1	0.15	0.14	0.12	0.13	0.13	0.12
2	Near Rectifier of Expansion Pot Room	0.15	0.15	0.14	0.14	0.13	0.12
3	Near R & R colony	BDL	BDL	BDL	BDL	BDL	BDL
4	Near China Gate Weigh Bridge	0.15	0.16	0.15	0.12	0.14	0.12
5	Near Cooling Tower IPP	0.15	0.14	0.16	0.12	0.13	0.12
6	Near ETP, Smelter-1	BDL	BDL	BDL	BDL	BDL	BDL
7	Near Cast House, Smelter-1	0.14	0.12	0.14	0.12	0.14	0.15
8	Near Pot Room, Smelter-1	0.15	0.16	0.15	0.13	0.14	0.13
9	Near Coal Yard of CPP	0.16	0.14	0.16	0.14	0.15	0.14
10	Near Cooling Tower of CPP	BDL	BDL	BDL	BDL	BDL	BDL
11	Kurebaga Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
12	Siriapali Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
13	Katikela Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL

x. Benzene (µg/m^3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		05					
1	Near Carbon Plant, Smelter-1	0.15	0.17	0.14	0.13	0.13	0.16
2	Near Rectifier of Expansion Pot Room	0.15	0.14	0.16	0.16	0.15	0.13
3	Near R & R colony	BDL	BDL	BDL	BDL	BDL	BDL
4	Near China Gate Weigh Bridge	0.16	0.14	0.15	0.12	0.14	0.13
5	Near Cooling Tower IPP	0.15	0.13	0.14	0.12	0.14	0.12
6	Near ETP, Smelter-1	0.14	0.13	0.15	0.14	0.16	0.13
7	Near Cast House, Smelter-1	0.12	0.14	0.13	0.13	0.14	0.14
8	Near Pot Room, Smelter-1	0.14	0.15	0.14	0.13	0.15	0.13
9	Near Coal Yard of CPP	0.14	0.14	0.15	0.12	0.14	0.13
10	Near Cooling Tower of CPP	0.15	0.16	0.15	0.13	0.14	0.14
11	Kurebaga Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
12	Siriapali Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL
13	Katikela Ash Pond	BDL	BDL	BDL	BDL	BDL	BDL

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15352** ***Date: 09.10.2025***

Ambient Air Quality: Continued.

xi. NH3 (µg/m3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (24 Hours)		400					
1	Near Carbon Plant, Smelter-1	23.9	23.2	23.7	23.1	22.9	22.2
2	Near Rectifier of Expansion Pot Room	23.9	23.6	22.9	21.5	21.9	21.4
3	Near R & R colony	21.5	21.4	21.1	21.0	21.1	20.8
4	Near China Gate Weigh Bridge	23.7	23.3	23.2	21.9	22.0	21.3
5	Near Cooling Tower IPP	21.1	21.2	21.2	20.7	21.3	21.0
6	Near ETP, Smelter-1	28.4	28.0	27.4	24.6	24.5	23.4
7	Near Cast House, Smelter-1	24.1	24.7	24.4	23.2	23.2	22.6
8	Near Pot Room, Smelter-1	23.6	23.8	23.6	22.2	22.4	21.9
9	Near Coal Yard of CPP	24.4	24.9	24.4	23.7	24.3	24.1
10	Near Cooling Tower of CPP	22.3	22.0	22.0	21.1	21.5	21.2
11	Kurebaga Ash Pond	21.7	20.7	21.2	20.7	21.5	20.9
12	Siriapali Ash Pond	23.2	23.6	23.2	20.7	20.9	20.9
13	Katikela Ash Pond	24.2	23.9	23.8	21.7	21.1	21.4

xii. Ozone (µg/m3)

Sl. No.	Sampling Location	Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit (8 Hours)		100					
1	Near Carbon Plant, Smelter-1	6.7	6.6	6.8	6.5	6.4	6.3
2	Near Rectifier of Expansion Pot Room	6.5	6.9	6.6	6.3	6.4	6.2
3	Near R & R colony	6.6	6.5	6.5	6.3	6.5	6.3
4	Near China Gate Weigh Bridge	7.0	7.0	6.9	6.5	6.7	6.5
5	Near Cooling Tower IPP	6.9	7.1	7.2	6.8	7.0	6.6
6	Near ETP, Smelter-1	6.2	6.3	6.1	5.8	6.0	5.9
7	Near Cast House, Smelter-1	6.7	6.6	6.6	6.3	6.3	6.2
8	Near Pot Room, Smelter-1	6.9	7.0	6.9	6.7	6.9	6.6
9	Near Coal Yard of CPP	6.7	6.8	6.8	6.4	6.5	6.3
10	Near Cooling Tower of CPP	7.0	6.5	7.1	6.8	7.0	6.9
11	Kurebaga Ash Pond	6.8	7.0	6.9	6.6	6.7	6.4
12	Siriapali Ash Pond	6.8	6.6	6.8	6.2	6.4	6.3
13	Katikela Ash Pond	6.6	6.7	6.9	6.3	6.2	6.1

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15353** ***Date: 09.10.2025***

5. Noise:

i. Day Time (6.00 a.m. to 10.00 p.m.)

Sl. No.	Sampling Location	Day Time (6.00 a.m. to 10.00 p.m.) Noise Level in dB (A)					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit		**55**					
1	In R & R colony	52.3	53.0	54.1	54.4	53.5	53.9
Limit		**75**					
2	Near Boiler of IPP	74.4	74.1	74.4	74.2	74.3	74.0
3	In Green Anode Plant	73.0	72.8	72.5	73.1	72.5	72.9
4	In Cast house - Smelter 1	72.2	72.0	71.9	72.2	73.0	73.6
5	Near Boiler of CPP	73.8	73.5	73.8	73.0	73.9	74.2
6	In Pot Room - Smelter 1	70.1	70.6	71.6	70.8	71.6	72.1

ii. Night Time (10.00 p.m. to 6.00 a.m.)

Sl. No.	Sampling Location	Night Time (10.00 p.m. to 6.00 a.m.) Noise Level in dB (A)					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
Limit		**45**					
1	In R & R colony	44.2	44.5	44.0	44.1	43.6	43.9
Limit		**70**					
2	Near Boiler of IPP	68.8	68.9	69.2	69.6	68.2	67.9
3	In Green Anode Plant	67.1	66.5	65.4	67.2	66.9	67.5
4	In Cast house - Smelter 1	66.9	67.3	66.9	66.5	67.4	66.8
5	Near Boiler of CPP	68.9	69.1	69.5	68.3	68.9	69.1
6	In Pot Room - Smelter 1	69.5	69.2	68.9	67.8	67.0	67.7

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15354** ***Date: 09.10.2025***

6. Water:

a) Smelter-1 ETP Outlet:

Location of sample: Smelter ETP outlet - E1 (recycled as process make up water)									
Sl. No.	**Parameters**	**Unit**	**Limit**	**E1**					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	pH	-	6.5-9.0	7.19	7.21	7.23	7.20	7.25	7.22
2	Total Suspended Solids	mg/l	100	36	31	30	32	35	36
3	Total Dissolved Solids	mg/l	2100	138	140	151	147	145	141
4	BOD (5 days at 20°C)	mg/l	30	11.5	12.0	12.8	12.0	12.5	12.2
5	COD	mg/l	250	48	45	48	45	50	48
6	Fluoride	mg/l	1.5	0.62	0.66	0.70	0.75	0.72	0.75
7	Oil and Grease	mg/l	10	ND	ND	ND	ND	ND	ND
8	Hexavalent chromium as Cr+6	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Chromium	mg/l	2	0.038	0.039	0.041	0.045	0.044	0.045
10	Cyanide	mg/l	0.2	ND	ND	ND	ND	ND	ND
11	Free ammonia	mg/l	5	BDL	BDL	BDL	BDL	BDL	BDL
12	Total Nitrogen	mg/l	100	6.9	7.2	7.0	7.5	7.8	7.5

b) Smelter-2 ETP Outlet:

Location of sample: Smelter ETP outlet - E2 (recycled as process make up water)									
Sl. No.	**Parameters**	**Unit**	**Limit**	**E2**					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	pH	-	6.5-9.0	7.26	7.24	7.22	7.20	7.24	7.28
2	Total Suspended Solids	mg/l	100	40	36	38	33	35	33
3	Total Dissolved Solids	mg/l	2100	286	279	285	290	288	291
4	BOD (5 days at 20°C)	mg/l	30	12.5	12.2	12.8	12.5	12.2	12.5
5	COD	mg/l	250	41	44	45	42	40	42
6	Fluoride	mg/l	1.5	0.88	0.86	0.81	0.86	0.89	0.91
7	Oil and Grease	mg/l	10	ND	ND	ND	ND	ND	ND
8	Hexavalent chromium as Cr+6	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
9	Total Chromium	mg/l	2	0.044	0.045	0.048	0.045	0.042	0.040
10	Cyanide	mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL
11	Free ammonia	mg/l	5	ND	ND	ND	ND	ND	ND
12	Total Nitrogen	mg/l	100	6.6	6.8	6.6	6.9	6.8	6.5

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15355** ***Date: 09.10.2025***

c) CPP ETP Outlet:

Location of sample: CPP ETP outlet - E3									
Sl. No.	**Parameters**	**Unit**	**Limit**	**E3**					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	pH	-	6.5-9.0	7.25	7.21	7.23	7.20	7.22	7.20
2	Suspended Solids	mg/l	100	38	33	31	32	30	31
3	Total Dissolved Solids	mg/l	2100*	236	242	240	245	241	239
4	Oil and Grease	mg/l	10	ND	ND	ND	ND	ND	ND
5	Phosphate	mg/l	5.0	BDL	BDL	BDL	BDL	BDL	BDL
6	Chromium	mg/l	2.0	BDL	BDL	BDL	BDL	BDL	BDL
7	Copper	mg/l	3.0	BDL	BDL	BDL	BDL	BDL	BDL
8	Zinc	mg/l	5.0	0.15	0.16	0.18	0.17	0.15	0.16

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15356** ***Date: 09.10.2025***

d) Surface Water:

Sampling location: SW1- Upstream of Bheden River

Sl.No.	Parameter	Unit	SW1					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	10	10	10	15	15	10
2	pH	--	7.46	7.43	7.38	7.33	7.30	7.28
3	DO	mg/l	4.2	4.3	4.2	5.1	4.8	4.9
4	Chloride	mg/l	32.5	30	22.5	28	30	25
5	Total Dissolved solids	mg/l	198	204	210	220	218	209
6	Suspended solids	mg/l	55	58	60	69	65	62
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	1.8	1.9	2.0	1.8	1.6	1.5
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.019	0.021	0.023	0.027	0.029	0.027
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.02	0.022	0.020	0.023	0.022	0.020
14	Zinc as Zn	mg/l	0.18	0.16	0.18	0.21	0.23	0.20
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.36	0.34	0.36	0.39	0.32	0.29
18	Sulphate as (SO4)	mg/l	10.9	11.4	12.0	11.4	12.2	11.9
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.38	0.36	0.33	0.37	0.39	0.36
21	Nitrate as NO_3	mg/l	1.18	1.22	1.28	1.33	1.30	1.28
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	110	120	110	140	120	110

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15357** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW2- Downstream of Bheden River

Sl.No.	Parameter	Unit	SW2					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	15	15	15	20	25	20
2	pH	--	7.60	7.58	7.50	7.47	7.44	7.45
3	DO	mg/l	4.5	4.4	4.3	5.0	5.5	5.6
4	Chloride	mg/l	25	22.5	25	30.0	27	22.5
5	Total Dissolved solids	mg/l	213	215	218	230	225	221
6	Suspended solids	mg/l	63	60	64	68	66	60
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	1.9	2.0	2.1	1.6	1.5	1.4
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.02	0.023	0.022	0.025	0.026	0.025
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.016	0.018	0.016	0.020	0.018	0.015
14	Zinc as Zn	mg/l	0.15	0.18	0.2	0.23	0.22	0.21
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.32	0.35	0.32	0.35	0.30	0.28
18	Sulphate as (SO4)	mg/l	11.5	11.8	11.5	12.5	12	12.5
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.4	0.42	0.40	0.39	0.42	0.40
21	Nitrate as NO_3	mg/l	1.35	1.31	1.33	1.40	1.35	1.31
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	140	150	140	150	140	120

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15358** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW3- Upstream of Kharkhari Nallah

Sl.No.	Parameter	Unit	SW3					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	10	10	10	15	20	15
2	pH	--	6.98	6.96	6.95	6.9	6.85	6.87
3	DO	mg/l	4.8	4.7	4.6	5.3	5.0	5.1
4	Chloride	mg/l	35	33	30	40	35	30
5	Total Dissolved solids	mg/l	189	196	201	215	210	200
6	Suspended solids	mg/l	54	52	55	60	64	61
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	2.2	2.3	2.4	1.9	1.7	1.6
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.017	0.018	0.016	0.022	0.02	0.021
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.018	0.017	0.019	0.022	0.02	0.018
14	Zinc as Zn	mg/l	0.16	0.15	0.14	0.18	0.2	0.18
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.39	0.38	0.4	0.43	0.36	0.33
18	Sulphate as (SO4)	mg/l	15.6	16.4	17.3	18.6	17.0	16.4
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.33	0.35	0.38	0.35	0.36	0.35
21	Nitrate as NO_3	mg/l	1.8	1.77	1.82	1.91	1.88	1.80
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	150	170	180	210	150	140

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15359** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW4- Downstream of Kharkhari Nalla

Sl.No.	Parameter	Unit	SW4					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	15	15	15	20	25	20
2	pH	--	7.13	7.10	7.13	7.00	6.97	6.95
3	DO	mg/l	4.6	4.5	4.4	5.5	5.4	5.5
4	Chloride	mg/l	40	43	40	45	40	37.0
5	Total Dissolved solids	mg/l	194	190	193	220	215	206
6	Suspended solids	mg/l	65	66	69	74	70	65
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	2.1	2.2	2.3	2.0	1.8	1.7
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.014	0.016	0.019	0.024	0.022	0.020
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.018	0.019	0.021	0.026	0.024	0.022
14	Zinc as Zn	mg/l	0.18	0.17	0.18	0.19	0.22	0.21
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.4	0.41	0.43	0.50	0.41	0.38
18	Sulphate as (SO4)	mg/l	16.4	16.8	17.5	19.4	18.0	17.8
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.36	0.37	0.36	0.40	0.38	0.33
21	Nitrate as NO_3	mg/l	1.92	1.98	2.08	2.01	2.10	2.00
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	200	210	210	220	200	200

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15360** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW5- Upstream Hirakud Reservoir

Sl.No.	Parameter	Unit	SW5					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	5	5	10	15	5
2	pH	--	7.12	7.14	7.10	7	7.1	7.13
3	DO	mg/l	4.4	4.3	4.2	5.2	5.5	5.6
4	Chloride	mg/l	25	20.0	25	30	27	25
5	Total Dissolved solids	mg/l	200	208	210	215	205	198
6	Suspended solids	mg/l	62	65	66	75	72	70
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	2	2.1	2.2	1.6	1.5	1.4
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.017	0.018	0.016	0.020	0.018	0.016
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.016	0.015	0.018	0.021	0.019	0.015
14	Zinc as Zn	mg/l	0.16	0.18	0.16	0.20	0.18	0.16
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.34	0.36	0.39	0.41	0.4	0.36
18	Sulphate as (SO4)	mg/l	13.2	13.0	13.8	15	14.0	13.5
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.38	0.40	0.42	0.36	0.39	0.36
21	Nitrate as NO_3	mg/l	1.85	1.81	1.86	1.90	1.80	1.76
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	170	150	170	180	210	170

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15361** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW6- Downstream of Hirakud Reservoir

Sl.No.	Parameter	Unit	SW6					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	15	15	15	20	20	10
2	pH	--	7.62	7.65	7.62	7.49	7.40	7.39
3	DO	mg/l	4.6	4.5	4.4	5.4	5.2	5.3
4	Chloride	mg/l	25.0	28.0	23	30	25	20
5	Total Dissolved solids	mg/l	209	212	215	225	220	218
6	Suspended solids	mg/l	58	59	58	63	65	62
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	1.8	1.9	2.0	1.8	1.6	1.5
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.019	0.022	0.025	0.022	0.02	0.018
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.014	0.013	0.016	0.020	0.018	0.016
14	Zinc as Zn	mg/l	0.15	0.16	0.15	0.19	0.2	0.21
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.29	0.30	0.31	0.38	0.35	0.32
18	Sulphate as (SO4)	mg/l	14.4	14.9	15.6	16.4	16.2	15.8
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.39	0.41	0.40	0.39	0.42	0.41
21	Nitrate as NO_3	mg/l	1.68	1.77	1.82	1.96	1.90	1.84
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	165	170	180	210	220	180

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15362** ***Date: 09.10.2025***

Surface Water: Continued.

Sampling location: SW7- Confluence point near Kherual bridge

Sl.No.	Parameter	Unit	SW7					
			Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	15	15	15	20	25	15
2	pH	--	7.18	7.20	7.15	7.10	7.0	7.1
3	DO	mg/l	4.6	4.4	4.3	5.0	5.5	5.6
4	Chloride	mg/l	30	35	30	35	38	35
5	Total Dissolved solids	mg/l	182	185	190	220	215	211
6	Suspended solids	mg/l	70	72	70	80	75	71
7	Oil & Grease	mg/l	ND	ND	ND	ND	ND	ND
8	BOD (5) days at 20^0 C	mg/l	1.6	1.7	1.8	1.5	1.4	1.3
9	Arsenic as As	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
10	Lead as Pb	mg/l	0.023	0.025	0.024	0.028	0.029	0.022
11	Cadmium as Cd	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
12	Hexachromium as Cr^{+6}	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
13	Copper as Cu	mg/l	0.022	0.021	0.022	0.026	0.024	0.020
14	Zinc as Zn	mg/l	0.20	0.21	0.23	0.26	0.25	0.22
15	Selenium as Se	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
16	Cyanide as CN	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
17	Fluoride as F	mg/l	0.30	0.33	0.35	0.32	0.34	0.31
18	Sulphate as (SO4)	mg/l	16.3	16.6	16.5	17.2	16.9	16.1
19	Phenolic compounds as C_6H_5OH	mg/l	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	0.42	0.40	0.43	0.38	0.40	0.36
21	Nitrate as NO_3	mg/l	1.88	1.89	1.93	2.20	2.00	1.95
22	Anionic Detergents	mg/l	ND	ND	ND	ND	ND	ND
23	Total Coliform	MPN/100ml	200	220	210	220	180	200

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15363** ***Date: 09.10.2025***

e) Ground Water - Village Area:

Sl. No	Parameter	Unit	Standard as per IS: 10500	GW1		GW2	
				Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.08	7.00	7.15	7.11
6	Total Hardness (as $CaCO_3$)	mg/l	200	135	144	108	112
7	Iron (as Fe)	mg/l	1	0.39	0.41	0.41	0.44
8	Chloride (as Cl)	mg/l	250	45	40	42.5	45.0
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	293	308	241	256
11	Calcium (as Ca)	mg/l	75	36.2	37.5	38.4	39.1
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	17.8	18.3	14.5	14
15	Nitrate (as NO_3)	mg/l	45	1.11	1.2	1.22	1.28
16	Fluoride (as F)	mg/l	1	0.35	0.38	0.31	0.34
17	Phenolic compounds as C_6H_5OH	mg/l	0.001	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.38	0.40	0.39	0.42
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND
28	Alkalinity	mg/l	200	40	35	65	60
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL

Sampling Location: GW1 - Gudigaon Village GW2 - Kurebaga Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15364** ***Date: 09.10.2025***

Ground Water - Village Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS: 10500	GW3		GW4	
				Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.2	7.15	6.94	6.9
6	Total Hardness (as $CaCO_3$)	mg/l	200	123	130	136	145
7	Iron (as Fe)	mg/l	1	0.36	0.38	0.45	0.46
8	Chloride (as Cl)	mg/l	250	37.5	32.5	45.0	40.0
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	275	288	288	294
11	Calcium (as Ca)	mg/l	75	40.1	41.4	42.5	40.0
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	15.6	16.4	16.3	16.8
15	Nitrate (as NO_3)	mg/l	45	1.48	1.56	1.65	1.73
16	Fluoride (as F)	mg/l	1	0.25	0.29	0.36	0.38
17	Phenolic compounds as C_6H_5OH	mg/l	0.001	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.41	0.44	0.31	0.38
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55	50	50	45
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL

Sampling Location: GW3- Siriapali Village GW4- Katapali Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15365** ***Date: 09.10.2025***

Ground Water - Village Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS: 10500	GW5		GW6	
				Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.23	7.18	7.19	7.11
6	Total Hardness (as $CaCO_3$)	mg/l	200	141	150	81	96
7	Iron (as Fe)	mg/l	1	0.42	0.45	0.38	0.41
8	Chloride (as Cl)	mg/l	250	45	38	42.5	38
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	249	256	246	239
11	Calcium (as Ca)	mg/l	75	43.6	44.5	34.8	35.2
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	15.4	15.9	13.8	14.8
15	Nitrate (as NO_3)	mg/l	45	1.69	1.72	1.32	1.40
16	Fluoride (as F)	mg/l	1	0.30	0.35	0.33	0.37
17	Phenolic compounds as C_6H_5OH	mg/l	0.001	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.36	0.39	0.39	0.42
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	45	55	50
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL

Sampling Location: GW5- Katikela Village GW6- Bhurkamunda Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15366** ***Date: 09.10.2025***

Ground Water - Village Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS: 10500	GW7		GW8	
				Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7	6.96	7.22	7.18
6	Total Hardness (as $CaCO_3$)	mg/l	200	85	92	96	104
7	Iron (as Fe)	mg/l	1	0.36	0.35	0.41	0.44
8	Chloride (as Cl)	mg/l	250	50.0	45.0	48	43
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	196	210	244	253
11	Calcium (as Ca)	mg/l	75	29.6	30.8	30.5	31.6
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	14.4	15.0	16.7	17.5
15	Nitrate (as NO_3)	mg/l	45	1.60	1.65	1.58	1.53
16	Fluoride (as F)	mg/l	1	0.28	0.33	0.34	0.39
17	Phenolic compounds as C_6H_5OH	mg/l	0.001	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.45	0.48	0.40	0.44
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	40	60	55
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL

Sampling Location: GW7- R & R Colony Village GW8- Tumbakela Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15367** ***Date: 09.10.2025***

Ground Water – Village Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS: 10500	GW9		GW10	
				Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.28	7.20	7.3	7.22
6	Total Hardness (as $CaCO_3$)	mg/l	200	79	88	93	108
7	Iron (as Fe)	mg/l	1	0.36	0.39	0.30	0.35
8	Chloride (as Cl)	mg/l	250	55	50	45.0	37.5
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	259	268	271	285
11	Calcium (as Ca)	mg/l	75	32.8	33.4	34.1	34.9
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	16.2	16.8	18.1	19.2
15	Nitrate (as NO_3)	mg/l	45	1.39	1.44	1.45	1.51
16	Fluoride (as F)	mg/l	1	0.38	0.42	0.30	0.35
17	Phenolic compounds as C_6H_5OH	mg/l	0.001	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.43	0.49	0.40	0.45
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55	50	65	60
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL

Sampling Location: GW9- Brundamal Village GW10-Sripura Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15368** ***Date: 09.10.2025***

f) Ground Water - Secured Land Fill (SLF) Area:

Sl. No	Parameter	Unit	Standard as per IS:10500	GW1					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	6.76	6.78	6.71	6.68	6.72	6.7
6	Total Hardness (as $CaCO_3$)	mg/l	200	80	75	81	88	82	79
7	Iron (as Fe)	mg/l	1	0.36	0.38	0.40	0.35	0.36	0.33
8	Chloride (as Cl)	mg/l	250	25	23	20	25	22.5	26
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	236	244	253	260	250	241
11	Calcium (as Ca)	mg/l	75	23.9	24.1	24.8	26.9	25.3	24.9
12	Copper (as Cu)	mg/l	0.05	0.038	0.036	0.038	0.040	0.039	0.037
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	12.2	11.8	12.5	13.8	13.2	12.8
15	Nitrate (as NO_3)	mg/l	45	1.23	1.2	1.17	1.30	1.25	1.22
16	Fluoride (as F)	mg/l	1	0.40	0.43	0.40	0.38	0.41	0.38
17	Phenolic compounds (as C_6H_5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.30	0.33	0.35	0.38	0.34	0.32
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	45	40	45	50	55	50
29	Aluminium as Al	mg/l	0.03	0.026	0.028	0.027	0.022	0.024	0.022
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Location GW1 - Secured landfill Bore well (East)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15369** ***Date: 09.10.2025***

Ground Water - Secured Land Fill (SLF) Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS:10500	GW2					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	6.9	6.95	6.9	6.81	6.85	6.88
6	Total Hardness (as $CaCO_3$)	mg/l	200	93	88	93	100	95	92
7	Iron (as Fe)	mg/l	1	0.35	0.39	0.42	0.40	0.38	0.35
8	Chloride (as Cl)	mg/l	250	35	30	28	30	25	27.0
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	258	261	270	265	260	252
11	Calcium (as Ca)	mg/l	75	35.6	36	37.2	36.8	38.2	37.5
12	Copper (as Cu)	mg/l	0.05	0.039	0.041	0.045	0.041	0.038	0.035
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	15.6	16.3	15.8	16.6	14.6	14.0
15	Nitrate (as NO_3)	mg/l	45	1.30	1.25	1.30	1.35	1.46	1.36
16	Fluoride (as F)	mg/l	1	0.29	0.32	0.35	0.39	0.37	0.35
17	Phenolic compounds (as C_6H_5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.36	0.35	0.38	0.36	0.35	0.31
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	45	40	45	40	45
29	Aluminium as Al	mg/l	0.03	0.025	0.029	0.026	0.025	0.021	0.018
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Location: GW2 - Secured landfill Bore well (West)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15370** ***Date: 09.10.2025***

Ground Water - Secured Land Fill (SLF) Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS:10500	GW3					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.13	7.10	7.13	7.2	7.12	7.15
6	Total Hardness (as $CaCO_3$)	mg/l	200	95	90	95	105	100	98
7	Iron (as Fe)	mg/l	1	0.43	0.45	0.48	0.42	0.4	0.38
8	Chloride (as Cl)	mg/l	250	41	45	40	35	38	35
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	343	350	354	340	335	329
11	Calcium (as Ca)	mg/l	75	36.1	36.6	37.6	39.1	39.8	39.0
12	Copper (as Cu)	mg/l	0.05	0.040	0.044	0.046	0.043	0.048	0.042
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	16.8	17.5	18.6	18.1	18	17.1
15	Nitrate (as NO_3)	mg/l	45	1.38	1.42	1.45	1.42	1.4	1.42
16	Fluoride (as F)	mg/l	1	0.42	0.40	0.43	0.40	0.45	0.41
17	Phenolic compounds (as C_6H_5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.41	0.44	0.45	0.42	0.4	0.42
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55.0	55.0	50.0	55.0	50.0	55.0
29	Aluminium as Al	mg/l	0.03	0.029	0.028	0.029	0.028	0.025	0.024
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Location: GW3 - Secured landfill Bore well (North)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15371** ***Date: 09.10.2025***

Ground Water - Secured Land Fill (SLF) Area: Continued.

Sl. No	Parameter	Unit	Standard as per IS:10500	GW4					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.22	7.25	7.21	7.12	7.0	7.10
6	Total Hardness (as $CaCO_3$)	mg/l	200	81	86	89	96	90	92
7	Iron (as Fe)	mg/l	1	0.40	0.42	0.38	0.39	0.35	0.37
8	Chloride (as Cl)	mg/l	250	38	43	38	33	30	33
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	329	334	342	336	330	318
11	Calcium (as Ca)	mg/l	75	35.5	34.9	35.4	36.6	37.5	36.9
12	Copper (as Cu)	mg/l	0.05	0.036	0.038	0.039	0.042	0.037	0.035
13	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL
14	Sulphate as (SO_4)	mg/l	200	14.5	15.1	15.4	15.2	14.8	16.2
15	Nitrate (as NO_3)	mg/l	45	1.25	1.29	1.34	1.32	1.30	1.27
16	Fluoride (as F)	mg/l	1	0.36	0.38	0.36	0.37	0.39	0.36
17	Phenolic compounds (as C_6H_5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.38	0.36	0.33	0.39	0.36	0.35
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	50	55	50	45	40
29	Aluminium as Al	mg/l	0.03	0.027	0.025	0.026	0.024	0.022	0.021
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Location: GW4 - Secured landfill Bore well (South)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15372** ***Date: 09.10.2025***

g) Ground Water - Ash Pond Area : Kurebaga Ash Pond

Sl. No	Parameter	Unit	Standard as per IS:10500	GW1					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.12	7.05	7.11	7.04	7.00	7.12
6	Total Hardness (as $CaCO_3$)	mg/l	200	136	145	152	142	150	147
7	Iron (as Fe)	mg/l	1	0.36	0.35	0.33	0.38	0.37	0.35
8	Chloride (as Cl)	mg/l	250	35	35	30	33	36	35
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	318	326	334	327	330	322
11	Calcium (as Ca)	mg/l	75	36.1	35.7	36.2	36.8	36.4	35.9
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.045	0.042	0.044	0.045	0.041	0.042
14	Sulphate as (SO_4)	mg/l	200	15.2	14.8	15.6	16.2	15.9	16.4
15	Nitrate (as NO_3)	mg/l	45	3.1	2.9	3.2	3.4	3.0	2.8
16	Fluoride (as F)	mg/l	1	0.3	0.33	0.35	0.34	0.32	0.30
17	Phenolic compounds (as C_6H_5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.26	0.28	0.29	0.32	0.3	0.29
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	40	30	35	40	37	35
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Locations: Kurebaga Ash Pond GW1 - Bore well (East)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15373** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Kurebaga Ash Pond Continued.

Sl. No	Parameter	Unit	Standard as per IS:10500	GW2					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	6.98	6.96	6.98	6.9	6.84	6.93
6	Total Hardness (as $CaCO_3$)	mg/l	200	153	161	166	170	165	160
7	Iron (as Fe)	mg/l	1	0.32	0.30	0.34	0.39	0.35	0.32
8	Chloride (as Cl)	mg/l	250	45.0	46	43	40	37	33
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	324	330	328	335	325	319
11	Calcium (as Ca)	mg/l	75	29.7	30.4	31.2	30.9	31.4	30.8
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.048	0.041	0.045	0.048	0.044	0.045
14	Sulphate as (SO_4)	mg/l	200	16.3	16.6	17.3	17.8	16.9	17.3
15	Nitrate (as NO_3)	mg/l	45	2.8	2.6	2.8	2.9	2.5	2.4
16	Fluoride (as F)	mg/l	1	0.32	0.35	0.38	0.36	0.38	0.36
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.3	0.33	0.35	0.36	0.38	0.35
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	45	40	45	40	45
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Locations: Kurebaga Ash Pond GW2 - Bore well (West)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15374** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Kurebaga Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW3					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.23	7.28	7.34	7.28	7.21	7.22
6	Total Hardness (as $CaCO_3$)	mg/l	200	160	166	170	178	175	172
7	Iron (as Fe)	mg/l	1	0.4	0.42	0.4	0.43	0.4	0.38
8	Chloride (as Cl)	mg/l	250	50.0	50	48	45	40	43
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	345	341	350	361	355	348
11	Calcium (as Ca)	mg/l	75	38.8	38.9	39.6	40.3	39.0	37.8
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.05	0.045	0.049	0.051	0.047	0.046
14	Sulphate as (SO_4)	mg/l	200	21.2	20.9	21.8	20.5	20.6	20.1
15	Nitrate (as NO_3)	mg/l	45	3.40	3.1	3.4	3.6	3.5	3.3
16	Fluoride (as F)	mg/l	1	0.35	0.36	0.34	0.38	0.41	0.40
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.35	0.39	0.41	0.42	0.45	0.42
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55	50	55	50	45	50
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling location: Kurebaga Ash Pond GW3 - Bore well (North)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15375** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Kurebaga Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW4					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.14	7.10	7.15	7.11	7.0	7.1
6	Total Hardness (as $CaCO_3$)	mg/l	200	158	149	156	166	160	154
7	Iron (as Fe)	mg/l	1	0.31	0.36	0.35	0.38	0.37	0.36
8	Chloride (as Cl)	mg/l	250	45	45.0	40	42.5	45	40
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	323	325	336	324	320	309
11	Calcium (as Ca)	mg/l	75	37.2	36.8	37.2	37.8	37.0	36.2
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.043	0.046	0.050	0.049	0.045	0.042
14	Sulphate as (SO_4)	mg/l	200	19.6	18.8	19.6	19.9	20.3	18.8
15	Nitrate (as NO_3)	mg/l	45	3.20	3.0	3.2	3.5	3.4	3.2
16	Fluoride (as F)	mg/l	1	0.32	0.31	0.3	0.33	0.35	0.33
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.32	0.35	0.38	0.40	0.35	0.36
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55	45	40	45	40	45
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling location: Kurebaga Ash Pond GW4 - Bore well (South)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15376** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Katikela Ash Pond

Sl. No	Parameter	Unit	Standard as per IS:10500	GW1					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	6.88	6.91	6.88	6.80	6.72	6.66
6	Total Hardness (as $CaCO_3$)	mg/l	200	90	94	98	106	100	96
7	Iron (as Fe)	mg/l	1	0.36	0.38	0.35	0.39	0.36	0.33
8	Chloride (as Cl)	mg/l	250	45	43	40	45	40	38
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	288	295	300	311	290	281
11	Calcium (as Ca)	mg/l	75	36.6	35.8	36.2	37.9	37.5	36.9
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.045	0.048	0.045	0.044	0.042	0.040
14	Sulphate as (SO_4)	mg/l	200	13.6	14.2	14.8	15.1	14.5	13.9
15	Nitrate (as NO_3)	mg/l	45	1.40	1.38	1.43	1.52	1.46	1.41
16	Fluoride (as F)	mg/l	1	0.35	0.38	0.4	0.37	0.36	0.33
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.39	0.40	0.43	0.42	0.36	0.33
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL
28	Alkalinity	mg/l	200	45	40	35	30	35	30
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	0.034	0.036	0.039	0.034	0.032	0.033

Sampling Locations: Katikela Ash Pond GW1 - Bore well (East)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15377** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Katikela Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW2					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.2	7.15	7.1	7.0	6.9	6.94
6	Total Hardness (as $CaCO_3$)	mg/l	200	106	112	116	110	105	100
7	Iron (as Fe)	mg/l	1	0.38	0.41	0.43	0.40	0.35	0.32
8	Chloride (as Cl)	mg/l	250	48	47.5	43	47.5	42.5	40
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	323	315	319	324	310	302
11	Calcium (as Ca)	mg/l	75	40.9	40.8	41.3	40.6	42.4	41.8
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.039	0.035	0.039	0.041	0.038	0.035
14	Sulphate as (SO_4)	mg/l	200	15.9	16.1	15.9	16.8	15.6	15.0
15	Nitrate (as NO_3)	mg/l	45	1.69	1.72	1.8	1.88	1.75	1.72
16	Fluoride (as F)	mg/l	1	0.26	0.25	0.29	0.33	0.35	0.34
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.33	0.36	0.35	0.38	0.39	0.36
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL
28	Alkalinity	mg/l	200	40.0	45.0	40.0	45.0	40.0	45.0
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	0.031	0.033	0.03	0.035	0.032	0.029

Sampling Locations: Katikela Ash Pond GW2 - Bore well (West)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15378** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Katikela Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW3					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.11	7.22	7.19	7.11	7	7.1
6	Total Hardness (as $CaCO_3$)	mg/l	200	138	135	141	150	145	138
7	Iron (as Fe)	mg/l	1	0.4	0.42	0.45	0.48	0.46	0.4
8	Chloride (as Cl)	mg/l	250	50	50	53	55	45	43
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	335	328	336	345	330	319
11	Calcium (as Ca)	mg/l	75	43.8	42.5	42.8	43.5	42.5	44.2
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.048	0.05	0.053	0.056	0.055	0.052
14	Sulphate as (SO_4)	mg/l	200	17.2	17.8	18.6	18.2	17.5	16.8
15	Nitrate (as NO_3)	mg/l	45	1.80	1.85	1.91	1.9	1.8	1.75
16	Fluoride (as F)	mg/l	1	0.35	0.38	0.36	0.39	0.37	0.35
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.44	0.45	0.42	0.40	0.42	0.40
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL
28	Alkalinity	mg/l	200	55	56	55	60	50	55
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	0.035	0.038	0.04	0.042	0.040	0.038

Sampling location: Katikela Ash Pond GW3 - Bore well (North)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15379** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Katikela Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW4					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.18	7.16	7.15	7.08	7.00	6.98
6	Total Hardness (as $CaCO_3$)	mg/l	200	96	92	95	100	90	88
7	Iron (as Fe)	mg/l	1	0.35	0.39	0.38	0.44	0.40	0.38
8	Chloride (as Cl)	mg/l	250	45	37.5	35	40	37	35
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	298	290	296	308	300	297
11	Calcium (as Ca)	mg/l	75	42.5	41.9	42.6	40.0	42.0	41.6
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.04	0.044	0.046	0.042	0.040	0.041
14	Sulphate as (SO_4)	mg/l	200	16.8	17.3	17.8	18	16.9	16.0
15	Nitrate (as NO_3)	mg/l	45	1.63	1.66	1.72	1.68	1.70	1.67
16	Fluoride (as F)	mg/l	1	0.33	0.31	0.35	0.38	0.34	0.31
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.38	0.39	0.41	0.44	0.40	0.38
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL
28	Alkalinity	mg/l	200	50	54	50	55	45	40
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	0.029	0.026	0.029	0.032	0.030	0.025

Sampling location: Katikela Ash Pond GW4 - Bore well (South)

Reviewed by

Approved by

Ref: Envlab/25-26/TR-15380 ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Siriapali Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW1					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5	<5	<5	<5	<5	<5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.16	7.13	7.15	7.11	7.05	7.11
6	Total Hardness (as $CaCO_3$)	mg/l	200	132	140	148	142	145	138
7	Iron (as Fe)	mg/l	1	0.38	0.33	0.36	0.34	0.38	0.32
8	Chloride (as Cl)	mg/l	250	35	32.5	30	32.5	35	30
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	243	251	258	259	250	241
11	Calcium (as Ca)	mg/l	75	32.6	32.6	33.1	34.2	33.5	32.9
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.04	0.043	0.046	0.044	0.040	0.039
14	Sulphate as (SO_4)	mg/l	200	19.8	19.4	19.8	20.0	19	18.6
15	Nitrate (as NO_3)	mg/l	45	2.29	2.34	2.41	2.48	2.45	2.4
16	Fluoride (as F)	mg/l	1	0.28	0.3	0.33	0.32	0.3	0.31
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.26	0.29	0.32	0.28	0.32	0.30
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	40	35	30	35	30	35
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Locations: Siriapali Ash Pond GW1 - Bore well (East)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15381** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Siriapali Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW2					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5	<5	<5	<5	<5	<5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	6.98	6.95	6.91	6.88	6.80	6.86
6	Total Hardness (as $CaCO_3$)	mg/l	200	124	116	122	130	125	120
7	Iron (as Fe)	mg/l	1	0.26	0.25	0.28	0.33	0.30	0.29
8	Chloride (as Cl)	mg/l	250	37.5	30	32.5	37.5	40	35
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	212	220	231	224	238	227
11	Calcium (as Ca)	mg/l	75	28.1	28.1	28.8	29.6	30.1	30.5
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.045	0.048	0.05	0.043	0.039	0.036
14	Sulphate as (SO_4)	mg/l	200	23.6	24.2	23.6	22.9	23.6	22.4
15	Nitrate (as NO_3)	mg/l	45	2.45	2.44	2.49	2.55	2.66	2.59
16	Fluoride (as F)	mg/l	1	0.39	0.35	0.38	0.34	0.39	0.33
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.25	0.22	0.25	0.28	0.3	0.28
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	50	45	40	38	35	37
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Locations: Siriapali Ash Pond GW2 - Bore well (West)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15382** ***Date: 09.10.2025***

Ground Water - Ash Pond Area: Siriapali Ash Pond Continued

Sl. No	Parameter	Unit	Standard as per IS:10500	GW3					
				Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Hazen	5	<5	<5	<5	<5	<5	<5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity (NTU)	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	pH Value	-	6.5-8.5	7.2	7.24	7.28	7.25	7.21	7.24
6	Total Hardness (as $CaCO_3$)	mg/l	200	140	144	150	154	150	146
7	Iron (as Fe)	mg/l	1	0.36	0.32	0.37	0.39	0.4	0.38
8	Chloride (as Cl)	mg/l	250	42.5	40	37.5	40	45	40
9	Residual free Chlorine	mg/l	0.2	ND	ND	ND	ND	ND	ND
10	Dissolved solids	mg/l	500	250	256	266	278	270	263
11	Calcium (as Ca)	mg/l	75	37.2	37.2	36.9	37.5	35.5	34.8
12	Copper (as Cu)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
13	Manganese (as Mn)	mg/l	0.1	0.042	0.044	0.052	0.046	0.045	0.042
14	Sulphate as (SO_4)	mg/l	200	24.9	25.2	25.8	23.6	23.5	23.9
15	Nitrate (as NO_3)	mg/l	45	2.50	2.56	2.6	2.68	0.27	2.66
16	Fluoride (as F)	mg/l	1	0.40	0.42	0.4	0.38	0.4	0.36
17	Phenolic compounds (as C6H5OH)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
18	Anionic Detergent (as MBAS)	mg/l	0.2	ND	ND	ND	ND	ND	ND
19	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL	BDL	BDL
20	Cadmium (as Cd)	mg/l	0.003	BDL	BDL	BDL	BDL	BDL	BDL
21	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
22	Arsenic (as As)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
23	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Lead (as Pb)	mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL
25	Zinc (as Zn)	mg/l	5	0.29	0.31	0.3	0.32	0.35	0.33
26	Chromium as (Cr^{+6})	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
27	Mineral oil	mg/l	0.5	ND	ND	ND	ND	ND	ND
28	Alkalinity	mg/l	200	55	50	55	50	45	40
29	Aluminium as Al	mg/l	0.03	BDL	BDL	BDL	BDL	BDL	BDL
30	Boron	mg/l	0.5	BDL	BDL	BDL	BDL	BDL	BDL

Sampling Locations: Siriapali Ash Pond GW3 - Bore well (North)

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15383** ***Date: 09.10.2025***

7. Soil Quality:

Sl. No.	Parameters	S-1		S-4		S-6	
		Apr'25	Jul'25	Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Brown	Brown	Brown	Brown	Reddish	Reddish
2	Type of Soil	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
3	pH	6.48	6.5	6.93	6.98	6.94	6.9
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Infiltration Rate (cm/hr)	8.8	7.9	8	7.5	8.1	7.8
6	Bulk Density (gm/cc)	1.62	1.59	1.71	1.78	1.23	1.22
7	Porosity %	38.9	40	35.5	32.8	53.6	53.7
8	Moisture content %	8.6	10.8	7.9	11.3	7.8	8.8
9	Fluoride %	0.004	0.0048	0.0075	0.0080	0.0085	0.009
10	Silica as SiO_2%	28.8	29.6	39.5	40.6	24.1	25.3
11	Chloride %	0.035	0.038	0.033	0.035	0.04	0.045
12	Sulphate %	0.49	0.51	0.56	0.60	0.28	0.26
13	Potassium as K%	0.031	0.037	0.038	0.044	0.038	0.04
14	Magnesium as Mg%	0.28	0.31	0.33	0.35	0.28	0.30
15	Calcium as Ca%	0.43	0.47	0.71	0.75	0.62	0.66
16	Manganese as Mn%	0.39	0.41	0.48	0.49	0.54	0.55
17	Iron as Fe%	0.6	0.63	0.58	0.57	0.91	0.88
18	Available Organic Carbon %	2.8	2.9	2.46	2.58	2.1	2.3
19	Available Nitrogen%	0.078	0.081	0.075	0.077	0.081	0.084

Sampling locations:

S-1: Gudigaon Village S-4: Katapali Village S-6: Bhurkamunda Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15384** ***Date: 09.10.2025***

Soil Quality: Continued.

Sl. No.	Parameters	S-2					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Brown	Brown	Brown	Brown	Brown	Brown
2	Type of Soil	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
3	pH	7.1	7.18	7.16	7.13	7.2	7.23
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Infiltration Rate (cm/hr)	7.6	6.8	6.6	7	6.1	6.4
6	Bulk Density (gm/cc)	1.78	1.55	1.59	1.83	1.55	1.58
7	Porosity %	32.8	40.8	40	30.9	41.5	41.5
8	Moisture content %	7.1	5.9	6.2	11.6	8	7.9
9	Fluoride %	0.0035	0.0038	0.004	0.0039	0.0049	0.0047
10	Silica as SiO_2%	35.4	35.9	36.1	34.9	37.8	37.2
11	Chloride %	0.038	0.041	0.041	0.041	0.045	0.042
12	Sulphate %	0.42	0.46	0.49	0.48	0.51	0.48
13	Potassium as K%	0.049	0.048	0.05	0.052	0.053	0.052
14	Magnesium as Mg%	0.24	0.35	0.38	0.28	0.4	0.42
15	Calcium as Ca%	0.48	0.58	0.6	0.49	0.63	0.6
16	Manganese as Mn%	0.32	0.36	0.38	0.35	0.42	0.4
17	Iron as Fe%	0.54	0.53	0.55	0.56	0.6	0.57
18	Available Organic Carbon %	2.2	2.16	2.20	2.50	2.28	2.25
19	Available Nitrogen%	0.081	0.086	0.089	0.084	0.091	0.088

Sampling locations: S-2: Kurebaga Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-15385** ***Date: 09.10.2025***

Soil Quality: Continued.

Sl. No.	Parameters	S-3					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Brown	Brown	Brown	Brown	Brown	Brown
2	Type of Soil	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
3	pH	7.15	7.1	7.15	7.12	7.18	7.16
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Infiltration Rate (cm/hr)	7.8	7	7.1	6.9	6.9	6.8
6	Bulk Density (gm/cc)	1.59	1.41	1.48	1.66	1.46	1.44
7	Porosity %	40	46.6	44.1	42.4	41.5	41.5
8	Moisture content %	8.8	6.8	7	10.5	9.1	9
9	Fluoride %	0.0039	0.0044	0.0045	0.0044	0.0049	0.0045
10	Silica as SiO_2%	36.3	36.2	36.8	37.2	38	36.9
11	Chloride %	0.036	0.044	0.044	0.039	0.049	0.046
12	Sulphate %	0.52	0.49	0.52	0.55	0.55	0.53
13	Potassium as K%	0.045	0.044	0.047	0.049	0.049	0.047
14	Magnesium as Mg%	0.29	0.3	0.32	0.32	0.36	0.33
15	Calcium as Ca%	0.56	0.60	0.63	0.58	0.68	0.66
16	Manganese as Mn%	0.4	0.44	0.45	0.44	0.49	0.47
17	Iron as Fe%	0.65	0.61	0.63	0.68	0.65	0.62
18	Available Organic Carbon %	1.89	1.9	1.93	1.77	1.9	1.88
19	Available Nitrogen%	0.069	0.075	0.078	0.072	0.085	0.086

Sampling locations: S-3: Siriapali Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15386** ***Date: 09.10.2025***

Sl. No.	Parameters	S-5					
		Apr'25	May'25	Jun'25	Jul'25	Aug'25	Sep'25
1	Colour	Brown	Brown	Brown	Brown	Brown	Brown
2	Type of Soil	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
3	pH	6.96	6.95	6.96	6.9	6.90	6.93
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Infiltration Rate (cm/hr)	7.7	7.5	7.3	7	7	7.1
6	Bulk Density (gm/cc)	1.63	1.45	1.5	1.6	1.51	1.53
7	Porosity %	38.5	45	43.4	39.6	44.9	44.9
8	Moisture content %	9.2	7.6	7.8	11.2	8.8	8.6
9	Fluoride %	0.0041	0.0046	0.0048	0.0044	0.0052	0.005
10	Silica as SiO_2%	34.2	34.6	35	35.3	36.7	37.1
11	Chloride %	0.04	0.038	0.038	0.043	0.036	0.038
12	Sulphate %	0.38	0.41	0.43	0.41	0.48	0.46
13	Potassium as K%	0.043	0.039	0.041	0.045	0.044	0.045
14	Magnesium as Mg%	0.21	0.29	0.34	0.24	0.35	0.32
15	Calcium as Ca%	0.65	0.56	0.55	0.68	0.59	0.54
16	Manganese as Mn%	0.52	0.45	0.42	0.55	0.45	0.43
17	Iron as Fe%	0.6	0.65	0.66	0.63	0.7	0.67
18	Available Organic Carbon %	1.90	2.22	2.3	1.96	2.42	2.45
19	Available Nitrogen%	0.08	0.079	0.081	0.083	0.088	0.083

Soil Quality: Continued.

Sampling locations: S-5: Katikela Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15387** ***Date: 09.10.2025***

Soil Quality: Continued.

Sl. No.	Parameters	S-7		S-8	
		Apr'25	Jul'25	Apr'25	Jul'25
1	Colour	Reddish	Reddish	Brown	Brown
2	Type of Soil	Neutral	Neutral	Neutral	Neutral
3	pH	7.18	7.22	7.15	7.18
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Infiltration Rate (cm/hr)	8.8	8.0	6.8	6.5
6	Bulk Density (gm/cc)	1.3	1.41	1.29	1.33
7	Porosity %	50.9	46.8	38.2	44.8
8	Moisture content %	8	8.8	6.8	7.5
9	Fluoride %	0.006	0.0066	0.0052	0.0058
10	Silica as SiO_2%	23.8	24.2	26.1	26.8
11	Chloride %	0.033	0.038	0.038	0.041
12	Sulphate %	0.35	0.39	0.39	0.41
13	Potassium as K%	0.025	0.029	0.046	0.048
14	Magnesium as Mg%	0.33	0.3	0.28	0.33
15	Calcium as Ca%	0.55	0.58	0.6	0.63
16	Manganese as Mn%	0.58	0.59	0.63	0.66
17	Iron as Fe%	0.95	0.98	0.89	0.92
18	Available Organic Carbon %	3	3.5	4.5	4.8
19	Available Nitrogen%	0.086	0.091	0.077	0.082

Sampling locations: S-7: R&R Colony S-8: Tumbakela Village

Reviewed by

Approved by

Ref: **Envlab/25-26/TR- 15388** ***Date: 09.10.2025***

Soil Quality: Continued.

Sl. No.	Parameters	S-9			S-10	
		Apr'25		Ju'25	Apr'25	Jul'25
1	Colour	Brown		Brown	Brown	Brown
2	Type of Soil	Neutral	Neutral	Neutral	Neutral	
3	pH	6.92	6.89	6.85	6.8	
4	Texture	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	
5	Infiltration Rate (cm/hr)	8.9	8.1	9.1	8.8	
6	Bulk Density (gm/cc)	1.61	1.68	1.45	1.55	
7	Porosity %	32.2	36.6	45.3	41.5	
8	Moisture content %	7.9	8.3	9.1	9.8	
9	Fluoride %	0.0063	0.007	0.0080	0.0089	
10	Silica as SiO_2%	31.3	30.9	29.8	30.6	
11	Chloride %	0.056	0.059	0.06	0.063	
12	Sulphate %	0.26	0.30	0.41	0.45	
13	Potassium as K%	0.068	0.070	0.055	0.061	
14	Magnesium as Mg%	0.33	0.35	0.26	0.28	
15	Calcium as Ca%	0.54	0.59	0.66	0.68	
16	Manganese as Mn%	0.45	0.48	0.61	0.65	
17	Iron as Fe%	0.78	0.8	0.82	0.85	
18	Available Organic Carbon %	4.1	4.4	3.9	4.2	
19	Available Nitrogen%	0.085	0.089	0.092	0.095	

Sampling locations: S-9: Brundamal Village S-10: Sripura Village

Reviewed by

Approved by