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

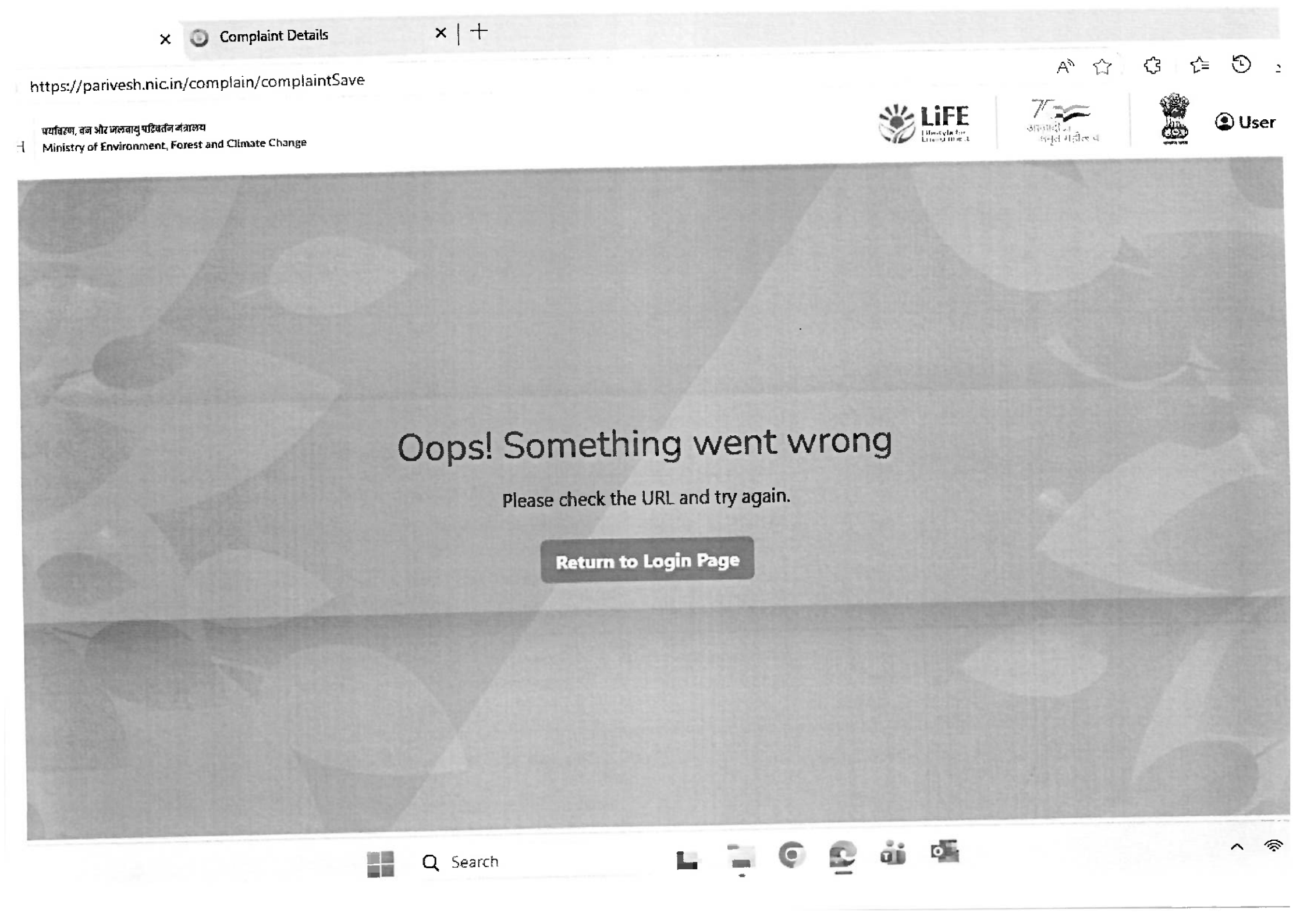
Dr. Amit Kumar Tyagi
Head- Environment

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 Environmental Clearance – Expansion of Aluminium Smelter (2.5 to 16 LTPA) and CPP (675 MW to 1350 MW) vide letter no. J-11011/29/2007-IA II (I) dated 11th June, 2008

S. No.	CONDITIONS	COMPLIANCE STATUS
SPECIFIC CONDITIONS		
i	The gaseous emissions (PM, SO_2, NO_X, PAH, HC, VOCs and Fluoride) from various process units shall conform to the standards prescribed by the concerned authorities from time to time. The OSPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. The particulate emissions from the bake oven plant shall not exceed 50 mg/Nm^3.	The particulate & gaseous emissions from various process units are confirming to the prescribed standards. As per the notification G.S.R. 465(E). dated 11th July 2025, the Sulphur dioxide emission standards shall not be applicable to all C Category thermal power plants subject to ensuring compliance of stack height criteria. As per the criteria mentioned in the notification, we are falling under category C and stack height of our powerplants is 275m since the inception of plant. So SO_2 standard has not applicable to our plant. In case of failure of any of the pollution control system of any unit, the respective unit will be started only after the control measures are rectified and have achieved the desired efficiency. The particulate matter emission from Bake Oven ranges between 4.9 to 5.9 mg/Nm^3. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
ii	Particulate fluoride emissions shall not be more than 0.65 mg/Nm^3 and fugitive particulate fluoride emissions from pot room shall not be more than 1.85 mg/Nm^3.	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.**
iii	The poly-aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) shall not exceed 2 mg/Nm^3. The data on PAH shall be monitored quarterly and report submitted regularly to the Ministry/Regional Office at Bhubaneswar and OSPCB.	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.**
iv	In-plant control measures like fume extraction and dust extraction system for controlling fugitive emissions from all the material handling/transfer points shall be provided to control dust emissions. Fugitive Fluoride emissions from the pot room and in the forage around the smelter	We have provided dry scrubbing system and State of the art gas collection and handling system to extract the gaseous emissions generated in the process of aluminium smelting and baking of anodes to maintain the total fluoride emissions below the stipulated standards of 0.8 kg/T of aluminium produced.

	complex shall be monitored and data submitted regularly to the Ministry's Regional Office at Bhubaneswar and OSPCB. Further dry scrubbing system to control the emissions from the pot lines shall be provided.	Fugitive fluoride emissions from the pot room and forage fluoride in the surrounding villages are being monitored regularly. The fluoride emissions through the fume treatment plants is being maintained below <0.3 Kg/T in case of pot rooms and <0.1 Kg/T in case of bake oven. The monitoring report is being submitted regularly to the Ministry's Regional Office and OSPCB. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
v	Electrostatic precipitator (ESP) will be provided to Captive Power Plant (CPP) to control emissions below 100 mg/Nm^3. The company shall provide bag-filters, dry scrubbing system and dust suppression system to control the all the emissions including fluoride emissions from all melting and casting units. Tar, dust and fluoride in the fumes shall be controlled in baking furnace by providing dry scrubber. The emissions shall conform to the standards prescribed by the Ministry/CPCB/SPCB whichever is more stringent.	Hybrid ESPs comprising of bag filters have been installed to maintain emission level below 50 mg/Nm^3 in CPP. Bag-filters, dry scrubbing system and dust suppression system is being provided to control the emissions including fluoride emissions from all melting and casting units. Dry scrubber with a chilling/condensing unit is being provided to control tar, dust and fluoride in the fumes in Bake Oven Plant. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
vi	Fluoride consumption shall be less than 10 kg/ton of Aluminium produced as specified in the CREP guidelines.	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 19.905 kg/MT of Al. **Notification copy enclosed as Annexure-4.**
vii	Anode butts generated from the pots shall be cleaned and recycled to the Anode Plant. The spent pot lining generated from the smelter shall be properly treated in spent pot lining treatment plant to remove fluoride and cyanide and disposed off in secured landfill. The location and design of the landfill site shall be approved by the OSPCB as per Hazardous Wastes (Management and Handling) Rules, 2003. Leachate collection facilities shall be provided to the secured landfill facility (SLF). The dross shall be recycled in the cast house. STP sludge shall be utilized as manure for green belt development. All the used oil and batteries shall be sold to the authorized recyclers/ re-processors.	• Anode butts generated from the pots is being recycled in the Green Anode Plant. • The SPL generated from our smelter is being sent to OSPCB authorized agency M/s Green Energy Resources located at Sambalpur for detoxification which in turn is sending the detoxified material for further utilization in various industries including cement and steel. The refractory portion is being disposed off to Re Sustainability TSDF (formerly known as RAMKY TSDF) as per the Hazardous Waste Authorization. stored under covered shed till an approved disposal mechanism is in place. • The secured landfill has been constructed including leachate collection system and collection of surface run off around the SLF to a common sump from where it is taken to

		the ETP for treatment. SLF phase I has been capped, and monitoring is being carried out as per the CPCB guidelines. • We are not disposing hazardous waste in the captive SLF, and details are monthly submitted to OSPCB office for the same. • The dross generated is either being internally processed in dross processing unit for metal recovery or being sold to OSPCB authorized re-processors. • Fly ash is being utilized in various sustainable avenues such as cement and brick manufacturing, road and infrastructure development, reclamation of low- lying areas, quarry back filling etc. • STP sludge is being used in green belt as a manure. • Used batteries and Used oil are being stored in designated sheds and is disposed to authorized recyclers/ re-processors. **Annual Return (Form-4) of FY-22, FY-23, FY-24 and FY-25 are enclosed as Annexure-6.**
viii	Integrated Ash Management Plan shall be prepared for the utilization of fly ash as per Fly Ash Notification, 1999 as amended in 2003 and implemented. A copy of the plan shall be submitted to the Ministry's Regional Office. Fly ash shall be collected pneumatically in silos and used by cement and brick manufacturers for further utilization. Bottom Ash shall be disposed off in ash pond using high concentrated slurry disposal method.	Integrated Ash Management Plan has been prepared and submitted as early as in 2007 as a part of the Rapid EIA. Further, a detailed plan was submitted for the utilization of fly ash as per Fly Ash Notification, 1999 as amended in 2003 and 2009 to the Ministry's Regional Office vide letter no. VAL/MoEF/SMA-106/2012-011 dated June 30, 2012. 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 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 for further utilization in sustainable avenues. As per MoEFCC Fly ash amendment notification dated 30th December 2022, We have 3 operational ash ponds/dykes (Kurebaga, Siriapali and Katikela) and stored ash is being utilized regularly in the sustainable avenues. 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 2025 and the same is being planned for FY 26 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.**
ix	As proposed, spent pot lining waste shall also be provided to cement and steel industries for further utilization.	The SPL generated from our smelter is being sent to OSPCB authorized agency for detoxification which in turn is sending the detoxified material for further utilization in various industries including cement and steel. We have disposed 88204.58 MT of SPL Carbon since FY-22 till September of FY-26 to authorized recycler. We have successfully disposed of the entire SPL Refractory Silicon Carbide waste to authorized recycler based on CPCB SOP. Moreover, despite the limitations, we have explored the utilization of SPL mixed fines for co-processing in cement industry since FY-22 and the same is being continued. Further, 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. **Annual Return (Form-4) of FY-22, FY-23, FY-24 and FY-25 are enclosed as Annexure-6.**
x	Regular ground water monitoring shall be carried out by installing Peizometers all around the secured landfill site in consultation with the Orissa Pollution Control Board, Central Ground Water Authority and State Ground Water Board and data submitted to the Ministry's Regional Office and OSPCB.	Piezometers have been installed in consultation with OSPCB and the ground water monitoring around the SLF area is being done as per the CPCB guidelines and monthly reports submitted to the OSPCB and quarterly to RO, MoEFCC Office. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
xi	Total water requirement for the expansion from Hirakud Reservoir shall not exceed 2,580 m^3/hr and prior permission for the existing and proposed expansion shall be obtained from the concerned department before commissioning of the plant. All the effluent including from cooling tower and de-mineralization plant shall be treated in the effluent treatment plant and treated effluent shall be recycled / reutilized in the process in the smelter and CPP and also for fire protection, dust suppression, green belt development etc. Domestic effluent shall be treated in Sewage Treatment Plant	We have a valid water agreement with Govt of Odisha Water Resource department, Burla for withdrawal of 40.9 cusec water from Hirakud reservoir for our Aluminium Smelter and CPP. We have implemented various water conservation measures in our plant to reduce the freshwater consumption. Effluent Treatment Plant along with Reverse Osmosis plant has been installed and the treated effluent is recycled in the process. The ETP Sludge has been sent to OSPCB approved TSDF for disposal. Domestic effluent is treated in the sewage treatment plant and treated water reused in the green belt development. No effluent is being discharged

	(STP) and treated domestic wastewater will be used for green belt development.	outside the plant premises. **Water withdrawal agreement is enclosed as Annexure-34.**
xii	No effluent shall be discharged outside the premises during the non-monsoon period and shall be discharged during the monsoon period only after proper treatment and meeting the norms of the OSPCB/CPCB.	We have implemented various water conservation measures in our plant to reduce the freshwater consumption. Effluent Treatment Plant along with Reverse Osmosis plant has been installed and the treated effluent is recycled in the process. Domestic effluent is treated in the sewage treatment plant and treated water reused in the green belt development. No effluent is being discharged outside the plant premises. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
xiii	Green belt of adequate width and density around the project site shall be developed in 33 % area in consultation with the DFO as per the CPCB guidelines having density of 2,000 trees/ha.	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 has been planted to attenuate the pollutants as per the CPCB guidelines. We would like to bring 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.** We have taken up a mass plantation drive outside plant premises in an area of ~50 acres with 1 lakh saplings under MoEFCC drive-Ek Ped Maa Ke Naam. **Letter enclosed as Annexure-5c.**
xiv	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	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.**
xv	The company shall develop rainwater structures to harvest the runoff water for recharge of ground water in consultation with the Central Ground Water Authority/Board.	As per CGWA guidelines September 2020, the industries falling under hazardous category should not implement any recharge measures within the plant premises. Hence, we have carried out roof top rainwater harvesting structures at our site to utilize the collected/harvested water. **CGWA guideline enclosed as Annexure-35.** 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 pf 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. **Letter 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.**
xvi	Rehabilitation and Resettlement (R & R) Plan prepared and submitted to the State Govt. shall be implemented as per the R & R Policy of the State Government. All the recommendations mentioned in the R & R Plan shall be strictly followed including suitable employment and other facilities to all the oustees.	The R and R package has been finalized based on the R and R Policy of Odisha incorporating the local additional requirement discussed in the RPDAC meeting chaired by the Revenue Divisional Commissioner and attended by the District Collector and representatives of the affected villagers. The District Collector/District Magistrate and the Administration is overseeing to ensure strict compliance of the commitment. **Status Report enclosed as Annexure-36.**
xvii	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 and its subsequent amendments is being implemented at site. **Status enclosed as Annexure-9.**
xviii	All the environmental conditions stipulated by the Ministry vide letter no. J-11011/144/2006- IA II (I) dated 7th March, 2007 for the Aluminium Smelter Plant (2,50,000 TPA) at Village Bhurkamunda / Brundamal, District Jharsuguda, Orissa by M/s Vedanta Aluminium Ltd. shall be satisfactorily be complied and regular compliance report submitted to the Ministry's Regional Office at Bhubaneswar.	All the environmental conditions stipulated for the Aluminium Smelter Plant (2.5 LTPA) are being complied. We are uploading half yearly compliance report along with monitoring data and supporting annexures in the MoEFCC Parivesh Portal and uploaded on our website and link of the same is as below. https://vedantaaluminium.com/sustainability/compliance-report-jharsuguda/
xix	Prior permission from the State Forest Department shall be obtained due to likely impact of transport of raw material and end product and gaseous emissions from the smelter on the surrounding reserve forests and wildlife. Recommendations regarding mitigative measures suggested by the State Forest Department and Chief Wildlife Warden, Govt. of Orissa shall be strictly followed.	Raw material and end products are transported through existing rail and road networks through wagons, bulkers and covered trucks (which are closed and covered). 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 the WL-Anukampa and its maintenance condition. **Latest communication and implementation status are enclosed as Annexure-13.**
xx	Ministry of Environment and Forests shall regularly be informed about the source and quantity of Alumina procured from captive/indigenous/imported sources.	We regularly inform about the source and quantity of Alumina procured from captive/ indigenous/ imported sources. The source and quantity of alumina procured during Apr'25-Sep'25 is as below: Domestic – 11.43 Lakh MT Imported – 5.78 Lakh MT Imported alumina sources are as follows: • Vietnam Coal and Mineral Industries Holding Corporation Limited (Vinacomin), Vietnam • PT. Borneo Alumindo Prima • PT Well Harvest Winning Alumina Refinery, Indonesia • Worsley Alumina, Australia • Rio Tinto Aluminium, Australia • Pt. Bintan Alumina, Indonesia • Maaden • Alumar Brazil • Weiqiao, China Domestic alumina sources are as follows: • Utkal Alumina Refinery, Doraguda, Rayagada, India • NALCO Alumina Refinery, Damanjodi, Odisha • Alumina Refinery , Lanjigarh Odisha
xxi	Alumina shall be obtained only from those refineries, which have been accorded environmental clearance by the Ministry of Environment and Forests.	We ensure that alumina is being sourced from own refinery or from refineries in India which have been accorded Environmental Clearance by MoEFCC. We also import alumina from other countries.
GENERAL CONDITIONS		
I	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	Noted
II	No expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Noted
III	Adequate number of ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of	Manual and Continuous Ambient air quality monitoring stations have been established as per the mathematical modelling carried out during the Environmental Impact Assessment study. All

	SPM, SO_2 and NO_X are anticipated in consultation with the OSPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and Orissa State Pollution Control Board once in six months.	stations are qualified the criteria of downwind, upwind and crosswind directions. **Communication letter enclosed as Annexure-37.** We had already submitted an application/letter to OSPCB regarding precise location of the AAQMS on dated 22.04.2024, 08.07.2024 and 25.07.2024 along with a report Air Dispersion Modelling for Power and Aluminium Plant, Bhurkamunda, Jharsuguda - to Check the Efficacy of the Existing Ambient Air Quality Network (manual and CAAQMS) by Professor Mukesh Sharma, IIT Kanpur. Monitoring data of ambient air quality and stack monitoring are regularly submitted to MoEFCC, IRO MoEFCC, OSPCB. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
IV	Industrial wastewater should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater should be recycled in the plant as well as utilization for plantation purposes.	The wastewater generated from the plant is collected and treated in the effluent treatment plant to conform to the prescribed standards. The treated water is being recycled and reused in the plant. Domestic effluent is treated in the sewage treatment plant and treated water reused in the green belt development. No effluent is being discharged outside the plant premises. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
V	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the OSPCB must be obtained for collection, storage, treatment and disposal of hazardous wastes.	We are strictly complying with the rules and regulations with regard to handling, collection, transport, treatment, storage and disposal of Hazardous waste in accordance with the Hazardous Wastes (Management and Handling) Rules, 2016 and are having a valid Hazardous waste authorization for the management of Hazardous wastes from OSPCB.
VI	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	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 nighttime. **Monitoring Report for the period of Apr-25 to Sep-25 enclosed as Annexure-2.**
VII	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA / EMP /risk analysis and DMP report.	All environmental protection measures and safeguards as recommended in the EIA/EMP/risk analysis and DMP are being implemented. **Implementation status report enclosed as Annexure-38.**

VEDANTA LIMITED, JHARSUGUDA

Compliance Status on Environmental Clearance – Expansion of Aluminium Smelter (2.5 to 16 LTPA) and CPP (675 MW to 1350 MW) vide letter no. J-11011/29/2007-IA II (I) dated 11th June, 2008

VIII	As proposed in EIA/EMP, Rs. 505.00 Crores earmarked toward the capital cost and recurring the expenditure/annum for environmental protection measures shall be used judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purposes.	We have earmarked capital cost towards installation of environmental control, monitoring systems and green belt development. Every year the budget is separately allocated for the Operation and Maintenance of pollution control, monitoring systems, Greenbelt development, which is not diverted for any other purpose. **Expenditure details enclosed as Annexure-39.**
IX	The Regional Office of this Ministry at Bhubaneswar/Central Pollution Control Board/ OSPCB will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly.	We are uploading half yearly compliance report along with monitoring data and supporting annexures in the MoEFCC Parivesh Portal and uploaded on our website and link of the same is as below. https://vedantaaluminium.com/sustainability/compliance-report-jharsuguda/
X	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office.	Necessary advertisement with information as advised by the Ministry has been released in two local newspapers one in vernacular (Samaja, Sambalpur on 25.06.2008) and one in English (Times of India, Bhubaneswar on 25.06.2008). **Advertisement published in the newspaper are enclosed Annexure-40.**
XI	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	The project of 16 LTPA Aluminium Smelter and 1215 MW CPP was approved by MoEFCC vide EC letter no J-11011/29/2007-IA-II (I) dated 11.06.2008 and OSPCB Consent to Establish (CTE) vide letter no 7723/IND-II-NOC-4870 dated 18.05.2009 and OSPCB renewed Consent to Operate (CTO) vide letter no 6536/IND-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.

Sl.No.	Terms and Conditions	Status
a.	Details regarding change in source (location of the source, proposed quantity, distance from the power plant and mode of transportation), quality (Ash, Sulphur, Moisture content and Calorific value) shall be informed to the Ministry and its concerned Regional Office. The quantity of coal transported from each source along with the mode of transportation shall be submitted as part of EC Compliance Report. 1. Domestic to Domestic 2. from domestic to domestic (blended with imported coal up to 30% content of imported coal) 3. from imported to imported (blended with domestic coal up to 10% content of domestic coal) 4. from imported to domestic (where the GCV of the domestic coal is of the same grade as of imported coal).	We have procured the coal from the below domestic sources: Source - MCL, NLC, OCPL, and Captive Mine (Jamkhani). Coal Quality details - GCV (Kcal/kg) ARB - Approx 2800 to Approx 3400 Ash - 40 percent to 50 percent Sulphur Content - 0.34 percent to 0.55 percent Total Moisture -11.73 percent to 13.51 percent
b.	The applicable flue gas emissions standards for Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen and Mercury shall be complied in line with Ministry's Notification vide S.O. 3305(E) dated 7.12.2015 and subsequent emissions. A progress of implementation and its compliance shall be submitted as part of Compliance Report.	Applicable flue gas emission standards like PM, SO2, NOX and Hg is being monitored regularly. **Monitoring Report for the period of Oct-24 to Nov-25 enclosed as Annexure-2.** As per the notification G.S.R. 465(E). dated 11th July 2025, the FGD system for Sulphur dioxide emission standards shall not be applicable to all Category C thermal power plants subject to ensuring compliance of stack height criteria. As per the criteria mentioned in the notification, we have been falling under category C and are compliant of stack height criteria since inception. So, this condition is not applicable for our Industry. **Notification copy enclosed as Annexure-42.**
c.	Ash content in the Coal and Coal transportation is governed by the Ministry's Notification vide S.O. 1561 (E) dated 21.5.2020. As far as possible, Coal transportation shall be done by rail/ conveyor or other eco-friendly modes. However, road transportation is allowed with tarpaulin covered trucks till the railway/ conveyor belt infrastructure is made available. A progress (Physical and financial) of rail connectivity from nearest railway siding or conveyor connectivity to the power plant hall be submitted in the EC compliance report.	Mode of transportation of coal is rail and road with proper mitigative measures. In addition to that we have provided railway infrastructure inside plant premises for unloading of coal with proper mitigative measures.
d .	Additional ash pond shall not be permitted on account of increase in ash content in the	Noted. As per Fly ash notification 2021 and its subsequent amendments, more than 100

	raw coal as due to change in coal source including lignite other than the ash pond permitted and specified in the Prior Environmental Clearance. 100% fly ash utilisation is to be achieved within 4 years in accordance with the extant provisions laid down in the Fly ash notifications dated 14.09.1999, 27.08.2003, 3.11.2009 & 25.01.2016, 31.12.2021 and 30.12.2022 as amended from time to time.	percent ash was utilized in FY 2025 and the same is planned for FY 2026 also. 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.**
e.	In case of exceptional circumstances, project proponents may approach the Ministry for seeking permission to use an emergency ash pond with cogent reasons, if any.	Noted.
f.	The details regarding monthly generation, utilisation and disposal of fly ash (including bottom ash) shall be submitted to the Ministry and its Regional Office.	Monthly fly ash utilization report has been uploaded in CPCB portal.

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