TSM-CPP/MoEF&CC/TS-01/2026-06/217
May 29, 2026

The Director(s)
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office,
A/3, Chandrasekharpur,
Bhubaneswar-751023

Subject: Submission of half yearly EC compliance reports for expansion of existing 300MW TPP by installation of 185MW coal based TPP at M/s. Tata Steel Limited-TSM-CPP (formerly known as Angul Energy Limited), Odisha for the period from October' 2025 to March' 2026.

Reference:EC vide letter No. J-13012/78/2011-IA-II(T); dated: 12.02.2015 & its amendment dated: 25.09.2020.

Dear Sir,

With reference to the captioned subject and cited reference, we are herewith submitting six monthly compliance reports for the conditions stipulated in the Environmental Clearance for expansion of existing (2x150) 300MW TPP by installation of 185MW coal based TPP at M/s. Tata Steel Limited – TSM-CPP (formerly known as Angul Energy Limited), Odisha for the period from October' 2025 to March' 2026 along with monitoring reports for your kind perusal.

The soft copies of the aforesaid compliance report are also being sent through mail to roez.bsr-mef@nic.in for your kind information and necessary record please. Also copy of EC compliance is being uploaded on MoEF&CC web site on portal http://environmentalclearance.nic.in.

Hope, the above are in line with the statutory requirements.

Thanking you
Yours faithfully,
For TSM-CPP

Sanjeeb Kumar Pal
(Head Environment, TSM)

Encl: As above

Copy to: 1. The Zonal Officer, Central Pollution Control Board, Southern Conclave Block, 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata – 700107.
2. The Member Secretary, SPCB, Parivesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Odisha, Bhubaneswar-751012
3. The Regional Officer, State Pollution Control Board, Angul, Odisha.

SPECIFIC CONDITION

SL	STIPULATED CONDITIONS	COMPLIANCE STATUS
i	Vision document specifying prospective plan for the site shall be formulated and submitted to the RO of the Ministry within six months.	Vision, Mission and Environment Policy statements have submitted to the Regional Offices, MoEF&CC, Bhubaneswar along with the compliance report.
ii	Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.	50 KW On Grid Solar Roof Top for Harnessing of Solar Power is installed at roof tops for utilization of Renewable Energy source and to reduce Carbon footprint & reduce the Auxiliary consumption.
iii	Sulphur and ash contents in the imported coal to be used in the project shall not exceed 0.3% and 6% respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environment clearance condition wherever necessary.	Amendment in Environmental Clearance was obtained from MoEF&CC for change in coal source from imported to Indian coal on 25.09.2020. Presently domestic coal being used having sulphur content less than 0.5 %.
iv	A long-term study of radioactivity and heavy metals contents in coal to be used shall be carried out through a reputed institute and results thereof analyzed every two years and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radioactivity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	• Heavy metal contents in coal have been analyzed at CSIR-IMMT Bhubaneswar. Coal analysis report is attached as **Annexure-I** for reference. • Radioactive metal analysis was carried out through reputed institute and report is attached as **Annexure-IA**.
v	A stack of 220 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x, PM_{10} and $PM_{2.5}$. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	• A stack with a height of 220 meters has been constructed, equipped with continuous online monitoring systems for sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter. The exit velocity of the flue gases is maintained at no less than 22 meters per second. • An online mercury analyzer has been installed at one stack attached to 165 MW to monitor Mercury content in Flue gas. Manual monitoring of mercury emissions is

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		also conducted periodically, the analysis report attached as **Annexure II**.
vi	High efficiency ESPs shall be installed to ensure that particulate emission does not exceed 50 mg/Nm3. Adequate dust extraction system such as cyclones/bag filters and water spraying system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	• Electrostatic Precipitators (ESPs) have been installed for each boiler to ensure emissions are below 50 mg/Nm³. • Dust extraction systems and dust suppression measures are actively implemented at ash silos and coal handling areas. • Wheel washing systems is in operation to prevent fugitive dust emissions during the movement of fly ash vehicles.
vii	Adequate dust extraction system such as cyclones / bag filters and water spraying system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	• Dust Extraction Systems: Installation of a dust extraction system at both the Intermediate and Main ash silos. • Dust Suppression Systems: Implementation of an effective dry fog dust suppression system and the installation of rain guns at junction houses across the entire coal handling route.
viii	COC of at least 5.0 shall be adopted	• The plant is being operated with COC more than 5.
ix	Monitoring of surface water quantity and quality shall also be regularly conducted, and records maintained. The monitoring data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of the flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.	• Monitoring of influent, effluent, surface, and ground water quality is regularly conducted in our in-house NABL accredited environment laboratory at TSM, as well as through a third-party NABL accredited laboratory. • The summarized data of water quality analysis for the period from October'25 to March'26 is enclosed as **Annexure - III**.
x	A well-designed rainwater harvesting system shall be put in place within six months, which shall comprise of rainwater collection from the built up and open area in the plant premises and detailed records kept of the quantity of water harvested every year and its use.	A rainwater harvesting structure with a capacity of 650,000 m³ has been constructed to collect surface runoff water from the plant premises. The harvested water is being utilized for various plant applications.

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xi	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.	No natural water bodies/drainage system was disturbed due to setting up this project.
xii	Hydrogeology of the area shall be reviewed annually from an institute/organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case any deterioration is observed, specific mitigation measures shall be undertaken and report/data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	There is no deterioration of groundwater level and the quality has been observed from the last hydrogeology study. Hydrogeology study is report attached as **Annexure-IV.**
xiii	Wastewater generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/CPCB.	Wastewater generated from the plant is treated in ETP#1, and the treated water is reused dust suppression, green area development and low-end application.
xiv	Additional soil for leveling of the proposed site shall be generated within the site (to the extent possible) so that natural drainage system of the area is protected and improved.	No additional soil was required during the site leveling process, and the project activity has been completed.

xv	Prior approval of the Ministry shall be obtained for Mine Void and abandoned stone quarry filling of fly ash based on the outcome of the pilot study for which permission was accorded to the existing units by the Ministry on 05.09.2013 subject to Hon'ble NGT's Order.	• Presently fly ash is not used in mine void filling.
		• Fly ash is being supplied to
		  ○ Nearby fly ash brick manufacturing units, free of cost at door delivery model, for maximum utilization of ash.
		  ○ Cement plants through bulker.
		  ○ Construction of national highway (NH-55 & NH 149).
		• Balance ash if any is being utilized in reclamation of abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.
		• Details of Fly Ash Generation and Utilization report is attached as **Annexure-V.**

xvi	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in	• Ash is being collected in dry form in the ash silo.

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	the ash pond in the form of slurry. Mercury and other heavy metals (As, Cr, Pb etc) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying areas.	• An interim ash pond is currently in operation to store and manage ash in case of emergencies to ensure proper handling until final disposal can be arranged. • No effluent arising out of ash pond, however Mercury and other heavy metals (As, Cr, Pb etc) being monitored in the ash (fly & bottom) Leachate characteristics of ash are carried out at regular intervals. The analysis report is enclosed as **Annexure -VI**. • No ash will be disposed off in low lying area.
xvii	Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local panchayat.	Fly ash is being stored in ash silo and supplied to actual user by maintaining minimum 15 % moisture content. Fly Ash is transported using covered trucks/ bulker/ to avoid any fugitive emission due to transportation.
xviii	Ash pond shall be lined up with HDPE/LDPE lining or any other suitable material impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	An interim ash pond is currently functioning to store fly ash for emergency scenarios. To prevent leaching, the pond has been lined with bentonite material. Additionally, adequate safety measures are already in place to protect the ash dyke from breaches.
xix	Green belt consisting of three tires of plantation of native species around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised, and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 trees per ha with survival rate not less than 80%. Only native species shall be planted and the green belt development shall be expedited.	• Green belt development work is ensured through plantation along the plant, internal roads as well as all the vacant spaces inside the plant premises. • Plantation of saplings is done regularly based on availability of vacant areas. • Wherever feasible, 50 m width to 20 m width plantation done. • Tree density is not less than 2500 trees per ha with survival rate not less than 80%. Only native species is planted and maintained as per feasibility.
xx	CSR schemes identified based on Public Hearing issues and need based assessment shall be implemented in consultation with the village panchayat and the District administration starting from the	• The peripheral development is being carried out based on socio-economic survey of the area on need-based assessment. • Various socio-economic development programs covering education (Green school

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	development of the project itself. As part of CSR, prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating program.	project in collaboration with TERI) Roads in the nearby villages, safe drinking water, sanitation, sports and health care etc. are undertaken in nearby villages as per the suggestions made in public hearing. The above includes social engineering as well as infrastructure projects.
xxi	As committed, a minimum amount of Rs. 40.00 crore shall be earmarked for CSR activities for next five years. For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.	• Various CSR activities have been undertaken since the inception of the plant by providing facilities of sanitation, drinking water, education, health care, road and communication etc. Following the acquisition of the industry by Tata Steel Limited, there has been a significant increase in both the variety and expenditure related to CSR activities. • For a detailed breakdown of the CSR initiatives over the last six months, please refer to attached **Annexure-VII**.
xxii	For proper and periodic monitoring of CSR activities, a CSR committee or a social audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.	• As per the revised companies Act, 2013 and its amendment, CSR committee has been formed. Evaluation of each specific CSR intervention/activities is monitored & evaluated by the CSR Committee. • The peripheral development is being carried out based on socio economic survey and need based assessment. Based on this, we have provided the facilities for sanitation, drinking water, education, health care, road and communication facilities etc. to the surrounding villages.
xxiii	An Environmental Cell comprising of at least one expert in environment science/ engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of	• The Environment Management Department has been established to ensure effective implementation of environmental safeguards and control measures for pollution. It is led by qualified and experienced officers who are dedicated to adhering to the stipulated regulations. Key details regarding these measures have already been submitted to the Ministry of

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	environmental regulations and social impact improvement / mitigation measures.	Environment, Forest and Climate Change (MoEF&CC). • The Head of the Environment department functionally reports to the Head of Plant who is accountable for implementation of environment regulations and social impact improvement / mitigation measures.
A	**General Conditions:**	
i	Space for FGD shall be provided for future installation as may be required.	• CFBC (Circulating Fluidized Bed Combustion) coal-fired boiler has been installed & adequate space has been provided for installation of dry FGD. • In accordance with the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification No. G.S.R. 465(E) dated 11 July 2025, TSM-CPP has submitted a letter to the Odisha State Pollution Board (OSPCB) vide Letter No. TSL/SPCB/TS-03/2025-22/601, seeking categorization of TSM-CPP under Category 'C'.
ii	The treated effluents conforming to the prescribed standards only shall be re-circulated and re-used within the plant. Arrangements shall be made that effluents and storm water do not get mixed	• Wastewater is being treated in ETP-1 and the treated effluents conforming to the prescribed limits are recycled and reused in dust suppression, green area irrigation & low-end application. • Rainwater collected from plant area are being channelized through drains into a series of storage ponds (3 Nos. of lagoons are in operation).
iii	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt /plantation.	• A Sewage treatment plant of capacity 3000 KLD is in operation to treat domestic sewage, and treated water is being reused for ash conditioning.
iv	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fire in coal yard especially during summer season. Copy of these measures with full details along with location on plant layout shall be	• 19 numbers of fire hydrants have been provided in the coal yard-1, 2 and coal shed to check / minimize spontaneous fire. • 09 numbers of gun sprinklers have also been installed in the yards to keep the surface moist.

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	submitted to the Ministry as well as to the Regional Office of the Ministry.	• The coal piles are leveled by scraping and are being compacted by rolling. • In coal silos / bins, First in First out (FIFO) principle is applied to avoid spontaneous burning. • Fire tenders are ready to put into service in case of emergency.
v	Storage facility for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area in consultation with the Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	• LDO/HSD is stored in the plant area where the risk is minimum. There is a dyke around the storage tanks to contain LDO/HSD in case of any leakage. • Onsite emergency plan has prepared to meet any eventuality in case of an accident taking place. • As per specification of the supplier, the sulfur content in the fuel is less than 0.5 % by mass.
vi	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	• Adequate First aid and sanitation arrangements were made during construction phase of the plant. • Similar facilities are being maintained during operational phase for the workers and employees.
vii	Noise level emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB(A) from the source. For people working in the high noised areas, requisite PPEs like ear plugs/ear muffs etc shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric records and for treatment for any hearing loss including shifting to non-noisy/less noisy areas.	• Enclosures and silencers have provided at primary air and secondary air fans of all four boilers. • Necessary PPEs are being provided to all the workers working in noise prone areas and periodic examination is being conducted for the workers engaged in noise prone areas. • Noise monitoring is carried out regularly at six locations in the work zone areas. • The summary of noise monitoring report for the period from Oct'25 to Mar'26 is enclosed as **Annexure – VIII.**
viii	Regular monitoring of ambient air ground level concentration of SO_2, NO_x, $PM_{2.5}$, PM_{10} and Hg shall be carried out in the impact zone and records maintained. If at any stage levels are found to exceed the	• 5 Nos. of ambient air quality monitoring stations have set up in nearby villages for measuring the monthly ground level concentrations of PM_{10}, SO_2 and NOx in consultation with SPCB, Odisha.

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	prescribe limits, necessary control measures shall be provided immediately. The locations of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the regional office of the Ministry. The data shall also be put on the website of the Company.	• The summary of ambient air quality monitoring report for the period from October'25 to March'26 is enclosed as **Annexure – IX**. • The same has been uploaded in company web site www.tatasteel.com and periodically updated.
ix	Utilization of 100 % fly ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	• Presently 100 % utilization of fly ash is being achieved by suppling to cement manufacturing unit and supply to bricks manufacturing unit on transport subsidy basis. Balance ash if any is being used in filling abandoned stone quarries, low lying areas, • Annual implementation report on fly ash generation and utilization is being submitted regularly to the Regional Office of the Ministry and SPCB Odisha. The last report was submitted vide letter no. TSM-CPP/SPCB/TS-06/2026-01/214 dated 15.04.2026 and copy is enclosed as **Annexure-V.**
x	Provision shall be made for the housing of contractor workers (as applicable) within the site with all necessary infrastructure facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc.	Adequate arrangements for housing of construction workers were made during construction phase of the plant and similar facilities are being maintained during operational phase also for the workers and employees.

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xi	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environment clearance and copies of the clearance letters are available with the SPCB/Committee and may also be seen at website of the Ministry of Environment and Forests at http://envfor.nic.in	• Advertisements were circulated in The Telegraph (English daily) dated 15.02.2015 and the Samaya (Oriya daily) dated 15.02.2015. • A copy of the same was submitted to MoEF&CC vide letter no. BSL/MoEF/BS-02/2015-09 dated 21.02.2015.
xii	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the Company by the Proponent.	Copy of the environment clearance was submitted to the concerned village panchayat, Zila Parishad, District Industry Centre etc.
xiii	The proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of measured data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective zonal office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM (PM_{10} and $PM_{2.5}$) SO_2, NO_x (ambient as well as stack emission) shall be displayed at a convenient location near the main gate of the Company in the public domain.	• Status of compliance with the stipulated environment clearance conditions are uploaded and sent to the MoEF&CC, CPCB and SPCB. • Results of online air quality monitoring are being displayed near the main gate.
xiv	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned SPCB as prescribed under the Environment (Protection) Rules 1986, as amended	• The environment statement for each financial year ending 31st March in Form-V is being submitted regularly to the Regional Office of MoEF&CC, CPCB and SPCB, Odisha.

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	subsequently, shall also be put on the website of the Company along with the status of compliance of environment clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.	• The last Environment Statement was submitted in Form – V vide letter no. TSM-CPP/SPCB/TS-03/2025-02/198 dated 27.08.2025.
xv	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of environment and Forests, its Regional Office, CPCB and SPCB. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional office of MoEF.	• Six monthly reports on the status of the implementation of the stipulated environmental safeguards are being submitted to the MoEF&CC, Regional Office, CPCB and SPCB, Odisha. • Last compliance report has been submitted vide letter no. TSM-CPP/MoEF&CC/TS-01/2025-04/204 dated 20.11.2025.
xvi	Regional office of the MoEF will monitor the implementation of the stipulated conditions. A complete set of documents including Environment Impact Assessment report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will upload the compliance status in their website and update the same from time to time at least six-monthly basis. Criteria pollutants levels including NOx (from stack and ambient air) shall be displayed at the main gate of the power plant.	• All the required documents have already been submitted to the Regional Office and will be made available during inspection. • Compliance status is uploaded on the website and updated in every six months. • Stack monitoring data is displayed at the main gate of the power plant.
xvii	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	• Funds earmarked for pollution control measures are not diverted for any other activity. • Year wise expenditure has been submitted along with the annual environment statement to the Ministry.

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xviii	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the project authorities and the dates of land development work and commissioning of plant.	165 MW TG was commissioned on 23rd September 2015.
xix	Full cooperation shall be extended to the Scientists / Officers from the Ministry / Regional Office / CPCB / SPCB who would be monitoring the compliance on environmental status.	Full cooperation is being extended to the Scientists/Officers from the Ministry / Regional Office / CPCB / SPCB who would be monitoring the compliance on environmental status.

Amendment Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA.II(T) dated 25.09.2020		
SN	**Additional Condition**	**Compliance**
i	Increase in ash generation due to change in coal source from imported to domestic coal shall be utilised 100% as per the targets provided in the Fly ash Notification. Ash generation, utilisation, disposal along with the target achieved (percentage utilisation) annually shall be submitted in the compliance report. Mercury in the coal to be analysed and submitted.	• 100% fly ash utilization is ensured as per fly ash notification of MoEF&CC, Govt. of India. • Annual implementation report w.r.t. fly ash generation and utilization are being submitted periodically. The last report was submitted vide letter no. TSM-CPP/SPCB/TS-06/2026-01/214 dated 15.04.2026 and copy is enclosed as **Annexure-V.** • Trace element analysis of coal sample is enclosed as **Annexure-I.**

ii	The ash pond of 5 acres of ash pond was already constructed for disposing unutilised ash. No additional land is permitted for ash pond owing to increase in ash generation. PP should take proper implementation measures for control of fugitive dust during storage, handling, and transport fly ash.	• Fly ash has been stored in ash silo and is being supplied to actual user through covered trucks/bulker/rake to avoid any fugitive emission due to transportation.
		• Fly ash is being supplied to
		  ○ nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash.
		  ○ Cement plants through rake & bulker.
		  ○ Construction of national highway.

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Amendment Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA.II(T) dated 25.09.2020		
SN	**Additional Condition**	**Compliance**
		○ Balance ash is being used for reclamation of low-lying areas & abandoned stone quarries as per guidelines of CPCB/OSPCB after grant of necessary Consents. • An interim ash pond is currently in operation to Store and manage ash in case of emergencies to ensure proper handling until final disposal can be arranged.
iii	The emissions from the flue gases and chimney shall meet the standard of PM: 50 mg/Nm3, SO2: 600 mg/Nm3, NOx: 300 mg/Nm3, Hg: 0.03 mg/Nm3 as per the Ministry's Notification dated 07.12.2015. Emission reporting shall be submitted in the compliance report.	• Emissions from flue gases and the chimney are well within the norms as per the Ministry's Notification dated 07.12.2015, except for SO2 emissions. CFBC coal-fired boilers have been commissioned to control NOx emissions. • In accordance with the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification No. G.S.R. 465(E) dated 11 July 2025, TSM-CPP has submitted a letter to the Odisha State Pollution Board (OSPCB) vide Letter No. TSL/SPCB/TS-03/2025-22/601, seeking categorization of TSM-CPP under Category 'C'. • An online mercury analyzer has been installed at CEMS-3, attached to Boiler No. 5 and 6. • A report on NOx and SO2 emissions is enclosed as **Annexure-X**.
iv	The coal transportation shall be carried out by rail as far as possible. In case, the rail/conveyor belt infrastructure is not available, road transportation may be done with tarpaulin covered trucks. The coal transportation and the ash content in the coal are governed by the Ministry's Notification dated 21.05.2020.	Coal transportation is being carried out by both rail and road with covered rakes and trucks.

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Transfer of Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA. II (T) dated 03.01.2025		
SN	**Specific Condition**	**Compliance**
1.	All other specific conditions mentioned in the EC under File no.J-13012/78/2011-IA.II(T) dated 12.02.2015 and subsequent amendment dated 04.08.2020,13.08.2020 & 25.09.2020 shall remain the same, as applicable.	Noted.
2.	Ash pond area and fly ash utilization shall be as per Fly Ash Notification issued by Ministry/CPCB from time to time.	• Fly ash has been stored in ash silo and is being supplied to actual user through covered trucks/bulker/rake to avoid any fugitive emission due to transportation. • Fly ash is being supplied to o nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash. o Cement plants through rake & bulker. o Construction of national highway. o Balance ash is being used for reclamation of low lying areas & abandoned stone quarries as per guidelines of CPCB/OSPCB after grant of necessary Consents. An interim ash pond is currently in operation to Store and manage ash in case of emergencies to ensure proper ash management until final disposal can be arranged.
3.	Ambient air quality data shall be uploaded on CPCB server uninterruptedly through continuous monitoring station.	Ambient air quality data is being uploaded in OSPCB server uninterruptedly on 24x7 basis from continuous ambient air quality monitoring stations.
4.	The PP shall comply with all the Standard EC Conditions issued by MoEF & CC for TPP and submit the compliance in six monthly compliance report. The Standard EC condition is annexed to this Transfer of EC letter.	• All the conditions stipulated in accorded Environment Clearance are being complied with. • Last half yearly EC compliance report was submitted vide letter no. TSM-CPP/MoEF&CC/TS-01/2025-04/204 dated 20.11.2025

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Transfer of Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA. II (T) dated 03.01.2025		
SN	**Specific Condition**	**Compliance**
5.	Ground water analysis including heavy metal and micro bacterial study shall be done on regular basis and same shall be submitted in six monthly compliance report.	• Ground water analysis including heavy metal content and microbiological study is being conducted on regular time intervals. • The six-monthly summarized data of water quality analysis for the period from October'25 to March'26 is enclosed as **Annexure - III**
6.	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	• All Diesel Generator (DG) sets installed at the site are compliant with the applicable emission norms as stipulated by the Central Pollution Control Board (CPCB) and relevant statutory regulations. The emissions from DG sets are maintained within the prescribed limits through proper operation, maintenance, and use of approved fuel. • Adequate stack height for each DG set have been provided in accordance with CPCB guidelines to ensure adequate dispersion of pollutants and to minimize environmental impact. • DG sets are equipped with acoustic enclosures and anti-vibratory pads to prevent noise pollution and ensuring compliance with environmental standards. • Monitoring report of DG sets are attached as **Annexure-XI.**
7.	The PP shall plant "Ek Ped Maa Ke Naam" and the plantation shall be carried out in the earmarked greenbelt area (as spelt out in the EIA/EMP report) as a part of tree plantation campaign and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).	During the financial year 2025-26 total 37,200 numbers of Tree are planted inside, and outside plant. Details of the same is being uploaded in the MeriLiFe portal. Tree Plantation details are attached as **Annexure-XII.**
8.	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.

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Transfer of Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA.II(T) dated 03.01.2025 Standard EC Conditions for Thermal Power Sector		
SN	**A. Statutory compliance**	**Compliance**
1.	Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.	Environmental standards stipulated in Ministry's Notification vide S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 are being complied with.
2.	Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.04.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.	**Not Applicable.** As Tata Steel Limited (TSM-CPP) is a coal based thermal power plant, so this condition is not applicable for us.
3.	MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 as amended time to time regarding use of raw or blended or beneficiated/washed coal with ash content not exceeding 34% shall be complied with, as applicable.	Clean technology like CFBC boiler is being operated for production of electricity. So as per MoEF&CC notification No. GSR02(E); dated. 02.01.2014 this condition is not applicable for us.
4.	MoEF&CC Notifications on Fly Ash Utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 as amended from time to time shall be complied.	MoEF&CC Notifications on Fly Ash Utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 as amended from time to time are being complied with.
5.	Thermal Power Plants other than the power plants located on coast and using sea water for cooling purposes, shall achieve specific water consumption of 2.5 m^3/MWh and Zero effluent discharge.	The plant has achieved a specific water consumption of 2.32 m^3/MWh during the period from October 2025 to March 2026, which is within the prescribed limit. Additionally, zero effluent discharge is being maintained.
6.	The recommendation from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, if applicable.	**Not Applicable**.
7.	No Objection Certificate from Ministry of Civil Aviation be obtained for installation of requisite chimney height and its siting criteria for height clearance.	**Not Applicable**.
8.	Groundwater shall not be drawn during construction of the project. In case, groundwater is drawn during construction,	Not Applicable as no groundwater has been extracted during construction period of Project.

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Transfer of Environment clearance of 185 MW power plant File no.: J-13012/78/2011-IA.II(T) dated 03.01.2025 Standard EC Conditions for Thermal Power Sector		
SN	**A. Statutory compliance**	**Compliance**
	necessary permission shall be obtained from CGWA.	

SN	B. Ash content / Transportation of coal	Compliance
1.	EC is given on the basis of assumption of % of ash content and km distance of transportation in rail/ road/ convey or any other mode. Any increase of %ash content by more than 1 percent, and/ or any change in transportation mode or increase in the transport distance (except for rail) require application for modifications of EC conditions after conducting the 'incremental impact assessment' and proposal for mitigation measures.	Noted

SN	C. Air quality monitoring and Management:	Compliance
1.	Flue Gas Desulphurization System shall be installed based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO_2 emissions standard of 100 mg/Nm³.	• Flue gas emissions are well within the norms as per the Ministry's Notification dated 07.12.2015, except for SO_2 emissions. • CFBC based coal-fired boilers have been installed & commissioned to control NOx emissions. • In accordance with the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification No. G.S.R. 465(E) dated 11 July 2025, TSM-CPP has submitted a letter to the Odisha State Pollution Board (OSPCB) vide Letter No. TSL/SPCB/TS-03/2025-22/601, seeking categorization of TSM-CPP under Category 'C'. • An online mercury analyzer has been installed at CEMS-3, attached to Boiler No. 5 and 6. • Report on NOx and SO_2 emissions is enclosed as **Annexure-X**.

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SN	C. Air quality monitoring and Management:	Compliance
2.	Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOx Burners with Over Fire Air (OFA) system shall be installed to achieve NOx emission standard of 100 mg/Nm^3.	• The plant operates with CFBC (Circulating Fluidized Bed Combustion) boiler, which inherently controls NOx formation due to low combustion temperature and staged combustion. Therefore, installation of SNCR or Low NOx Burners with OFA system is not required for this technology. • The NOx emission levels are being monitored regularly, and the emission report comprehensively indicates that the NOx concentration is well within the prescribed limit of 450 mg/Nm^3.
3.	High efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm^3.	• Energy efficient Electrostatic Precipitators (ESPs) have been installed in each unit to ensure the particulate matter (PM) emission level well within the norms. • Plant has been established during the year 2010 and 2015. According to guidelines issued by MoEF&CC vide S.O 3305(E) on dated. 07.12.2015 we are falling under category 2 of Thermal Power Plant with generation of <500MWh electricity. Hence this condition is not applicable for us. • All the emission standards enlisted as above stated criteria are being complied with.
4.	Stacks of prescribed height shall be provided with continuous online monitoring instruments for SOx, NOx and Particulate Matter as per extant rules.	Adequate stack height has been provided with provision of online continuous emission monitoring instruments to measure SOx, NOx and Particulate Matter level.
5.	Exit velocity of flue gases shall not be less than 20–25 m/s. Mercury emissions from stack shall also be monitored periodically.	• Adequate stack height (220 meters) has been provided, equipped with continuous online monitoring systems for measurement of sulfur dioxides (SO2), nitrogen oxides (NOx) and particulate matter. The exit velocity of the flue gases is maintained within 20-22 m/sec. • An online mercury analyzer has been installed at one stack attached to 425TPH

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SN	C. Air quality monitoring and Management:	Compliance
		boiler to monitor Mercury content in Flue gas. • Manual monitoring of mercury emissions is also conducted periodically. Analysis report is attached as **Annexure II**.
6.	Continuous Ambient Air Quality monitoring system shall be set up to monitor common/criteria pollutants from the flue gases such as PM_{10}, $PM_{2.5}$, SO_2, NOx within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually.	Seven numbers of continuous ambient air quality monitoring stations have been established in consultation with the SPCB in Tata Steel Limited, Meramandali complex. Half yearly reports are being submitted to the Regional Office of MoEF&CC, SPCB and CPCB at regular intervals. The summary of ambient air quality monitoring report for the period from October'25 to March'26 is enclosed as **Annexure – IX**.
7.	Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas and material transfer points to control fugitive emissions.	Dust extraction systems and dust suppression measures are actively implemented at ash silos and coal handling areas. Wheel washing system has been installed and is in operation at ash silo area to prevent fugitive dust emissions during the movement of fly ash vehicles.
8.	Appropriate Air Pollution Control measures (DEs/DSs) be provided at all the dust generating sources including sufficient water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.	Appropriate Air Pollution Control measures (DEs/DSs) have been provided at all the dust generating sources and water sprinkling arrangements provided at various locations such as roads, transfer points, loading and unloading areas, etc.

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SN	D. Noise pollution and control	Compliance
1.	The Ambient Noise levels shall meet the standards prescribed as per the Noise Pollution (Regulation and Control) Rules, 2000.	The Ambient noise levels monitor on monthly basis and report is attached as **Annexure-XIII.**
2.	Persons exposed to high noise generating equipment shall use Personal Protective Equipment (PPE) like earplugs/ear muffs, etc.	• Various control methods have been adopted such as engineering control (Acoustic enclosures, sound barriers, silencers, vibration damper, aquatic liner etc.), management control (work rotation, noise mapping, equipment maintenance, quiet zones) and providing of adequate Personal Protective Equipment (Ear muff/Ear plug) at all sources of noise generation. • On the basis of noise mapping, manned & unmanned area has been demarcated to minimize the noise impact.
3.	Periodical medical examination on hearing loss shall be carried out for all the workers and maintain audiometric record and for treatment of any hearing loss including rotating to non-noisy/less noisy areas.	• Various control methods have been adopted such as engineering control (Acoustic enclosures, sound barriers, silencers, vibration damper, aquatic liner etc.), management control (work rotation, noise mapping, equipment maintenance, quiet zones) and providing of adequate Personal Protective Equipment at all sources of noise generation. On the basis of noise mapping, manned & unmanned area has been demarcated to minimize the noise impact. • Periodical medical examination on hearing loss is being carried out for all the workers and audiometric record is being maintained. During the FY'26, 44,276 numbers of audiometric tests were carried out.

SN	E. Human Health Environment	Compliance
1.	Bi-annual Health check-up of all the workers is to be conducted. The study shall take into account of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral	• Occupational health surveillance of the workers is being periodically done. PME once in a year, Food handler test: Once in a year.

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	vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.	• Necessary PPEs have been provided to all the employees including the contractual workers.
2.	Baseline health status within study area shall be assessed and report be prepared. Mitigation measures should be taken to address the endemic diseases.	• Baseline study had been carried out & report had prepared during EIA study of the project. • Accordingly, EMP was prepared to address the proposed environmental concerns during operational phase of the project.
3.	Impact of operation of power plant on agricultural crops, large water bodies (as applicable) once in two years by engaging an institute of repute. The study shall also include impact due to heavy metals associated with emission from power plant.	• Geo-Hydrology study, TCLP study of solid waste, surface water monitoring & ground water analysis is being conducted by engaging authorized third-party agency to access the impact of power plant operation. • Study report of the same is being submitted to MoEF&CC along with half yearly EC compliance report.
4.	Sewage Treatment Plant shall be provided for domestic wastewater.	A Sewage treatment plant of capacity 3000 KLD is in operation to treat domestic sewage, and treated water is being reused for ash conditioning, water sprinkling & green belt development.

SN	**F. Water quality monitoring and Management**	**Compliance**
1.	Induced/Natural draft closed cycle wet cooling system including cooling towers shall be set up with minimum Cycles of Concentration (COC) of 5.0 or above for power plants using fresh water to achieve specific water consumption of 2.5 m^3/MWhr. (Or) Induced/Natural draft open cycle cooling system shall be set up with minimum Cycles of Concentration (COC) of 1.5 or above for power plants using sea water.	The plant is being operated with COC more than 5 and achieved specific water consumption of 2.32 m^3/MWh during the period from October 2025 to March 2026, which is within the prescribed limit. Additionally, zero effluent discharge is being maintained.
2.	In case of the water withdrawal from river, a minimum flow 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow whichever is higher, to be released during the lean season after water withdrawal for proposed power plant.	• The project is complying with the stipulated water flow requirement for river water withdrawal for the thermal power plant. • A minimum environmental flow equivalent to 15% of the average flow of 120

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SN	F. Water quality monitoring and Management	Compliance
		consecutive leanest days is being ensured in the downstream stretch of the river. • Flow meter is installed, and water withdrawal is getting measured on regular interval with valid water withdrawal permission.
3.	Records pertaining to measurements of daily water withdrawal and river flows (obtained from Irrigation Department/Water Resources Department) immediately upstream and downstream of withdrawal site shall be maintained.	• Online Flow meter has been installed at Plant's water intake point to keep the water intake measurement and record of the same is being maintained. • Water withdrawal agreement with Government of Odisha for withdrawal of 46 Cusec or 112542.47 m3/day is available.
4.	Rainwater harvesting in and around the plant area be taken up to reduce drawl of fresh water. If possible, recharge of groundwater to be undertaken to improve the ground water table in the area.	• A rainwater harvesting structure with a capacity of 6,50,000 m^3 has been constructed to collect surface runoff water from the plant premises. • The harvested water is being utilized for various plant applications & downstream process.
5.	Regular (at least once in six months) monitoring of groundwater quality in and around the ash pond area including presence of heavy metals (Hg, Cr, As, Pb, etc.) shall be carried out as per CPCB guidelines. Surface water quality monitoring shall be undertaken for major surface water bodies as per the EMP. The data so obtained should be compared with the baseline data so as to ensure that the groundwater and surface water quality is not adversely impacted due to the project & its activities.	• Monitoring of influent, effluent, surface, and ground water quality is being carried out by our in-house NABL accredited environment laboratory at TSM, as well as through a third-party NABL accredited laboratory. • The summarized data of water quality analysis for the period from October'25 to March'26 is enclosed as **Annexure - III**.
6.	The treated effluents emanating from the different processes such as DM plant, boiler blow down, ash pond/dyke, sewage, etc. conforming to the prescribed standards shall be re-circulated and reused. Sludge/ rejects will be disposed in accordance with the Hazardous Waste Management Rules.	• Effluent generated from various process such as DM plant, boiler blow down, sewage, etc. is being treated in adequately designed ETP & STP. • Treated effluent after confirming to the prescribed limit is being used in process & low-end applications respectively.

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SN	F. Water quality monitoring and Management	Compliance
		• Sludge generated from the ETPs are being managed as per Hazardous Waste Management Rules' 2016 by hand rover the waste to CHWTSDFs.
7.	Hot water dispensed from the condenser should be adequately cooled to ensure the temperature of the released surface water is not more than 5 degrees Celsius above the temperature of the intake water.	Hot water released from the condenser is being circulated to adequately engineering designed cooling towers to bring down the water temperature for further use.
8.	Based on the commitment made by the Project Proponent, Sewage Treatment Plants within the radius of 50 km from proposed project, the treated sewage of ..... KLD from STP ..... (name) shall be used as an alternative to the fresh water source to minimize the fresh water drawl from surface water bodies.	• Treated water from 3000KLD STP installed at TSM-CPP is being used for ash conditioning, water sprinkling on roads & green belt development thus by decrease in freshwater consumption. • However, feasibility study is being carried out to consume the treated STP water available with 20KM radius of TPP to further reduction in freshwater consumption.
9.	Wastewater generation of ..... KLD from various sources (viz. cooling tower blowdown, boiler blow down, wastewater from ash handling, etc) shall be treated to meet the standards of pH: 6.5-8.5; Total Suspended Solids: 100 mg/l; Oil & Grease: 20 mg/l; Copper: 1 mg/l; Iron: 1 mg/l; Free Chlorine: 0.5; Zinc: 1.0 mg/l; Total Chromium: 0.2 mg/l; Phosphate: 5.0 mg/l;	• Wastewater generated from TPP process such as cooling tower blow down; boiler blow down etc. are being channelized to central effluent treatment plant followed by common effluent treatment plant for further treatment. • Treated effluent after confirming to the prescribed standard is being used in process & low-end applications.
10.	Sewage generation of ..... KLD will be treated by setting up Sewage Treatment plant to maintain the treated sewage characteristics of pH: 6.5-9.0; Bio-Chemical Oxygen Demand (BOD): 30 mg/l; Total Suspended Solids: 100 mg/l; Fecal Coliforms (Most Probable Number): <1000 per 100 ml.	• Sewage treatment plant of capacity 3000KLD has been installed & commissioned at TSM-CPP to treat the sewage generated from the area. • Treated sewage after conforming to the stipulations is being used for water sprinkling, ash conditioning and green belt development.

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SN	G. Risk Mitigation and Disaster Management:	Compliance
1.	Adequate safety measures and environmental safeguards shall be provided in the plant area to control spontaneous fires in coal yard, especially during dry and humid season.	Fire extinguishers have been provided at various process areas for firefighting. Fire hydrant line with water nozzles have been provided at coal yard to control spontaneous fires during dry and humid season.
2.	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made as per the extant rules in the plant area in accordance with the directives of Petroleum & Explosives Safety Organisation (PESO). Sulphur Content in the liquid fuel should not exceed 0.5%.	Dedicated LDO/HFO/LSHS tanks have been constructed with adequate safety provisions. On-site emergency plan has been approved by the Directorate of Factories and Boilers; Odisha vide letter no. IV(IH)(3-149/11/3143 dated 19.10.2022 to deal with any type of unsafe condition raised with respect to fuel oil.
3.	Ergonomic working conditions with First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First Aid and sanitation arrangements have been provided to the drivers as well as contract workers during the construction phase of the project.
4.	Safety management plan based on Risk Assessment shall be prepared to limit the risk exposure to the workers within the plant boundary.	• Third party safety audit is being conducted to find out and address necessary unsafe conditions as well as unsafe practices. • On-site emergency plan has been approved by the Directorate of Factories and Boilers; Odisha vide letter no. IV(IH)(3-149/11/3143 dated 19.10.2022 is in place to accompany all un safe conditions.
5.	Regular mock drills for on-site emergency management plan and Integrated Emergency Response System shall be developed for all kind of possible disaster situations.	Moc-Drill are being carried out with regular time interval based on various unsafe scenarios in presence of DDFB and senior management to address the onsite emergency plan & integrated emergency response system.

SN	H. Green belt and Biodiversity conservation:	Compliance
1.	Green belt shall be developed in an area of 33% of the total project with indigenous native tree species in accordance with CPCB guidelines. The green belt shall inter-alia cover an entire periphery of the plant.	• Green belt development is being complied as per MoEF&CC letter No. IA3-22/14/2025-IA.III(E-275538); dated. 29th Oct 2025. • Plantation of saplings is being done regularly based on the availability of vacant areas. • Details of plantation is attached as **Annexure-XII**.

2.	*In-situ/ex-situ* Conservation Plan for the conservation of flora and fauna should be prepared and implemented.	Conservation plan of flora/fauna was carried out during EIA study. Site specific conservation plan has been implemented accordingly.
3.	Suitable screens shall be placed across the intake channel to prevent entrainment of life forms including eggs, larvae, juvenile fish, etc., during extraction of seawater.	**Not Applicable.** As the project is utilizing only river water so this condition is not applicable for us.

SN	**I. Waste management:**	**Compliance**
1.	Solid waste management should be planned in accordance with extant Solid Waste Management Rules, 2016.	Solid waste management rule' 2016 is being implemented and solid waste generated at the project site is managed accordingly.
2.	Toxicity Characteristic Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into the groundwater.	TCLP study of fly ash is being carried out by NABL accredited third party laboratory to access the leachability potential of heavy metals.
3.	Ash pond shall be lined with impervious liner as per the soil conditions. Adequate dam/dyke safety measures shall also be implemented to protect the ash dyke from getting breached.	There is no ash pond located at the project. However, an interim ash pond has been constructed to store the legacy ash stock during unavoidable emergency situations.

4.	Fly ash shall be collected in dry form and ash generated shall be used in phased manner as per provisions of the Notification on Fly Ash Utilization issued by the Ministry and amendment thereto. By the end of 4th year, 100% fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry. Mercury and other heavy metals (As, Hg, Cr, Pb, etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Fly ash utilization details shall be submitted to concerned Regional Office along with the six-monthly compliance reports and utilization data shall be published on company's website.	• Fly ash is being managed in a sustainable manner to comply the MoEF&CC notification on fly ash management.
		• Fly ash is being supplied to
		  ○ Nearby fly ash brick manufacturing units, free of cost at door delivery model, for maximum utilization of ash.
		  ○ Cement plants through bulker.
		  ○ Construction of national highway (NH-55 & NH 149).
		• Balance ash if any is being utilized in reclamation of abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.

5.	Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry/Medium Concentration Slurry/Lean Concentration Slurry method. Ash water	There is no ash pond located at the project. However, an interim ash pond has been constructed to store the legacy ash stock during unavoidable emergency situations.

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SN	I. Waste management:	Compliance
	recycling system shall be set up to recover supernatant water.	
6.	In case of waste-to-energy plant, major problems related with environment are fire smog in MSW dump site, foul smell and impacts to the surrounding populations. Therefore, the following measures are required to be taken up: i) Water hydrant at all the dumpsites of MSW area to be provided so that the fire and smog could be controlled. ii) Sprayer like microbial consortia may be provided for arresting the foul smell emanating from MSW area.	**Not Applicable**. Currently the plant is not utilizing any wastes for energy recovery. However, feasibility study is being carried out to use paddy straw as blended material for energy recovery.

SN	J. Monitoring of Compliance:	Compliance
1.	Environmental Audit of the project be taken up by the third party for preparation of Environmental Statement as per Form-V & Conditions stipulated in the EC and report be submitted to the Ministry.	Ash utilization status and hazardous waste audit is being conducted by SPCB/CPCB/MoEF&CC empaneled laboratories. Report thus generated is being used for preparation of Form-V for onwards submission to SPCB & MoEF&CC..
2.	Resettlement & Rehabilitation Plan as per the extant rules of Govt. of India and respective State Govt. shall be followed, if applicable.	Resettlement & Rehabilitation Plan is not applicable for us.
3.	Energy Conservation Plan to be implemented as envisaged in the EIA / EMP report. Renewable Energy Purchase Obligation as set by MoP/State Government shall be met either by establishing renewable energy power plant (such as solar, wind, etc.) or by purchasing Renewable Energy Certificates.	Energy conservation plan as per EIA is being implemented.
4.	Monitoring of Carbon Emissions from the existing power plant as well as for the proposed power project shall be carried out annually from a reputed institute and report be submitted to the Ministry's Regional Office.	Monitoring of Carbon Emission from the existing power plant is being carried out through dedicated trained internal personnel. Report of the same is being reviewed & verified by external agency.
5.	Energy and Water Audit shall be conducted at least once in two years and recommendations arising out of the Report	Energy & Water audit is being carried out by engaging third party agency in regular time intervals.

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SN	J. Monitoring of Compliance:	Compliance
	should be followed. A report in this regard shall be submitted to Ministry's Regional Office.	
6.	Environment Cell (EC) shall be constituted by taking members from different divisions, headed by a qualified person on the subject, who shall be reporting directly to the Head of the Project.	An environment management cell has been established with qualified technical personnel who has keen knowledge in the field of environment management. The cell is being headed by Head-Environment who directly reports to the Vice President of Operations, TSM.
7.	The project proponent shall (Post-EC Monitoring): a. send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government; b. upload the clearance letter on the web site of the company as a part of information to the general public; c. inform the public through advertisement 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 that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forest and Climate Change (MoEF&CC) at http://parviesh.nic.in. d. upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and update the same periodically; e. monitor the criteria pollutants level namely; PM (PM_{10} & $PM_{2.5}$ incase of ambient AAQ), SO_2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the	Copy of environment clearance has been sent to local bodies, panchayat, municipal bodies along with zilla parishad and regional office of OSPCB. Environment Clearance copy was uploaded in company's web site www.tatasteel.com. Advertisements were circulated in The Telegraph (English daily) dated 15.02.2015 and the Samaya (Oriya daily) dated 15.02.2015. A copy of the same was submitted to MoEF&CC vide letter no. BSL/MoEF/BS-02/2015-09 dated 21.02.2015. Status of compliance of the stipulated environment clearance conditions including results of monitored data is being uploaded periodically on company's web portal www.tatasteel.com Six-monthly compliance report of environment clearance is being submitted to MoEF&CC on periodic basis. Environment Statement report is being submitted to SPCB, MoEF&CC & CPCB in prescribed Form-V on or before 30th September of each year for the data generated for last financial year. 165 MW TG was commissioned on 23rd September 2015.

M/s Tata Steel Limited – TSM-CPP (formerly known as Angul Energy Limited),
At Ganthigadia, Angul – 75912 Ph No. +91 6762 352000, Email id:anoop.srivastava@tatasteel.com, Website: www.tatasteel.com

SN	J. Monitoring of Compliance:	Compliance
	public and put on the website of the company; f. submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB; g. submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company; h. inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project and the date of commencement of the land development work.	

SN	K. Corporate Environmental Responsibility (CER) activities:	Compliance
1.	CER activities will be carried out as per OM No. 22-65/2017-IA.II dated 01.05.2018 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed scheduled of implementation with appropriate budgeting.	• The peripheral development is being carried out based on socio-economic survey of the area on need-based assessment. • Various socio-economic development programs covering education (Green school project in collaboration with TERI) Roads in the nearby villages, safe drinking water, sanitation, sports and health care etc. are undertaken in nearby villages as per the suggestions made in public hearing. The above includes social engineering as well as infrastructure projects.
2.		• Various CSR activities have been undertaken since the inception of the plant by providing facilities of sanitation, drinking water, education, health care, road and communication etc. Following the acquisition of the industry by Tata Steel Limited, there has been a significant

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		increase in both the variety and expenditure related to CSR activities. • For a detailed breakdown of the CSR initiatives over the last six months, please refer to attached **Annexure-VII**.

SN	M. Sea Water Intake	Compliance
1.	Seawater intake system shall be so designed and constructed to ensure sufficient seawater in terms of quantity and quality.	**Not Applicable**
2.	The withdrawal of seawater shall be preferably through a pipeline with a riser equipped with a velocity cap arrangement and bar screen to arrest the impingement of large marine organisms.	**Not Applicable**
3.	In all tide conditions (particularly at spring low tides) the riser head must be flooded with the required submergence of seawater above its top.	**Not Applicable**

SN	N. Effluent Release:	Compliance
1.	At the effluent release point, maximum temperature of the discharge water shall not be more than 5°C and salinity shall not exceed 50 ppt with respect to that of the ambient seawater.	No Effluent is getting release as plant is maintaining Zero effluent discharge. Hence this condition is not applicable for us.
2.	Use of antifouling agents like chlorine / hypochlorite, shall be carefully controlled. The chlorine concentration shall not exceed 0.2 ppm at the effluent release point.	**Not Applicable**
3.	The effluent when released at the selected location shall attain sufficient dilution so that near ambient water quality (particularly temperature and salinity) is attained within 500 m from the release location, at low tide.	**Not Applicable**
4.	The location of the diffuser shall be marked with a solar lighted buoy to avoid accidents.	**Not Applicable**
5.	The site selected based on mathematical modeling shall ensure absence of recirculation of the effluent plume in the	**Not Applicable**

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	seawater intake area under all tidal conditions.	
6.	The effluent shall be released through a properly designed multiport diffuser above the seabed to facilitate its efficient initial mixing with the receiving seawater.	**Not Applicable**
7.	Efficacy of the diffuser shall be ascertained at least once in 2 years through scientific studies and corrective actions such as cleaning of the diffuser from marine growth, removal of silt deposits, etc. shall be taken up, if warranted.	**Not Applicable**
8.	Continuous online monitoring system for Temperature and Salinity shall be installed to monitor the quality of effluent.	**Not Applicable**

SN	**N. Effluent Release:**	**Compliance**
1.	The pipeline shall be buried below the seabed at a depth to ensure its stability under rough sea conditions particularly during cyclone / tsunami. The depth of burial will depend on the seafloor strata but normally the top of the pipeline shall be at least 1 m below the bed level. In the surf and intertidal zones, the pipeline shall be buried below the maximum scour level.	**Not Applicable**
2.	In case of open channel, the channel shall be constructed as per the recommendations of State Coastal Zone Management Authority (SCZMA).	**Not Applicable**
3.	If the substratum is rocky the pipeline may be anchored to the rock provided the geology of the area satisfactorily supports the structure which shall be ascertained through geo-technical investigations.	**Not Applicable**
4.	Exposed pipeline section and riser shall be protected by armour stone from waves, boats anchoring, fishing activities etc.	**Not Applicable**
5.	Marine / Sea water quality shall be monitored at effluent release location at the center. Parameters to be monitored shall be as follows: a. *Physico-chemical:* Temperature, Salinity, pH and Dissolved Oxygen.	**Not Applicable**

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	b. *Biological:* Primary Productivity, Phytoplankton (Chlorophyll a, Phaeophytin, Population, Species), Zooplankton (Biomass, Population, Species) and Benthos (Biomass, Population, Species).	
6.	In case of Coastal Power Plants, the Mangrove plantation shall be taken up in an area of …… ha, along the coast/ on the banks of ……. Estuary.	**Not Applicable**

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सीएसआईआर - खनिज एवं पदार्थ प्रौद्योगिकी संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
भुवनेश्वर-751013, ओडिशा, भारत
CSIR - INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY
Council of Scientific & Industrial Research
Bhubaneswar - 751013, Odisha, INDIA

TEST REPORT

Ref. No. JD/MMC/05/25 **Date: 16.05.2025**

Name & Address of the Party:	Tata Steel Ltd. At-Narendrapur, P.O.-Kusupanga Via-Meramandali, Dist-Dhenkanal Pin-759121, Odisha.
Your Ref. No.:	Work Order No.: 3000156889/A06, Date: 26.10.2023
Sample Details:	1. Indian Coal (01 No.) 2. Imported Coal (01 No.) 3. Iron Ore (01 No.) 4. Lime stone (01 No.)
Date of Receiving:	12.02.2025
Date(s) of Conducting Test:	03.03.2025
Date of Completion of Test:	28.04.2025

Method Adopted:

1. Proximate analysis of coal samples by classical methods.
2. Major and trace element analysis of Coal, Iron ore, lime stone and Dolomite samples through wet chemical route by gravimetric, AAS and ICP-OES techniques.
3. Coal samples were leached with distilled water at a solid: liquid ratio of 1:20 for Fluoride analysis using ISE.

Detail Report: Following data tables are enclosed:

Table-1. Proximate analysis of coal samples.
Table-2. Chemical composition analysis of coal samples.
Table-3. Trace element analysis of coal samples.
Table-4. Chemical composition analysis of Iron ore, Lime stone and Dolomite samples.
Table-5. Trace element analysis of Iron ore, Lime stone and Dolomite samples.

16/05/2025
(J. Das)
Pr. Technical Officer
MMC Dept.

16/05/25
(Dr. B. Nayak)
Chief Scientist
PL & Head, MMCD

N.B.: The samples are not drawn by CSIR-IMMT. Liability, if any, for the institute arising in connection with the testing shall be subject to ceiling of amount received by the institute from the client. The report should not be interpreted in part.

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(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
भुवनेश्वर-751013, ओडिशा, भारत
CSIR - INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY
Council of Scientific & Industrial Research
Bhubaneswar - 751013, Odisha, INDIA
Diamond Jubilee 1964-2024
आज़ादी का अमृत महोत्सव
सीएसआईआर CSIR भारत का नवाचार इंजन The Innovation Engine of India

TEST REPORT

Ref. No. JD/MMC/05/25 **Date: 16.05.2025**

Table-1. Proximate analysis of coal samples.

Sample ID	Moisture (%)	Volatile Matter (%)	Ash (%)	Fixed Carbon (%)
Indian coal	1.97	25.46	45.16	27.41
Imported coal	2.30	24.06	11.48	62.16

Table-2. Chemical composition analysis of coal samples.

Sl. No.	Component	Concentration in Test Samples, %	
		Indian Coal	Imported Coal
1	SiO_2	24.56	5.24
2	Al_2O_3	14.49	3.46
3	Fe_2O_3	1.24	0.31
4	TiO_2	0.93	0.18
5	MnO	0.008	0.01
6	CaO	0.24	0.61
7	MgO	0.06	0.07
8	Na_2O	0.88	0.4
9	K_2O	0.63	0.14
10	P_2O_5	0.10	0.10
11	S/SO_3	0.48/1.2	0.72/1.8
12	LOI	54.24	87.16

16/05/25

(Dr. B. Nayak)
Chief Scientist
PL & Head, MMCD

16/05/2025

(J. Das)
Pr. Technical Officer
MMC Dept.

सीएसआईआर - खनिज एवं पदार्थ प्रौद्योगिकी संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
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Council of Scientific & Industrial Research
Bhubaneswar - 751013, Odisha, INDIA

TEST REPORT

Ref. No. JD/MMC/05/25 **Date: 16.05.2025**

Table-3. Trace element analysis of coal samples

Sl. No.	Parameters	Trace element concentrations in test samples		
		Unit	Indian coal	Imported coal
1	Pb	mg/kg	22.95	2.94
2	Cd	mg/kg	BDL	BDL
3	Cu	mg/kg	49.0	16.7
4	Ni	mg/kg	52.83	23.87
5	Co	mg/kg	12.23	5.06
6	Cr	mg/kg	57.52	21.49
7	Zn	mg/kg	83.6	19.07
8	Ag	mg/kg	1.23	0.48
9	Sb	mg/kg	6.45	1.67
10	Mo	mg/kg	2.92	0.31
11	V	mg/kg	56.55	19.82
12	Se	mg/kg	1.77	0.28
13	Ba	mg/kg	180.74	23.5
14	As	mg/kg	139.5	37.2
15	Hg	mg/kg	0.91	0.62
16	B	%	0.35	0.13
17	F^- in water leaching (1:20) solutions.	mg/L	0.38	0.13

16/05/25
(Dr. B. Nayak)
Chief Scientist
PL & Head, MMCD

16/05/2025
(J. Das)
Pr. Technical Officer
MMC Dept.

Annexure-IA

भारत सरकार
परमाणु ऊर्जा विभाग
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड

Government of India
Department of Atomic Energy
Board of Radiation & Isotope Technology

प्रमाणपत्र ट्रैकिंग आईडी/Certificate Tracking ID : 2600983
जारी करने की तिथि/Date of Issue : 10-Mar-2026
प्रमाणपत्र क्रमांक/Certificate Sr.No.: ULR-TC1170326000000522F

TC-16423

Radioanalytical Laboratory
RADIOACTIVITY TEST CERTIFICATE

Ref : BRIT/RAL/DOM/1612-1643/MISC/1139-1170/25-26

To :
M/S. TATA STEEL LIMITED
AT NARENDRAPUR, MERAMANDALI,
DISTRICT- DHENKANAL - 759121, ODISHA

This is regarding the sample of "ASH & COAL" sent for radioactivity analysis vide your letter ref.: TSM/EMD/RTE/2026/01 dated 07.01.2026 which as per above letter is drawn from consignment with the following markings, as shown in italics:

NAME & ADDRESS OF THE CUSTOMER : ***M/S. TATA STEEL LIMITED AT NARENDRAPUR, MERAMANDALI, DISTRICT- DHENKANAL - 759121, ODISHA***

SAMPLE NAME : ***ASH & COAL SAMPLE SAMPLE DATE : 24.12.2025***

DATE OF RECEIPT OF SAMPLE: 17.01.2026 **DATE OF COMPLETION OF TEST: 10.02.2026**

The samples were analysed for U-238, Ra-226, Th-232 and K-40 radioactivity content by HPGe Gamma spectrometry and the values obtained are as follows :

Sr. No	SAMPLE TYPE	LOCATION OF SAMPLE	U-238 (Bq/Kg)	Th-232 (Bq/Kg)	Ra-226 (Bq/Kg)	K-40 (Bq/Kg
1	FLY ASH	BFPP-2	69.7 ± 5.2	119.9 ± 12.8	MDL 1.23	517.5 ± 44.4
2	BED ASH	BFPP-2	46.5 ± 3.1	64.2 ± 5.9	23.1 ± 3.9	640.7 ± 37.2
3	FLY ASH	TSM-CPP	125.2 ± 7.6	138 ± 12.8	90.5 ± 12.0	799.5 ± 57.2
4	BED ASH	TSM CPP	42.2 ± 2.4	68.1 ± 2.5	23.1 ± 3.8	641.4 ± 37.0
5	FLY ASH	POWER PLANT-ATHAGARH	65.8 ± 4.1	132.0 ± 5.1	58.2 ± 9.3	794.1 ± 56.9
6	BED ASH	POWER PLANT-ATHAGARH	96.5 ± 6.3	198.8 ± 5.8	131.6 ± 13.8	2389.1 ± 102.7
7	DOMESTIC COAL	TSM	18.7 ± 2.0	14.4 ± 2.3	15.4 ± 3.4	MDL 6.1
8	IMPORTED COAL	TSM	20.0 ± 2.2	22.0 ± 3.0	2.4 ± 0.6	106.2 ± 10.9

IAEA TECH DOC-295-1989. PERMISSIBLE LIMIT (AS PER AERB DIRECTIVE 01/2010 (TABLE 3) : U-238, Ra-226, Th-232 : 1000 Bq/Kg & K-40 10000 Bq/Kg.

Opinion: The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i) The report pertains to the given sample only. (ii) The sample will be retained in this laboratory for a period of 1 month from certificate date and thereafter it will be disposed off. (iii) This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

Checked by:
GANPAT B NAKTI
Assistant

Authorized Signatory:
AJAY NANA THAMKE
OIC, RAL

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

The authenticity of this certificate is verifiable. Please scan the QR code using a QR scanning application on any mobile devices. Upon redirection you must enter the necessary information in landing page https://eportal.britatom.gov.in. We will then revert you back with a digital copy of the certificate in your verified e-mail ID.
In accordance to IT Act 2000 (21 of 2000), this document is generated electronically through a validated s/w and need no physical/ digital signature(s).

विआप्रौबो/ बीएआरसी परिसर, सेक्टर २०, वाशी, नवी मुंबई – ४०० ७०३ (महाराष्ट्र)
BRIT/ BARC Vashi Complex, Sector 20, Navi Mumbai – 400 703 (Maharashtra)
वेबसाइट/ Website: www.britatom.gov.in; दूरभाष/ 022 2788 7002/ 7006

Mitra S.K.Private Limited

Building No.D5, Unit No- 230, Bhumi World Industrial Park,
Mumbai, Nashik Highway, Pimplas Village, Bhiwandi, Near Kalyan
Bhiwandi Bypass,Tal - Bhiwandi
Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

TEST REPORT

Name & Address of the Customer:
Tata Steel Ltd.
NH-55, Narendrapur, Meramandli,
Dhenkanal,Odisha-759129, India

Report No. :C/2025/202
Date :02.05.25
Sample No. :MSK/BBSR/2025/302

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Group	: Atmospheric Pollution
2	Description of sample *(As declared by customer)*	: Stack Emission
3	Sample Mark *(if any, given by the customer)*	: Stack Emission
4	Date of sampling	: 16.04.25 at 12:25 pm to 12:50 pm
5	Place of sampling	: TSM CPP Boiler-2
6	Environmental conditions during sampling	: Cold Chain Maintained
7	Sampling Drawn By	: Mr. Chinmaya Biswal
8	Sampling Plan & Procedures used	: USEPA
9	Location of performance of laboratory activities	: Laboratory Permanent Facility
10	Additions to, Deviation from the method (if any)	: No

A: GENERAL INFORMATION ABOUT STACK:		
1	Stack connected to	TSM CPP Boiler-2
2	Emission due to	Process Emission
3	Material of construction of Stack	MS
4	Shape of Stack	Rectangular
5	Whether Stack is provided with permanent platform	Yes
6	Capacity	NA
B: PHYSICAL CHARACTERISTICS OF STACK:		
1	Height of Stack from ground level	120 m
2	Diameter of Stack at sampling point	2.5 m x 2.5 m
3	Height of the sampling point from ground level	10 m
4	Area of Stack	6.28 m2
C: ANALYSIS/CHARACTERSTIC OF STACK:		
1	Fuel used : NA	2. Fuel consumption: NA

ANALYSIS RESULT

D: RESULTS FOR SAMPLING & ANALYSIS OF GASEOUS EMISSION:	**Unit**	**Result**	**Method**
Mercury	mg/Nm3	BDL(DL:0.008)	USEPA Part-29

Reviewed By:

Signature : Ananta Ku Rath

Name : Mr. Ananta Kumar Rath
Designation : Operation Manager

Authorized Signatory
For **Mitra S.K. Private Limited**

Signature Ananta Ku Rath

Name : Mr. Ananta Kumar Rath
Designation : Operation Manager

Mitra S.K.Private Limited

Building No.D5, Unit No- 230, Bhumi World Industrial Park,
Mumbai, Nashik Highway, Pimplas Village, Bhiwandi, Near Kalyan
Bhiwandi Bypass,Tal - Bhiwandi
Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

TEST REPORT

Name & Address of the Customer:
Tata Steel Ltd.
NH-55, Narendrapur, Meramandli,
Dhenkanal,Odisha-759129, India

Report No. :C/2025/203
Date :02.05.25
Sample No. :MSK/BBSR/2025/303

We hereby certify that the following sample drawn by us from the customer has been analyzed with the following results:

1	Group	: Atmospheric Pollution
2	Description of sample *(As declared by customer)*	: Stack Emission
3	Sample Mark *(if any, given by the customer)*	: Stack Emission
4	Date of sampling	: 16.04.25 at 04:10 pm to 04:35 pm
5	Place of sampling	: TSM CPP Boiler-4
6	Environmental conditions during sampling	: Cold Chain Maintained
7	Sampling Drawn By	: Mr. Chinmaya Biswal
8	Sampling Plan & Procedures used	: USEPA
9	Location of performance of laboratory activities	: Laboratory Permanent Facility
10	Additions to, Deviation from the method (if any)	: No

A: GENERAL INFORMATION ABOUT STACK:		
1	Stack connected to	TSM CPP Boiler-4
2	Emission due to	Process Emission
3	Material of construction of Stack	MS
4	Shape of Stack	Rectangular
5	Whether Stack is provided with permanent platform	Yes
6	Capacity	NA
B: PHYSICAL CHARACTERISTICS OF STACK:		
1	Height of Stack from ground level	120 m
2	Diameter of Stack at sampling point	2.5 m x 2.5 m
3	Height of the sampling point from ground level	10 m
4	Area of Stack	6.28 m2
C: ANALYSIS/CHARACTERSTIC OF STACK:		
1	Fuel used : NA	2. Fuel consumption: NA

ANALYSIS RESULT

D: RESULTS FOR SAMPLING & ANALYSIS OF GASEOUS EMISSION:	Unit	Result	Method
Mercury	mg/Nm3	BDL(DL:0.008)	USEPA Part-29

Reviewed By:

Signature : Ananta Ku Rath
Name : Mr. Ananta Kumar Rath
Designation : Operation Manager

Authorized Signatory
For **Mitra S.K. Private Limited**

Signature Ananta Ku Rath
Name : Mr. Ananta Kumar Rath
Designation : Operation Manager

Annexure-III

Summary of Surface Water Quality Analysis

(Period: From Oct. 2025 to March 2026)

PARAMETER	UOM	Brahmani US	Brahmani DS	Kishinda US	Kishinda DS	Lingra US	Lingra DS
pH Value	-	7.75	7.76	7.84	7.6	7.915	7.9
Colour	Hazen	48.5	27	22	19.5	9.5	7
Temperature	Deg C	26.9	27.1	28.3	27.45	28.6	27.65
Total Suspended Solids	mg/l	8.45	7.8	8.8	9.9	11.1	9.6
Arsenic as As	mg/l	BDL(DL:0.005)	BDL(DL:0.005)	BDL(DL:0.005)	BDL(DL:0.005)	BDL(DL:0.005)	BDL(DL:0.005)
BOD, 3days at 27°C	mg/l	BDL(DL-1.0)	BDL(DL-1.0)	BDL(DL-1.0)	BDL(DL-1.0)	1.15	BDL(DL-1.0)
Boron as B	mg/l	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)
Cadmium as Cd	mg/l	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)
Conductivity	µs/cm	143	169	653	859.5	487	585
Odour	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
COD	mg/l	BDL(DL-4.0)	BDL(DL-4.0)	BDL(DL-4.0)	10.18	BDL(DL-4.0)	BDL(DL-4.0)
Copper (as Cu)	mg/l	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)
Sulphide as S	mg/l	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)
Fluoride as F-	mg/l	0.318	0.183	1.53	1.57	0.547	0.645
Total Chromium as Cr +6	mg/l	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)
Sulphate as SO4	mg/l	10.94	13.85	62.6	114.0	19.7	50.0
Lead (as Pb)	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
Manganese (as Mn)	mg/l	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	0.029	BDL(DL:0.05)
Mercury (as Hg)	mg/l	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)
Nickel (as Ni)	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
O&G	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
Phenolic Comp	mg/l	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)	BDL(DL:0.001)
Free Ammonia as NH3	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
RFC	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
Selenium (as Se)	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
TKN	mg/l	BDL(DL:1.0)	1.3	1.8	2.1	BDL(DL:1.0)	BDL(DL:1.0)
Zinc (as Zn)	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
Total coliform	MPN/100ml	5.71x102	6.50x102	3.02x102	8.85 x102	$1.89x10^2$	$2.55x10^2$
Sodium Absorption	meq/l	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)

ratio(SAR)								
Bio-Assay	%	100% survival after 96 hours in 100% sample	100% survival after 96 hours in 100% sample	100% survival after 96 hours in 100% sample	100% survival after 96 hours in 100% sample	100% survival after 96 hours in 100% sample	100% survival after 96 hours in 100% sample
Vanadium as V	mg/l	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)
Ammonical Nitrogen as NH3-N	mg/l	0.445	0.505	0.85	0.52	0.425	0.39

Ground Water Quality Analysis Report of surrounding villages

	Location		Ganthigadia	Charadagadia	Kochilamada	Galapada	Motonga	Narendrapur	Khaliberena	Kharagprasad
S.N.	**Parameters**	**unit**	**GW-01**	**GW-02**	**GW-03**	**GW-04**	**GW-05**	**GW-06**	**GW-07**	**GW-08**
1	**pH**	-	7.16	7.29	7.3	7.15	7.01	7.06	7.31	7.29
2	**Odour**	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	**Colour**	**Hazen**	4	3.5		4.5	2.5	4.5		1
4	**Taste**		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	**Turbidity**	**N.T. U**	0.695	0.59	0.415	1.085	0.205	1.595	0.37	0.235
6	**Total Dissolved Solids (as TDS)**	**mg/l**	837.5	1411	1414	975.5	874.5	1454.5	833.5	1301.5
7	**Aluminium as Al**	**mg/l**	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)
8	**Anionic Surface-Active Agents as (MBAS)**	**mg/l**	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)	BDL(DL:0.025)
9	**Boron as B**	**mg/l**	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)	BDL(DL:0.2)
10	**Calcium as Ca**	**mg/l**	119.5	151.5	170.5	124	138	188	112	130.5
11	**Chloride as Cl**	**mg/l**	94.15	267	183	102.85	93.65	357	113.05	194.5
12	**Copper as Cu**	**mg/l**	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	
13	**Fluoride as F**	**mg/l**	0.3505	0.6985	0.704	0.435	0.824		0.3375	0.605
14	**Residual Free Chlorine**	**mg/l**	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
15	**Iron as Fe**	**mg/l**	0.059	0.0745	0.077	0.063	0.0625	0.068	0.04	0.051

16	**Magnesium as Mg**	**mg/l**	41.9	86.9	49.3	38.6	70	69.05	31.9	50.5
17	**Manganese as Mn**	**mg/l**	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)
18	**Mineral Oil**	**mg/l**	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
19	**Nitrate as NO3**	**mg/l**	38	108.9	BDL(DL:0.5)	62.25	21.4	7.935	80.4	10.125
20	**Phenolic Compounds as C6H5OH**	**mg/l**	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)
21	**Selenium as Se**	**mg/l**	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
22	**Sulphate as SO4**	**mg/l**	86.8	148	130.3	160.5	152.5	72.05	108.6	177
23	**Total Alkalinity as CaCO3**	**mg/l**	444.5	558.5	455	389	475.5	404.5	413	630.5
24	**Total Hardness as CaCO3**	**mg/l**	470.5	735.5	629	469	569.5	754.5	412.5	534.5
25	**Zinc as Zn**	**mg/l**	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
26	**Cadmium as Cd**	**mg/l**	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)	BDL(DL:0.003)
27	**Cyanide as CN**	**mg/l**	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)	BDL(DL:0.012)
28	**Lead as Pb**	**mg/l**	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
29	**Mercury as Hg**	**mg/l**	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)
30	**Nickel (as Ni)**	**mg/l**	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
31	**Total Arsenic (as As)**	**mg/l**	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
32	**TC**	**/100ml**	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected
33	**E. coli**	**/100ml**	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
34	**Sulphide asH_2 S**	**mg/l**	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)	BDL(DL:0.04)
35	**Ammonia as NH3**	**mg/l**	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
36	**Barium as Ba**	**mg/l**	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
37	**Total Chromium as Cr +6**	**mg/l**	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)	BDL(DL:0.03)
38	**Silver as Ag**	**mg/l**	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
39	**Chloramines as Cl_2**	**mg/l**	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
40	**Molybdenum as Mo**	**mg/l**	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:5.0)

Note: BDL: Below Detectable Limit; DL: Detectable Limit, U/S: Upstream D/S: Downstream

Source: Monitoring/ Analysis report of Environmental Laboratories & Engineering Services Pvt. Ltd,Ranchi

Average data for the month of Oct-2025 & Jan-2026.

(AMBIENT AIR QUALITY REPORT)

(Period: From October 2025 to March 2026)

S. No	Location	PM 10 in µg/m3	PM2.5 in µg/m3
		Avg	Avg
1	Motanga	93.1	49.65
2	Galpada	173.25	96.6
3	Nalachandrapur (Nalatangra)	118.8	69
4	Narandrapur	160.9	90.15
5	Mangalpur	127.1	80.85
6	Khaliberana	90.05	56
7	Kochilamara	120.25	70.4
8	Itapa	152	89.85

Source: Monitoring/ Analysis report of Environmental Laboratories & Engineering Services Pvt. Ltd,Ranchi
Average data for the month of Oct-2025 & Jan-2026.

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

CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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Environmental Chemical Laboratory

Bhubaneswar,Odisha

(An NABL Accredited Laboratory)

NABL
TC-12319

TEST REPORT

Issued to: Tata Steel Limited, Meramandali **Date : 16.12.2024**

Test Report No.11/2024-001

Sample Condition: In Plastic Jar

Sample quantity: 2 Litre

Sampling Method: APHA1060B

Source of Sample :Kisinda UP & Down stream **Sample Collected on: 14.11.2024**

Letter Reference : **Sample Analysed on: 15.11.2024**

Sl No	Characteristics	Test Method As Per APHA	Kisinda UP-stream	Kisinda down stream	Standard as per Class C-IS 2296/CPCB/SPCB
1	pH Value	APHA 4500H+ B	8.33	8.03	6.0-9.0
2	Colour	APHA 2120 B, C	15	20	300 (max)
3	Electrical Conductivity, µs/cm	APHA 2510 B	711	1004	--
4	Total Dissolved Solids, mg/l	APHA 2540 C	448.0	692.0	1500 (max)
5	Dissolved Oxygen, mg/l	APHA 2540 C	9.0	8.8	4 (min)
6	BOD (3) days at 27°C	APHA 5210 B	5.4	3.4	3 (max)
7	Chloride , mg/l	APHA 4500Cl- B	35.0	126.0	600 (max)
8	Fluoride as F , mg/l	APHA 4500F- C	5.2	3.5	1.5 (max)
9	Sulphates (SO_4) , mg/l	APHA 4500 SO42- E	41.01	111.96	400 (max)
10	Nitrate as NO_3, mg/l	APH4500 NO3- E	10.2	17.7	50 (max)
11	Hexa Chromium as Cr^{+6}, mg/l	APHA 3500Cr B	<0.01	<0.01	0.05
12	Cyanide as CN , mg/l	APHA 4500 CN-C,D	<0.03	<0.03	0.05 (max)
13	Copper as Cu , mg/l	APHA 3111 B,C	0.074	0.107	1.5 (max)
14	Iron as Fe , mg/l	APHA 3500Fe, B	0.078	0.211	0.5 (max)
15	Cadmium as Cd , mg/l	APHA 3111 B,C	<0.003	<0.003	0.01 (max)

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06/05/2025
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NABL
TC-12319

TEST REPORT

16	Selenium as Se, mg/l	APHA 3114 B	<0.01	<0.01	0.05 (max)
17	Arsenic as As, mg/l	APHA 3114 B	0.008	0.011	0.2 (max)
18	Lead as Pb(max), mg/l	APHA 3111 B,C	<0.01	<0.01	0.1 (max)
19	Zinc as Zn(max), mg/l	APHA 3111 B,C	0.108	0.010	15 (max)
20	Sodium Absorption Ratio	By Calculation	10.28	10.81	--
21	Total Coliform	APHA 9221 B	348	>542	5000
22	Fecal Coliform	APHA 9221 B	33	120	300
23	Manganese as Mn, mg/l		0.017	<0.01	0.1
24	Sodium as Na, mg/l		62.36	72.05	
25	Potassium as K, mg/l		2.11	5.89	
26	Nickel as Ni, mg/l		0.014	0.018	0.02
27	Chemical Oxygen Demand, mg/l		40.0	36.0	
28	Free Ammonia , mg/l		<0.01	<0.01	0.5
29	Boron as B, mg/l		0.012	0.018	0.5

Authorized Signatory

06/05/2025

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Environmental Chemical Laboratory

Bhubaneswar,Odisha

(An NABL Accredited Laboratory)

TC-12319

TEST REPORT

Issued to: Tata Steel Limited, Meramandali **Date : 16.12.2024**

Test Report No.11/2024-002

Sample Condition: In Plastic Jar

Sample quantity: 2 Litre

Sampling Method: APHA1060B

Source of Sample :Lingra UP & Down stream **Sample Collected on: 14.11.2024**

Letter Reference : **Sample Analysed on: 15.11.2024**

Sl No	Characteristics	Test Method As Per APHA	Lingra UP-stream	Lingra down stream	Standard as per Class C-IS 2296/CPCB/SPCB
1	pH Value	APHA 4500H+ B	8.36	7.91	6.0-9.0
2	Colour	APHA 2120 B, C	20	25	300 (max)
3	Electrical Conductivity, µs/cm	APHA 2510 B	499	598	--
4	Total Dissolved Solids, mg/l	APHA 2540 C	309.0	360.0	1500 (max)
5	Dissolved Oxygen, mg/l	APHA 2540 C	9.9	8.6	4 (min)
6	BOD (3) days at 27°C	APHA 5210 B	6.9	3.0	3 (max)
7	Chloride , mg/l	APHA 4500Cl- B	25.0	41.0	600 (max)
8	Fluoride as F , mg/l	APHA 4500F- C	0.70	1.50	1.5 (max)
9	Sulphates (SO_4) , mg/l	APHA 4500 SO42- E	10.54	27.42	400 (max)
10	Nitrate as NO_3, mg/l	APH4500 NO3- E	6.28	17.0	50 (max)
11	Hexa Chromium as Cr^{+6}, mg/l	APHA 3500Cr B	<0.01	<0.01	0.05
12	Cyanide as CN , mg/l	APHA 4500 CN-C,D	<0.03	<0.03	0.05 (max)
13	Copper as Cu , mg/l	APHA 3111 B,C	0.065	0.147	1.5 (max)
14	Iron as Fe , mg/l	APHA 3500Fe, B	0.078	0.412	0.5 (max)
15	Cadmium as Cd , mg/l	APHA 3111 B,C	<0.003	<0.003	0.01 (max)

Dr. Rakshita Maihi
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06/05/2025

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NABL Accredited Lab/ISO/IEC 17025:2005.

TEST REPORT

16	Selenium as Se, mg/l	APHA 3114 B	<0.01	<0.01	0.05 (max)
17	Arsenic as As, mg/l	APHA 3114 B	0.005	0.007	0.2 (max)
18	Lead as Pb(max), mg/l	APHA 3111 B,C	<0.01	<0.01	0.1 (max)
19	Zinc as Zn(max), mg/l	APHA 3111 B,C	0.005	0.032	15 (max)
20	Sodium Absorption Ratio	By Calculation	7.05	7.40	--
21	Total Coliform (CFU/ml)	APHA 9221 B	542	348	5000
22	Fecal Coliform (CFU/ml)	APHA 9221 B	32	120	300
23	Manganese as Mn, mg/l		<0.005	<0.005	0.1
24	Sodium as Na, mg/l		37.31	39.95	
25	Potassium as K, mg/l		1.94	4.52	
26	Nickel as Ni, mg/l		0.015	0.016	0.02
27	Chemical Oxygen Demand, mg/l		24.0	28.0	
28	Free Ammonia , mg/l		<0.01	<0.01	0.5
29	Boron as B, mg/l		0.014	0.019	0.5

Authorized Signatory

04/05/2025

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-003	
Source of Sample : Ganthigadia	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.64
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.43@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	841.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	572.0
5.	Calcium as Ca, mg/L	Part 40	75	200	63.33
6.	Magnesium as Mg, mg/L	Part 46	30	100	100.60
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	470.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	64.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	119.26
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.137
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.007
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.139
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.008
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.015

Authorized Signatory

16/05/2025

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Non NABL Test report – P.T.O

'End of Test Report'

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CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-003	
Source of Sample : Ganthigadia	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1185
22.	Total Suspended Solid, mg/l	Part 17	--	--	4.1
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.215
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	34.3
25.	Sodium as Na, mg/l	Part 45	--	--	34.18
26.	Potassium as K, mg/l	Part 45	--	--	3.01
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	>542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	79

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06/05/2025

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TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-004	
Source of Sample : Khaliberena	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.41
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.61@25.0 °C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	484.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	296.0
5.	Calcium as Ca, mg/L	Part 40	75	200	56.91
6.	Magnesium as Mg, mg/L	Part 46	30	100	37.42
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	342.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	18.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	49.82
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.71
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.176
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.046
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.002
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.095
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.011
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

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06/05/2025

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Non NABL Test report – P.T.O

'End of Test Report'

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-004	
Source of Sample : Khaliberena	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	716
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.9
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.081
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	14.3
25.	Sodium as Na, mg/l	Part 45	--	--	33.08
26.	Potassium as K, mg/l	Part 45	--	--	1.11
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	6.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	4.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	221
32.	Fecal Coliform by MPN .	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	17

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-005	
Source of Sample : SARAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	9.23
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.83@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	461.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	284.0
5.	Calcium as Ca, mg/L	Part 40	75	200	78.56
6.	Magnesium as Mg, mg/L	Part 46	30	100	21.38
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	212.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	65.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	52.08
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.54
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.152
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.042
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.177
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.012
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.007

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06/05/25

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Non NABL Test report – P.T.O

'End of Test Report'

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-005	
Source of Sample : SARAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	688
22.	Total Suspended Solid, mg/l	Part 17	--	--	14.2
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.122
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	13.1
25.	Sodium as Na, mg/l	Part 45	--	--	27.83
26.	Potassium as K, mg/l	Part 45	--	--	2.13
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	4.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.0
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	11
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	2

Authorized Signatory

16/05/24

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-006	
Source of Sample : SIBAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.39
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.61@25.0 °C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	366.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	230.0
5.	Calcium as Ca, mg/L	Part 40	75	200	55.31
6.	Magnesium as Mg, mg/L	Part 46	30	100	22.36
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	196.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	33.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	37.24
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.59
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.162
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.036
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.044
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.016
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.018
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.014

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06/05/25

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-006	
Source of Sample : SIBAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	561
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.8
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.049
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	6.12
25.	Sodium as Na, mg/l	Part 45	--	--	13.8
26.	Potassium as K, mg/l	Part 45	--	--	16.58
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.5
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	21

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-007	
Source of Sample : Charadagadia	**Sample receiving Date : 14.11.2024**
Type of Sample : well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	2.28
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.25@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	1392.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	686.0
5.	Calcium as Ca, mg/L	Part 40	75	200	75.35
6.	Magnesium as Mg, mg/L	Part 46	30	100	121.01
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	504.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	181.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	147.19
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.10
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.181
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.040
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.016
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.186
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.002
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.036
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.017

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Non NABL Test report – P.T.O

'End of Test Report'

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CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-007	
Source of Sample : Charadagadia	**Sample receiving Date : 14.11.2024**
Type of Sample : well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1973
22.	Total Suspended Solid, mg/l	Part 17	--	--	4.8
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.527
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	184.0
25.	Sodium as Na, mg/l	Part 45	--	--	159.6
26.	Potassium as K, mg/l	Part 45	--	--	4.84
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	278
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	120

Authorized Signatory

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-008	
Source of Sample : KOCHILAMARA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.46
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.49@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	738.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	376.0
5.	Calcium as Ca, mg/L	Part 40	75	200	46.49
6.	Magnesium as Mg, mg/L	Part 46	30	100	63.18
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	454.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	63.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	83.03
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.216
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.034
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.052
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.015
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

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06/05/25

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Non NABL Test report – P.T.O

'End of Test Report'

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-008	
Source of Sample : KOCHILAMARA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1181
22.	Total Suspended Solid, mg/l	Part 17	--	--	1.9
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.264
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	61.0
25.	Sodium as Na, mg/l	Part 45	--	--	95.32
26.	Potassium as K, mg/l	Part 45	--	--	1.53
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	3.2
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	14

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-009	
Source of Sample : KHARAGPRASAD	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.21
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	6.88@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	303.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	166.0
5.	Calcium as Ca, mg/L	Part 40	75	200	35.27
6.	Magnesium as Mg, mg/L	Part 46	30	100	18.95
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	124.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	21.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	36.73
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.18
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.270
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.013
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.017
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.097
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.027
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

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Non NABL Test report – P.T.O

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Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-009	
Source of Sample : KHARAGPRASAD	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	413
22.	Total Suspended Solid, mg/l	Part 17	--	--	3.7
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.127
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	19.2
25.	Sodium as Na, mg/l	Part 45	--	--	14.85
26.	Potassium as K, mg/l	Part 45	--	--	12.27
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	1.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.0
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	>542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	33

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06/05/25

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-010	
Source of Sample : MOTANGA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.15
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.56@25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	810.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	422.0
5.	Calcium as Ca, mg/L	Part 40	75	200	92.18
6.	Magnesium as Mg, mg/L	Part 46	30	100	46.66
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	364.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	80.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	137.12
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.112
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.009
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.002
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.115
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.019
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.009

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06/05/25

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-010	
Source of Sample : MOTANGA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1156
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.6
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.085
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	16.7
25.	Sodium as Na, mg/l	Part 45	--	--	77.02
26.	Potassium as K, mg/l	Part 45	--	--	1.22
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	7.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	2.4
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	33
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	2

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16/12/24

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-011	
Source of Sample : GALPADA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.42
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.09@ 25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	283.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	138.0
5.	Calcium as Ca, mg/L	Part 40	75	200	36.07
6.	Magnesium as Mg, mg/L	Part 46	30	100	11.66
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	142.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	14.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	19.40
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.28
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.216
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.011
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.051
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.031
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.012

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06/01/25

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Non NABL Test report – P.T.O

'End of Test Report'

Laboratory: Acharya Vihar, Bhubaneswar, Odisha-751013. Tel: 0674-2379236, Mobile: 9760387460.
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CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-011	
Source of Sample : GALPADA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	350
22.	Total Suspended Solid, mg/l	Part 17	--	--	1.5
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.075
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	12.8
25.	Sodium as Na, mg/l	Part 45	--	--	10.80
26.	Potassium as K, mg/l	Part 45	--	--	0.46
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.8
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	348
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	11

Authorized Signatory

16/12/24

Dr. Arakshita Majhi
Senior Principal Scientist
(Environmental Chemical Lab) (ISO17025:2017, NABL Lab)
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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-012	
Source of Sample : ETAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	11.24
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.28@ 25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	676.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	312.0
5.	Calcium as Ca, mg/L	Part 40	75	200	44.09
6.	Magnesium as Mg, mg/L	Part 46	30	100	49.09
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	408.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	83.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	51.58
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.93
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.073
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.013
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.081
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.011
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.007
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.010

Authorized Signatory

06/01/25

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Non NABL Test report – P.T.O

'End of Test Report'

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-012	
Source of Sample : ETAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1120
22.	Total Suspended Solid, mg/l	Part 17	--	--	15.6
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.112
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	17.2
25.	Sodium as Na, mg/l	Part 45	--	--	111.3
26.	Potassium as K, mg/l	Part 45	--	--	15.42
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.5
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	2.1
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	221
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	79

Authorized Signatory

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'End of Test Report'

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-013	
Source of Sample : NARENDRAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.67
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.41@25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	539.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	322.0
5.	Calcium as Ca, mg/L	Part 40	75	200	55.31
6.	Magnesium as Mg, mg/L	Part 46	30	100	44.71
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	286.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	44.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	46.80
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.82
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.245
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.011
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.059
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.038
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.007

Authorized Signatory

16/12/24

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Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-013	
Source of Sample : NARENDRAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	821
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.4
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.218
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	39.6
25.	Sodium as Na, mg/l	Part 45	--	--	50.54
26.	Potassium as K, mg/l	Part 45	--	--	5.89
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	1.2
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	0.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	21

Authorized Signatory

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TATA

TSM-CPP/SPCB/TS-06/2026-01/214
April 15, 2026

The Member Secretary
State Pollution Control Board, Odisha
Parivesh Bhawan, A/118,
Nilakantha Nagar, Unit-VIII,
Bhubaneswar-751 012

Subject: Submission of ash 'Annual Implementation Report' for the financial year 2025-26.

Dear Sir,
With reference to the captioned subject and Fly ash notification dtd. September 14, 1999 and its amendment, we are submitting hereby the ash 'Annual implementation report' for the period from 1st April' 2025 to 31st March' 2026 of M/s. TSM-CPP located at Ganthigadia, Dist. Angul, Odisha.

Particulars	Generation (MT)	Disposal/Utilization (MT	Disposal/Utilization (%)
Fly Ash	726106.14	729599.17	100.48%
Bottom Ash	163167.47	163167.37	100%
Total Quantity	889273.61	892766.54	100%

Mode of Ash Disposal/Utilization	Quantity (MT)
Brick Manufacturing	130294.23
Cement Plant	379784.30
Quarry Filling	94751.18
NH/ Road Making	287936.83
Low Lying Area Filling & internal utilisation	0
Total Utilization/ Disposal Quantity	892766.54

Hope, the information furnished above is in line with the requirement.

Thanking you

Yours faithfully,

For Tata Steel Limited, TSM-CPP

Rajesh Kumar Agrawal
(Factory Manager)

Copy to:

1. Deputy Director General Forest(C) IRO, MoEF&CC, Eastern Zone, Bhubaneswar.
2. The Divisional Head, CPCB, Eastern Region, Kolkata.
3. The Regional Officer, State Pollution Control Board, Odisha, Angul.
4. Central Electricity Authority (CEA), New Delhi.

Status of utilization of coal ash Tata Steel Limited, TSM-CPP

Period: April 2025 to Mar 2026

Sl. No.	Name and Address of the TPP	Power Plant installed capacity (MW)	Quantity of coal consumed during the reporting period	Quantity of fly ash generated (MT)	Capacity of dry fly ash storage silos (MT)	Disposal Method (Dry/ HCSD/ Lean)	Mode of Utilization of fly ash													Fly Ash utilization for the reporting period	% Fly Ash utilized
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Apr'25	TSM-CPP, At- Ganthigadia, PO- Nuahata, Via- Banarpal, Dist - Angul -759128	485 MW	159342.46	73909	4Nos.x 1000 MT	Dry	13545	33992	0	0	0	26372	0	0	0	0	0	0	0	0	73909	100%
May'25			145720	62288		Dry	1775	40973	0	0	0	18378	0	0	1162	0	0	0	0	0	62288	100%
Jun'25			129939	57704.22		Dry	1316	34469	0	0	0	17467.43	0	0	4451.95	0	0	0	0	0	57705	100%
Jul'25			146716	65776		Dry	857	34505	0	0	0	11975	0	0	1318	0	0	0	0	0	48655	74%
Aug'25			155680	67486		Dry	3585	24726	0	0	0	48589	0	0	7707	0	0	0	0	0	84607	125.4%
Sep'25			140625	58658		Dry	3011	21674	0	0	0	33973	0	0	0	0	0	0	0	0	58658	100%
Oct'25			153746	63711.51		Dry	2523.20	31302.33	0	0	0	29851.70	0	0	34.28	0	0	0	0	0	63711.51	100%
Nov'25			150049	60888.84		Dry	4010.44	40218.87	0	0	0	19980.20	0	0	172.33	0	0	0	0	0	64381.84	105.7%
Dec'25			151320	60316		Dry	6715.23	29596.6	0	0	0	9484.71	0	0	14519.2	0	0	0	0	0	60316	100%
Jan'26			145740	58775		Dry	4399.17	27281.45	0	0	0	5416.86	0	0	21677.90	0	0	0	0	0	58775	100.0%
Feb'26			129742	47363.71		Dry	6494.12	29145.14	0	0	0	4915.34	0	0	6809.11	0	0	0	0	0	47363.71	100.0%
Mar'26			133796	49229.97		Dry	4729.37	31900.53	0	0	0	3768.6	0	0	8831.47	0	0	0	0	0	49229.97	100.0%
FY'26			**1742415.46**	**726106.14**		Dry	**52960.37**	**379784.30**	**0**	**0**	**0**	**230171.64**	**0**	**0**	**66682.86**	**0**	**0**	**0**	**0**	**0**	**729599.17**	**100.48%**

N.B.: Ash contains about 15% moisture.

***3493MT of Legacy Ash (Fly Ash) has been utilized during Nov'2025.**

Sl. No.	Name and Address of the TPP	Power Plant installed capacity (MW)	Quantity of coal consumed during the reporting period	Quantity of Bed ash generated (MT)	Capacity of dry Bed Ash storage silos (MT)	Disposal Method (Dry/ HCSD /Lean)	Mode of Utilization of Bed Ash													Bed Ash utilization for the reporting period	% Bed Ash utilized
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Apr'25	TSM-CPP, At- Ganthigadia, PO- Nuahata, Via-Banarpal, Dist - Angul -759128	485 MW	159342.46	14087	4Nos.x 1000 MT	Dry	8579	0	0	0	0	5508	0	0	0	0	0	0	0	0	14087	100%
May'25			145720	15102		Dry	2899	0	0	0	0	10799	0	0	1404	0	0	0	0	0	15102	100%
Jun'25			129939	13022.92		Dry	3825.34	0	0	0	0	8102.53	0	0	1095.05	0	0	0	0	0	13023	100%
Jul'25			146716	8500		Dry	4597	0	0	0	0	3218	0	0	685	0	0	0	0	0	8500	100%
Aug'25			155680	13272		Dry	8133	0	0	0	0	3547	0	0	1592	0	0	0	0	0	13272	100%
Sep'25			140625	14127		Dry	7183	0	0	0	0	6525	0	0	419	0	0	0	0	0	14127	100%
Oct'25			153746	15854.23		Dry	6784.43	0	0	0	0	9021.88	0	0	47.92	0	0	0	0	0	15854.23	100%
Nov'25			150049	18508.61		Dry	6980.62	0	0	0	0	8988.52	0	0	2539.47	0	0	0	0	0	18508.61	100%
Dec'25			151320	15003		Dry	7188.47	0	0	0	0	1743.50	0	0	6070.97	0	0	0	0	0	15003	100%
Jan'26			145740	13456		Dry	6981.70	0	0	0	0	37.05	0	0	6437.04	0	0	0	0	0	13456	100%
Feb'26			129742	12226.01		Dry	7400.27	0	0	0	0	176.24	0	0	4649.50	0	0	0	0	0	12226.01	100%
Mar'26			133796	10008.92		Dry	6781.95	0	0	0	0	98.60	0	0	3128.37	0	0	0	0	0	10008.92	100%
FY'26			**1742415.46**	**163167.47**		Dry	**77333.86**	**0**	**0**	**0**	**0**	**57765.19**	**0**	**0**	**28068.32**	**0**	**0**	**0**	**0**	**0**	**163167.37**	**100%**

N.B.: Ash contains about 15% moisture.

1: Fly ash based products (Bricks/Blocks/Tiles, Paver, Fibers, Sheet, Pipes, Boards, Panels etc.) 2: Cement Manufacturing 3: Ready Mix Concrete 4: Ash and Geopolymer based construction materials 5: Manufacturing of sintered or cold bonded ash aggregates 6: Construction of roads, road and fly over embankment 7: Construction of dam 8: Filling of low lying areas 9: Filling of mines voids 10. Use of over burden dumps 11: Agriculture 12: Construction of shorelines protection structure in coastal districts 13. Export of ash to other countries 14. Others.

Prepared By

Head Environment

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(A Govt. of India Autonomous Body)

Environmental Chemical Laboratory

Bhubaneswar,Odisha

(An NABL Accredited Laboratory)

NABL
TC-12319

TEST REPORT

Issued to: Tata Steel Limited, Meramandali **Date : 16.12.2024**

Test Report No.11/2024-001

Sample Condition: In Plastic Jar

Sample quantity: 2 Litre

Sampling Method: APHA1060B

Source of Sample :Kisinda UP & Down stream **Sample Collected on: 14.11.2024**

Letter Reference : **Sample Analysed on: 15.11.2024**

Sl No	Characteristics	Test Method As Per APHA	Kisinda UP-stream	Kisinda down stream	Standard as per Class C-IS 2296/CPCB/SPCB
1	pH Value	APHA 4500H+ B	8.33	8.03	6.0-9.0
2	Colour	APHA 2120 B, C	15	20	300 (max)
3	Electrical Conductivity, µs/cm	APHA 2510 B	711	1004	--
4	Total Dissolved Solids, mg/l	APHA 2540 C	448.0	692.0	1500 (max)
5	Dissolved Oxygen, mg/l	APHA 2540 C	9.0	8.8	4 (min)
6	BOD (3) days at 27°C	APHA 5210 B	5.4	3.4	3 (max)
7	Chloride , mg/l	APHA 4500Cl- B	35.0	126.0	600 (max)
8	Fluoride as F , mg/l	APHA 4500F- C	5.2	3.5	1.5 (max)
9	Sulphates (SO_4) , mg/l	APHA 4500 SO42- E	41.01	111.96	400 (max)
10	Nitrate as NO_3, mg/l	APH4500 NO3- E	10.2	17.7	50 (max)
11	Hexa Chromium as Cr^{+6}, mg/l	APHA 3500Cr B	<0.01	<0.01	0.05
12	Cyanide as CN , mg/l	APHA 4500 CN-C,D	<0.03	<0.03	0.05 (max)
13	Copper as Cu , mg/l	APHA 3111 B,C	0.074	0.107	1.5 (max)
14	Iron as Fe , mg/l	APHA 3500Fe, B	0.078	0.211	0.5 (max)
15	Cadmium as Cd , mg/l	APHA 3111 B,C	<0.003	<0.003	0.01 (max)

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Bhubaneswar,Odisha

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NABL
TC-12319

TEST REPORT

16	Selenium as Se, mg/l	APHA 3114 B	<0.01	<0.01	0.05 (max)
17	Arsenic as As, mg/l	APHA 3114 B	0.008	0.011	0.2 (max)
18	Lead as Pb(max), mg/l	APHA 3111 B,C	<0.01	<0.01	0.1 (max)
19	Zinc as Zn(max), mg/l	APHA 3111 B,C	0.108	0.010	15 (max)
20	Sodium Absorption Ratio	By Calculation	10.28	10.81	--
21	Total Coliform	APHA 9221 B	348	>542	5000
22	Fecal Coliform	APHA 9221 B	33	120	300
23	Manganese as Mn, mg/l		0.017	<0.01	0.1
24	Sodium as Na, mg/l		62.36	72.05	
25	Potassium as K, mg/l		2.11	5.89	
26	Nickel as Ni, mg/l		0.014	0.018	0.02
27	Chemical Oxygen Demand, mg/l		40.0	36.0	
28	Free Ammonia , mg/l		<0.01	<0.01	0.5
29	Boron as B, mg/l		0.012	0.018	0.5

Authorized Signatory

06/05/2025

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Environmental Chemical Laboratory

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TC-12319

TEST REPORT

Issued to: Tata Steel Limited, Meramandali **Date : 16.12.2024**

Test Report No.11/2024-002

Sample Condition: In Plastic Jar

Sample quantity: 2 Litre

Sampling Method: APHA1060B

Source of Sample :Lingra UP & Down stream **Sample Collected on: 14.11.2024**

Letter Reference : **Sample Analysed on: 15.11.2024**

Sl No	Characteristics	Test Method As Per APHA	Lingra UP-stream	Lingra down stream	Standard as per Class C-IS 2296/CPCB/SPCB
1	pH Value	APHA 4500H+ B	8.36	7.91	6.0-9.0
2	Colour	APHA 2120 B, C	20	25	300 (max)
3	Electrical Conductivity, µs/cm	APHA 2510 B	499	598	--
4	Total Dissolved Solids, mg/l	APHA 2540 C	309.0	360.0	1500 (max)
5	Dissolved Oxygen, mg/l	APHA 2540 C	9.9	8.6	4 (min)
6	BOD (3) days at 27°C	APHA 5210 B	6.9	3.0	3 (max)
7	Chloride , mg/l	APHA 4500Cl- B	25.0	41.0	600 (max)
8	Fluoride as F , mg/l	APHA 4500F- C	0.70	1.50	1.5 (max)
9	Sulphates (SO_4) , mg/l	APHA 4500 SO42- E	10.54	27.42	400 (max)
10	Nitrate as NO_3, mg/l	APH4500 NO3- E	6.28	17.0	50 (max)
11	Hexa Chromium as Cr^{+6}, mg/l	APHA 3500Cr B	<0.01	<0.01	0.05
12	Cyanide as CN , mg/l	APHA 4500 CN-C,D	<0.03	<0.03	0.05 (max)
13	Copper as Cu , mg/l	APHA 3111 B,C	0.065	0.147	1.5 (max)
14	Iron as Fe , mg/l	APHA 3500Fe, B	0.078	0.412	0.5 (max)
15	Cadmium as Cd , mg/l	APHA 3111 B,C	<0.003	<0.003	0.01 (max)

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TEST REPORT

16	Selenium as Se, mg/l	APHA 3114 B	<0.01	<0.01	0.05 (max)
17	Arsenic as As, mg/l	APHA 3114 B	0.005	0.007	0.2 (max)
18	Lead as Pb(max), mg/l	APHA 3111 B,C	<0.01	<0.01	0.1 (max)
19	Zinc as Zn(max), mg/l	APHA 3111 B,C	0.005	0.032	15 (max)
20	Sodium Absorption Ratio	By Calculation	7.05	7.40	--
21	Total Coliform (CFU/ml)	APHA 9221 B	542	348	5000
22	Fecal Coliform (CFU/ml)	APHA 9221 B	32	120	300
23	Manganese as Mn, mg/l		<0.005	<0.005	0.1
24	Sodium as Na, mg/l		37.31	39.95	
25	Potassium as K, mg/l		1.94	4.52	
26	Nickel as Ni, mg/l		0.015	0.016	0.02
27	Chemical Oxygen Demand, mg/l		24.0	28.0	
28	Free Ammonia , mg/l		<0.01	<0.01	0.5
29	Boron as B, mg/l		0.014	0.019	0.5

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04/05/2025

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-003	
Source of Sample : Ganthigadia	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.64
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.43@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	841.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	572.0
5.	Calcium as Ca, mg/L	Part 40	75	200	63.33
6.	Magnesium as Mg, mg/L	Part 46	30	100	100.60
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	470.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	64.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	119.26
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.137
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.007
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.139
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.008
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.015

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16/05/2025

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Non NABL Test report – P.T.O

'End of Test Report'

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-003	
Source of Sample : Ganthigadia	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1185
22.	Total Suspended Solid, mg/l	Part 17	--	--	4.1
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.215
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	34.3
25.	Sodium as Na, mg/l	Part 45	--	--	34.18
26.	Potassium as K, mg/l	Part 45	--	--	3.01
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	>542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	79

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06/05/2025

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'End of Test Report'

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Environmental Chemical Laboratory

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TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-004	
Source of Sample : Khaliberena	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.41
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.61@25.0 °C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	484.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	296.0
5.	Calcium as Ca, mg/L	Part 40	75	200	56.91
6.	Magnesium as Mg, mg/L	Part 46	30	100	37.42
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	342.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	18.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	49.82
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.71
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.176
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.046
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.002
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.095
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.011
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

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06/05/2025

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Non NABL Test report – P.T.O

'End of Test Report'

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-004	
Source of Sample : Khaliberena	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	716
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.9
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.081
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	14.3
25.	Sodium as Na, mg/l	Part 45	--	--	33.08
26.	Potassium as K, mg/l	Part 45	--	--	1.11
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	6.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	4.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	221
32.	Fecal Coliform by MPN .	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	17

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'End of Test Report'

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-005	
Source of Sample : SARAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	9.23
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.83@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	461.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	284.0
5.	Calcium as Ca, mg/L	Part 40	75	200	78.56
6.	Magnesium as Mg, mg/L	Part 46	30	100	21.38
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	212.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	65.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	52.08
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.54
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.152
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.042
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.177
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.012
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.007

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06/05/25

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Non NABL Test report – P.T.O

'End of Test Report'

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-005	
Source of Sample : SARAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	688
22.	Total Suspended Solid, mg/l	Part 17	--	--	14.2
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.122
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	13.1
25.	Sodium as Na, mg/l	Part 45	--	--	27.83
26.	Potassium as K, mg/l	Part 45	--	--	2.13
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	4.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.0
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	11
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	2

Authorized Signatory

16/05/24

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'End of Test Report'

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CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-006	
Source of Sample : SIBAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.39
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.61@25.0 °C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	366.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	230.0
5.	Calcium as Ca, mg/L	Part 40	75	200	55.31
6.	Magnesium as Mg, mg/L	Part 46	30	100	22.36
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	196.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	33.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	37.24
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.59
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.162
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.036
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.044
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.016
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.018
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.014

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Non NABL Test report – P.T.O

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TEST REPORT

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Test report No – 11/2024-006	
Source of Sample : SIBAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	561
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.8
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.049
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	6.12
25.	Sodium as Na, mg/l	Part 45	--	--	13.8
26.	Potassium as K, mg/l	Part 45	--	--	16.58
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.5
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	21

Authorized Signatory

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-007	
Source of Sample : Charadagadia	**Sample receiving Date : 14.11.2024**
Type of Sample : well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	2.28
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.25@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	1392.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	686.0
5.	Calcium as Ca, mg/L	Part 40	75	200	75.35
6.	Magnesium as Mg, mg/L	Part 46	30	100	121.01
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	504.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	181.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	147.19
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.10
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.181
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.040
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.016
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.186
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.002
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.036
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.017

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Non NABL Test report – P.T.O

'End of Test Report'

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-007	
Source of Sample : Charadagadia	**Sample receiving Date : 14.11.2024**
Type of Sample : well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1973
22.	Total Suspended Solid, mg/l	Part 17	--	--	4.8
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.527
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	184.0
25.	Sodium as Na, mg/l	Part 45	--	--	159.6
26.	Potassium as K, mg/l	Part 45	--	--	4.84
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.6
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	278
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	120

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-008	
Source of Sample : KOCHILAMARA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.46
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.49@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	738.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	376.0
5.	Calcium as Ca, mg/L	Part 40	75	200	46.49
6.	Magnesium as Mg, mg/L	Part 46	30	100	63.18
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	454.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	63.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	83.03
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.216
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.034
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.052
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.015
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

Authorized Signatory

06/05/25

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Non NABL Test report – P.T.O

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-008	
Source of Sample : KOCHILAMARA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1181
22.	Total Suspended Solid, mg/l	Part 17	--	--	1.9
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.264
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	61.0
25.	Sodium as Na, mg/l	Part 45	--	--	95.32
26.	Potassium as K, mg/l	Part 45	--	--	1.53
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	3.2
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	14

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-009	
Source of Sample : KHARAGPRASAD	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.21
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	6.88@25.0° C
3.	Total Dissolved Solids mg/L	Part 16	500	2000	303.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	166.0
5.	Calcium as Ca, mg/L	Part 40	75	200	35.27
6.	Magnesium as Mg, mg/L	Part 46	30	100	18.95
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	124.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	21.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	36.73
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.18
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.270
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.013
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.017
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.097
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.027
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.008

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-009	
Source of Sample : KHARAGPRASAD	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	413
22.	Total Suspended Solid, mg/l	Part 17	--	--	3.7
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.127
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	19.2
25.	Sodium as Na, mg/l	Part 45	--	--	14.85
26.	Potassium as K, mg/l	Part 45	--	--	12.27
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	1.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.0
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	>542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	33

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06/05/25

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CSIR-Institute of Minerals & Materials Technology
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'End of Test Report'

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CSIR-INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY.

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Environmental Chemical Laboratory

Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-010	
Source of Sample : MOTANGA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	1.15
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.56@25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	810.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	422.0
5.	Calcium as Ca, mg/L	Part 40	75	200	92.18
6.	Magnesium as Mg, mg/L	Part 46	30	100	46.66
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	364.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	80.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	137.12
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	1.00
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.112
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.009
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.002
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.115
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.019
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.009

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06/05/25

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Non NABL Test report – P.T.O

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Bhubaneswar, Odisha

TEST REPORT

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Test report No – 11/2024-010	
Source of Sample : MOTANGA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1156
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.6
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.085
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	16.7
25.	Sodium as Na, mg/l	Part 45	--	--	77.02
26.	Potassium as K, mg/l	Part 45	--	--	1.22
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	7.4
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	2.4
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	33
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	2

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16/12/24

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-011	
Source of Sample : GALPADA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.42
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.09@ 25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	283.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	138.0
5.	Calcium as Ca, mg/L	Part 40	75	200	36.07
6.	Magnesium as Mg, mg/L	Part 46	30	100	11.66
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	142.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	14.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	19.40
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.28
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.216
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.011
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.051
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.031
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.012

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Bhubaneswar, Odisha

TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-011	
Source of Sample : GALPADA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	350
22.	Total Suspended Solid, mg/l	Part 17	--	--	1.5
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.075
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	12.8
25.	Sodium as Na, mg/l	Part 45	--	--	10.80
26.	Potassium as K, mg/l	Part 45	--	--	0.46
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.8
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	1.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	348
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	11

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16/12/24

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Bhubaneswar, Odisha

TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-012	
Source of Sample : ETAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	11.24
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.28@ 25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	676.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	312.0
5.	Calcium as Ca, mg/L	Part 40	75	200	44.09
6.	Magnesium as Mg, mg/L	Part 46	30	100	49.09
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	408.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	83.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	51.58
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.93
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.073
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.013
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	0.081
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.011
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	<0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.007
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.010

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06/01/25

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Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-012	
Source of Sample : ETAPA	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	1120
22.	Total Suspended Solid, mg/l	Part 17	--	--	15.6
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.112
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	17.2
25.	Sodium as Na, mg/l	Part 45	--	--	111.3
26.	Potassium as K, mg/l	Part 45	--	--	15.42
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	2.5
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	2.1
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	221
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	79

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TEST REPORT

NABL
TC-12319

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-013	
Source of Sample : NARENDRAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
1.	Turbidity, NTU	Part 10	1	5	0.67
2.	pH@Temp° C	Part 11	6.5-8.5	No relaxation	7.41@25.0
3.	Total Dissolved Solids mg/L	Part 16	500	2000	539.0
4.	Total Hardness (as $CaCO_3$),mg/L	Part 21	200	600	322.0
5.	Calcium as Ca, mg/L	Part 40	75	200	55.31
6.	Magnesium as Mg, mg/L	Part 46	30	100	44.71
7.	Alkalinity as $CaCO_3$, mg/L	Part 23	200	600	286.0
8.	Chloride as Cl, mg/L	Part 32	250	1000	44.0
9.	Sulfate as SO_4, mg/L	Part 24	200	400	46.80
10.	Fluoride as F, mg/L	Part 60	1.0	1.5	0.82
11.	Iron as Fe, mg/L	Part 53	0.3	No relaxation	0.245
12.	Copper as Cu, mg/L	Part 42	0.05	1.5	0.011
13.	Manganese as Mn, mg/L	APHA(PART 3111B)	0.1	0.3	<0.005
14.	Zinc as Zn, mg/L	Part 49	5.0	15.0	0.059
15.	Lead as Pb, mg/L	Part 47	0.01	No relaxation	<0.010
16.	Cadmium as Cd, mg/L	Part 41	0.003	No relaxation	0.003
17.	Chromium as Cr, mg/L	Part 52	0.05	No relaxation	0.038
18.	Nickel as Ni, mg/l	Part 54	0.02	No relaxation	0.007

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16/12/24

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TEST REPORT

Issued to : TATA STEEL LIMITED, MERAMANDALI	**Date : 16.12.2024**
Test report No – 11/2024-013	
Source of Sample : NARENDRAPUR	**Sample receiving Date : 14.11.2024**
Type of Sample : Well water	**Sample Analysis Date : 15.11.2024**

Sl No	Characteristics	Test Method (P)of IS:3025	Requirements as per IS 10500:2012(Latest Version)		Test Result
			Acceptable limit	Permissible Limit	
19.	Color, Hazen Units	Part 4	5	15	< 5
20.	Odour	Part 5	Agreeable	Agreeable	Agreeable
21.	Conductivity, µs/cm	Part 14	--	--	821
22.	Total Suspended Solid, mg/l	Part 17	--	--	2.4
23.	Nitrite as NO_2, mg/l	Part 34	--	--	0.218
24.	Nitrate as NO_3, mg/l	Part 34	45	No relaxation	39.6
25.	Sodium as Na, mg/l	Part 45	--	--	50.54
26.	Potassium as K, mg/l	Part 45	--	--	5.89
27.	Residual Free Chlorine, mg/l	Part 26	0.2	1.0	<0.1
28.	Arsenic as As, mg/l	Part 37	0.01	No relaxation	<0.010
29.	Dissolved Oxygen, mg/l	Part 38	--	--	1.2
30.	Biological Oxygen Demand, mg/l	Part 44	--	--	0.6
31.	Total Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	542
32.	Fecal Coliform by MPN	IS 1622 RA 2019	Shall not be detectable in 100ml sample	No relaxation	21

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4. Latest version of test methods used as per latest specification.
5. It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned in "acceptable limit" render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicate under "permissible limit" in the absence of alternative sources, above which the source will have to be rejected.

'End of Test Report'

Laboratory: Acharya Vihar, Bhubaneswar, Odisha-751013. Tel: 0674-2379236, Mobile: 9760387460.
E-mail: dir@immt.res.in.

Annexure-VII

CSR Activity Expenditure
(Period- April' 2025 – Mar'2026)

Expenditure Status H1 (Apr'25- Mar'26)				
Sl.No	**Themes**	**Expenditure till Sep'25 (in lakhs)**	**Expenditure till Oct'25- Mar'26 (in lakhs)**	**Grand Total**
1	Agriculture	9.2	89.92	99.12
2	Development Corridor	0.77	-	0.77
3	Drinking Water	80.81	65.70	146.51
4	Education (including the 1000 school program and Axis-Dilse Project)	335	980.60	1315.60
5	Gender & Community Enterprise	30.31	25.82	56.13
6	Environment	-	229.63	229.63
7	Ethnicity	5.96	22.77	28.73
8	Public Health	42.33	67.39	109.72
9	Rural Infrastructure	127	484.58	611.58
10	Skill Development		0.56	0.56
11	Sports	2.13	27.37	29.50
Total Expenditure		**632.74**	**1994.34**	**2627.08**

Annexure-VIII

Environment Laboratory
TATA Steel Meramandali, Odisha

S. N	Name of the unit	Location	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26
1	**110 MW Compressor House CPP**	Near Entrance Point	82.2	81.8	81.4	81.6	82.4	82.3
		Inside Operator office	70.1	60.7	66.2	70	60.2	63.8
2	**150 MW Ash Conveying Compressor House CPP**	Inside Operator office	75.3	62.4	62.3	70.1	64.5	64.8
3	**165 MW Compressor House CPP**	Near Entrance Point	80.0	80.3	80	80.2	80.2	81.8
		Inside Operator office	60.2	61.3	61.8	60.2	57.3	57.4
4	**300 MW CPP**	CFBC Boiler-1						
		Near Boiler -1 Area	83.5	SD	84.7	SD	83.5	84.8
		CFBC- Boiler-2						
		Near Boiler -2 Area	84.7	SD	83.8	83.8	84.1	SD
		CFBC- Boiler-3						
		Near Boiler -3 Area	SD	84.3	84.8	84.6	83.5	83.8
		CFBC- Boiler-4						
		Near Boiler -4	SD	83.8	SD	84.5	SD	SD
		CFBC- Boiler-5						
		Near ID Fan-1	80.5	80.2	80.2	80.5	81.9	82.7
		Near ID Fan-2	80.8	80.3	80.5	80.4	81.2	82.2
		Near Boiler -5	84.9	82.8	83.4	84.1	84.2	82.8
		CFBC- Boiler-6						
		Near ID Fan-1	80.4	80.0	SD	SD	SD	81.4
		Near ID Fan-2	80.7	80.5	SD	SD	SD	81.2
		Near Boiler -6	84.2	83.8	SD	SD	SD	84.1
		Near Silo Area	83.4	83.6	83.1	82.7	83.5	82.6
		Control Room Office	62.5	66.2	78.6	63.5	61.7	61.3
		New Control Room Office	62.2	58.2	58.7	58.5	57.4	58.8

SUMMARY OF AMBIENT AIR QUALITY
MONTHLY AVERAGE VALUES

Month	Locations of Monitoring	Monthly Average				
		Unit in µg/m^3				Unit in mg/m^3
	Pollutant	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO
	Standard	100	60	80	80	2
October'25	CAAQMS-1	101.88	42.35	7.79	9.83	0.79
	CAAQMS-2	104.07	51.14	6.01	23.11	0.68
	CAAQMS-3	142.5	73.02	15.96	13.35	1.21
	CAAQMS-4	83.72	22.98	19.77	16.61	0.54
	CAAQMS-5	83.19	35.53	23.7	10.21	0.7
	CAAQMS-6	82.66	34.68	6.88	12.82	0.95
	CAAQMS-7	120.66	54.34	20.16	5.28	0.79
November'25	CAAQMS-1	131.12	52.16	8.99	9.85	1.46
	CAAQMS-2	158.07	84.8	6.21	22.98	0.68
	CAAQMS-3	168.89	83.11	16.22	13.3	1.04
	CAAQMS-4	113.16	56.02	18.15	16.39	0.53
	CAAQMS-5	144.67	68.17	32.05	9.91	0.75
	CAAQMS-6	196.02	75.6	6.68	12.71	1.05
	CAAQMS-7	282.91	113.16	22.42	5.43	0.91
December'25	CAAQMS-1	206.13	76.22	10.44	8.54	1.59
	CAAQMS-2	225.39	151.14	6.09	23.2	0.66
	CAAQMS-3	242.11	129.87	24.13	13.72	0.67
	CAAQMS-4	184.79	61.22	11.43	29.5	0.38
	CAAQMS-5	214.3	116.78	30.82	10.79	0.82
	CAAQMS-6	255.66	124.95	9.88	12.58	0.98
	CAAQMS-7	342.98	184.53	27.39	5.41	1.38
January'26	CAAQMS-1	204.42	92.27	7.69	5.7	0.25
	CAAQMS-2	206.2	122.99	5.44	23.03	0.68
	CAAQMS-3	231.82	107.94	35.85	15.46	0.59
	CAAQMS-4	158.45	68.18	10.32	42.4	0.32
	CAAQMS-5	204.72	107.74	32.94	11.6	0.58
	CAAQMS-6	242.72	104.97	15.78	13.06	0.66
	CAAQMS-7	318.22	150.07	32.93	7.77	1.21

February'26	CAAQMS-1	201.7	102.3	12.4	6	0.8
	CAAQMS-2	193.2	80.3	5.6	22.9	0.7
	CAAQMS-3	232.4	91.6	36.4	16.2	0.6
	CAAQMS-4	157	57.3	10.4	41.2	0.4
	CAAQMS-5	189.3	80.2	6.6	12.3	0.2
	CAAQMS-6	232.4	84.9	16.9	12.9	0.8
	CAAQMS-7	277.1	118.6	32.6	5.5	1
March'26	CAAQMS-1	175.36	71.99	11.68	5.94	0.21
	CAAQMS-2	197.83	57.85	6.27	22.75	0.7
	CAAQMS-3	211.78	77.09	17.71	16.01	0.6
	CAAQMS-4	120.8	51.03	10.57	27.69	0.49
	CAAQMS-5	153.77	60.81	10.38	12.03	0.72
	CAAQMS-6	175.12	63.68	17.29	12.76	0.75
	CAAQMS-7	190.58	81.4	34.97	5.53	0.9

All values are in µg/m^3 except CO values are in mg/m^3. All Values are derived from 24 hourly average data except CO values which are derived from 8 hourly average data.

CAAQMS 1: Near Township; CAAQMS 2: Near Utility Department; CAAQMS 3: Near CRM; CAAQMS 4: Near Water Complex; CAAQMS 5: Near Coke Oven 2; CAAQMS 6: Near Wagon Tippler; CAAQMS 7: Near Material Gate, UM: Under Maintenance.

AMBIENT AIR QUALITY REPORT-Manual Monitoring

(Period: Oct'25-Mar'26)

S. No	Location	PM 10 in µg/m3	PM2.5 in µg/m3
1	Motanga	98.9	51.9
2	Galpada	133.7	76.2
3	Nalachandrapur (Nalatangra)	104.2	61.9
4	Narandrapur	121.2	66.7
5	Mangalpur	113.3	74.5
6	Khaliberana	91.6	57.3
7	Kochilamara	117.2	63.6
8	Itapa	129.4	68.2

Source: Monitoring/ Analysis report of Environmental Laboratories & Engineering Services Pvt. Ltd

Annexure-X

SUMMARY OF GASEOUS EMISSION

Period: From October 2025 to March 2026

AEL, CEMS- 1 (Boiler 1 & 2)				**AEL, CEMS- 2 (Boiler 3 & 4)**			**AEL, CEMS- 3 (Boiler 5 & 6)**			
Month	PM in mg/m^3	SO2 in mg/m^3	NOx in mg/m^3	PM in mg/m^3	SO2 in mg/m^3	NOx in mg/m^3	PM in mg/m^3	SO2 in mg/m^3	NOx in mg/m^3	Hg in mg/m^3
October, 26	23.2	1198.1	61.7	24.4	668.0	64.2	28.1	864.3	182.1	3.9
November, 26	24.5	1381.1	165.8	27.9	1134.0	93.1	37.3	836.0	152.2	2.3
December, 26	24.6	1268.1	201.2	26.5	1219.1	106.4	21.4	890.7	169.8	3.1
January, 26	19.09	1192.7	61.7	32.49	723.6	89.2	24.50	878.9	182.1	4.3
February, 26	19.9	883.3	117.2	26.8	1092.0	98.6	18.7	730.8	200.4	3.8
March, 26	20.5	1049.7	67.1	27.1	1013.0	101.3	33.3	846.1	232.8	4.1

Annexure-XII

Plantation Details
(Both for TSM & TSM-CPP)
(Period: April'2025 to March'2026)

S.N.	Month	Plantation in number		Cumulative FY26 (In Nos.)
		Inside	Outside	
1	April 2025	165	106	271
2	May 2025	57	60	388
3	June 2025	3594	3905	7887
4	July 2025	8490	405	16782
5	August 2025	2780	2115	21677
6	September 2025	187	4182	26046
7	October 2025	1217	350	27613
8	November 2025	4156	50	31819
9	December 2025	3391	0	35210
10	January 2026	1580	0	36790
11	February 2026	410	0	37200
12	March 2026	0	0	37200

TSM CPP Ambient Noise report
(Period: Oct-25 to Mar-26)

Month	Leq day	Leq night
Oct-25	66.6	64.4
Nov-25	65.2	63.2
Dec-25	67.1	66.0
Jan-26	66.1	65.6
Feb-26	67.4	66.0
Mar-26	67.8	66.7
Avg	66.7	65.3

TATA

TEST REPORT

Name & Address of Laboratory	Name & Address of Customer
Environment Laboratory, TATA STEEL Limited, Meramandali, Dhenkanal, Odisha,759121	Captive Power Plant, TATA STEEL Limited, Meramandali, Dhenkanal, Odisha,759121

Sample Details

Sample Particulars	Report Identification Details
Date & Time of sampling: 06.01.2026 (02:00 pm to 03:00 pm)	Report Issue Date: 07.01.2026
Sampling Location: TSM CPP DG Stack	Discipline/Group: Atmospheric Pollution
Sample Drawn by: Mr. Ajit Kumar Pradhan	Product/ Material: Stack emission
Sample Quantity: 1	Page: 1 of 1
Environment condition for sampling (if any): Ambient	
Sample Type: Stack Emission	
Date of Receipt of sample: 06.01.2026	
Analysis Starting Date: 06.01.2026	
Analysis Completed Date: 06.01.2026	
Sampling Method: IS 11255 Part 1	
Sampling Plan: EMD/LAB/SOP/009	

Customer Provided Information

Sl.No.	General Information	
1.	Stack connected to	TSM CPP DG SET-2
2.	Material of construction of stack	MS
3.	Shape of stack	Circular
4.	Capacity	1010 KVA
5.	Diameter of the stack at sampling point	0.15 m
6.	Height of the stack from ground level	16 m
	Height of the sampling point from ground level	12 m

Test Result

Sl No.	Test parameter	Test Method	UOM	Result	Specification
1	Oxygen as O_2	USEPA Method-3A:2017	%	17.26	-----
2	Nitrogen Dioxide as NO_2	USEPA Method-7E:2020	mg/Nm3	611	710
3	Carbon Monoxide as CO	USEPA Method-10:2017	mg/Nm3	234	150

Remark:

1. This Test Report is issued only for the drawn sample.
2. The result stated above relate only to the items tested.
3. This Test Report shall not be reproduced except in full without the written approval of the Laboratory In-charge.

A. K. Pradhan
(Ajit Kumar Pradhan)
Reviewed By:
(Name & Signature)

(Somdatta Das)
Authorised Signatory:
(Name & Signature)

----------End of Test Report----------

TATA

TEST REPORT

Name & Address of Laboratory	Name & Address of Customer
Environment Laboratory, TATA STEEL Limited, Meramandali, Dhenkanal, Odisha,759121	Captive Power Plant, TATA STEEL Limited, Meramandali, Dhenkanal, Odisha,759121

Sample Details

Sample Particulars	Report Identification Details
Date & Time of sampling: 06.01.2026 (12:00 pm to 01:00 pm)	Report Issue Date: 07.01.2026
Sampling Location: TSM CPP DG Stack	Discipline/Group: Atmospheric Pollution
Sample Drawn by: Mr. Ajit Kumar Pradhan	Product/ Material: Stack emission
Sample Quantity: 1	Page: 1 of 1
Environment condition for sampling (if any): Ambient	
Sample Type: Stack Emission	
Date of Receipt of sample: 06.01.2026	
Analysis Starting Date: 06.01.2026	
Analysis Completed Date: 06.01.2026	
Sampling Method: IS 11255 Part 1	
Sampling Plan: EMD/LAB/SOP/009	

Customer Provided Information

Sl.No.	General Information	
1.	Stack connected to	TSM CPP DG SET-1
2.	Material of construction of stack	MS
3.	Shape of stack	Circular
4.	Capacity	1010 KVA
5.	Diameter of the stack at sampling point	0.15 m
6.	Height of the stack from ground level	16 m
	Height of the sampling point from ground level	12 m

Test Result

Sl No.	Test parameter	Test Method	UOM	Result	Specification
1	Oxygen as O_2	USEPA Method-3A:2017	%	17.62	-----
2	Nitrogen Dioxide as NO_2	USEPA Method-7E:2020	mg/Nm3	545	710
3	Carbon Monoxide as CO	USEPA Method-10:2017	mg/Nm3	216	150

Remark:

1. This Test Report is issued only for the drawn sample.
2. The result stated above relate only to the items tested.
3. This Test Report shall not be reproduced except in full without the written approval of the Laboratory In-charge.

A.K. Pradhan
(Ajit Kumar Pradhan)
Reviewed By:
(Name & Signature)

(Somdatta Das)
Authorised Signatory:
(Name & Signature)

----------End of Test Report----------