TSL/MoEF&CC/TS-01/2024-04/506
November 25, 2024

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

Subject: Half yearly EC compliance reports of 5.6, 3.1 and 1.5 MTPA capacity of integrated Steel Plant of Tata Steel Limited, Meramandali for the period April'24 to Sept'24

Reference: I.EC vide letters no.J-11011/829/2008-IA-II (I), dated 20.07.2012 of 5.6 MTPA
II. EC vide letters no J-11011/405/2007-IA-II (I), dated 22.09.2008 of 3.1 MTPA
III. EC vide letters no.J-11011/8/2005-IA-II (I), dated 29.06.2005 of 1.5 MTPA

Dear Sir,

This has reference to the captioned subject and cited references. It is to inform that we are herewith submitting six monthly compliance reports for the conditions stipulated in the Environment Clearance of 5.6, 3.1and 1.5 MTPA Integrated Steel Plant of Tata Steel Ltd.,Meramandali for the period from April 2024 to September 2024 along with monitoring report for your kind consideration.

The copy of above compliance report is also being sent in soft format through email (roez.bsr-mef@nic.in) for your kind perusal. Also copy of 5.6 MTPA, 3.1 MTPA and 1.5 MTPA EC compliance is being uploaded on MoEF&CC website on portal http:// environmentalclearance.nic.in.

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

Thanking you,

Yours faithfully,
For Tata Steel Limited
Anoop Srivastava
Anoop Srivastava
Chief Environment -TSM

30 NOV 2024
S.P.C.B. BBSR
BHUBANESWAR
30.11.24

REGIONAL OFFICE ORISSA POLLUTION CONTROL BOARD ANGUL
Received
Dt. 27/11/2024

Copy to:

I. The Zonal Officer, Central Pollution Control Board, Southern Conclave Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107.
II. The Member Secretary, SPCB, Parivesh Bhawan, A/118, Nilakahanta Nagar, Unit-VIII, Odisha, Bhubaneswar-751012.
III. The Regional Officer, State Pollution Control Board, Odisha, Angul.

SPECIFIC CONDITION:

SL	CONDITIONS	COMPLIANCE STATUS
i	Compliance to all the specific and general conditions stipulated for the existing plant by the Central / State Government shall be ensured and regular reports submitted to the Ministry's Regional Office at Bhubaneswar / SPCB.	• Compliance to all stipulated specific & general conditions are being ensured. Regular compliance reports including monitoring data are being sent to MOEF&CC, CPCB and SPCB. • The latest half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
ii	The target dates / schedule given for compliance to the conditions of environmental clearance for 3.1 MTPA Steel Plant to the State Pollution Control Board and to the Ministry shall be adhered to and reports regularly submitted to MoEF Regional Office at Bhubaneswar.	• All conditions of EC for 3.1 MTPA steel Plant has been complied. However few conditions are being complied. • Six monthly compliance report including monitoring data for the conditions stipulated in EC for 3.1 MTPA capacity integrated steel plant is being sent to MOEF&CC, CPCB and SPCB. • The latest half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
iii	The 'Consent to Operate' shall be granted by SPCB only after satisfactory compliance of the conditions stipulated in the environmental clearance and Consent granted by the SPCB for the 3.1 MTPA steel plant. A joint visit shall be conducted by MoEF Regional Office at Bhubaneswar and SPCB in this regard. Periodic review of the project regarding compliance to the conditions stipulated shall be undertaken based on the compliance report submitted by the proponent within four months. The compliance status shall be monitored by the Regional Office of the Ministry at Bhubaneswar.	• Consent to Operate for 5.6 MTPA integrated steel plant was granted by OSPCB vide letter no 4463/IND–I–CON-5440, dated. 23.03.2023 and is valid up to 31.03.2025.
iv	Measures shall be undertaken to mitigate particulate matter levels in the ambient air and a time bound action plan shall be submitted. On-line ambient air quality monitoring and continuous stack monitoring	• 58 nos. of bag filters, 27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. All the pollution control equipment are being operated & monitored continuously.

	facilities for all the stacks shall be provided and sufficient air pollution control devices viz. Electro Static Precipitator (ESP), Gas cleaning plant (GCP), Bag Filter (BF) etc. shall be provided to keep the emission levels below by installing energy efficient technology.	Details list of pollution control devices is enclosed as **Annexure-I.** • 09 numbers of Gas Cleaning scrubbers have been installed at Coke Oven I&II, Blast Furnace I&II and BOF. • To monitor the ambient air quality, 7 numbers of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed in the different locations of Tata Steel Limited in consultation with SPCB, Odisha. • Implemented various improvement projects e.g., installation of new technology power supply controller at Sinter plant (HFTR- High frequency transformer rectifier) in process ESP & Micropulse in dedusting ESP of sinter plant to keep emission level below the norms. • Installation of new Dedusting system has been identified and will be implemented in phase wise manner.
v	The bag filter shall be installed at the coal crusher and the screening area. Pneumatic dust handling system shall be provided at ESP hoppers in the sinter plant. The existing bag filters shall be upgraded. Fixed type water sprinklers shall be installed in the internal roads and at the material handling area to control the fugitive emission. Dry fog system shall be installed in the coal handling area. Dry sweeping (vacuum process) shall be carried out prior to water sprinkling on roads.	• Two Bag filters, adequate no. of Dry Fog Dust Suppression System (DFDS) and Single Fluid Dedusting System (SFDS) have been provided at the coal circuit. Dry fog systems have been provided in the iron ore circuit at crushing and screening points of raw material handling areas. • Pneumatic dust handling system has been provided at ESP hoppers in the Sinter Plant-I. • Chain conveyor dust handling system has been provided at ESP hoppers of sinter plants II and III. • 10 Nos. of Mechanized Road sweepers have been deployed for dry sweeping of roads and shop floors with dust suction facility. • Double lip seals with dual sealing system have been installed in the conveying route

		of RMHS and in junction houses to minimize material spillage. • 4 Nos. of additional DE systems have been installed in the sinter conveyor line. • Industrial vacuum cleaning system is also in operation.
vi	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November 2009 shall be followed.	• National Ambient Air Quality Standards (NAAQS) are being followed. Online real-time data is being transmitted from all seven CAAQMS. All monitoring parameters are within the norms except PM10 and PM2.5 in few locations for few days depending on the meteorological conditions and external factors such NH construction, road traffic and commercial activities etc.
vii	Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	• 58 nos. of bag filter, 27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. Details list of pollution control devices is enclosed as **Annexure-I.** • 09 numbers of Gas Cleaning scrubbers have been installed at Coke Oven I&II, Blast Furnace I&II and BOF. • Fugitive emission and stack emission monitoring is being carried out as per CPCB guidelines and record is being maintained. Monitoring report for the period Apr'24 to Sep'24 is attached as **Annexure-II** and **Annexure-III** respectively.
viii	Proper PPE shall be provided to all the workers including contract workers.	• Necessary PPEs such as safety helmet, safety shoes, gloves, goggles, ear plugs and earmuffs etc. are being provided to all the workers working in the shop floors including contract workers. This is now a mandatory requirement and one of the conditions of employment in our company & also a part of personal safety action plan for each employee.
ix	The natural drain / nallah present on the northern side of the project site shall not be disturbed. The main gate of the plant beyond	• The natural nallah (Kisinda Nallah) present on the northern side of the plant has not been disturbed.

	the nallah shall be shifted and the area should be developed into garden for public use.	• A drop gate has been provided on the main road beyond nallah to control traffic.
x	Water requirement for expansion from River Brahmani shall not exceed 3,400m^3/hr. All the effluent should be treated and used for ash handling, dust suppression and green belt development. No effluent shall be discharged and 'zero discharge' shall be adopted. Sanitary sewage should be treated in septic tank followed by soak pit for treatment of effluent run-off from the coal washery area, settling pond shall be de-silted regularly and additional settling tank shall be constructed.	• Freshwater consumption during the period Apr'24 to Sep'24 for the Steel plant is 2308m^3/hr which is well within the requirement of 3400 m^3/hr. • All effluents are being treated in settling tanks (43 nos.) in steel plant attached with respective units and Effluent Treatment Plants (3 nos.) centrally. • Treated effluent is being reused for dust suppression, ash handling, make up for DRI, Sinter and green area development. • Process effluent after treatment is being reused. During the period Apr'24 to Sep'24, 3010291 m3 of treated water has been recycled. • The sanitary sewage is being treated in 4 Nos. of Sewage Treatment Plant and used for green belt development and low-end application in plant. • Rainwater harvesting pond of capacity 50000 m^3 with HDPE liner has been constructed to store & reuse rainwater. • Zero Effluent Discharge (ZED) project is under construction stage and will be implemented in FY 25.
xi	Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement shall be met from other sources.	• Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period Apr'24 to Sep'24, 36774 m^3 of rainwater has been utilized in process. • Surface runoff water collected from DRI & RMHS area are channelized through drains into a series of storage pond for harvesting.
xii	Regular monitoring of influent and effluent, surface, sub-surface and ground water (including chromite) should be ensured and treated wastewater should meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act whichever are more	• Monitoring of influent, effluent, surface and groundwater quality is being carried out regularly in Captive Environment laboratory which has been accredited by NABL vide certificate no. TC-14737 dated 22.10.2024 for 44 nos. Parameters.

	stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.	• Leachate study is being carried out and submitted to OSPCB periodically. • The monitoring reports for the period from Apr, 2024 to Sep, 2024 are enclosed as **Annexure- IV.**
xiii	All the blast furnace (BF) slag shall be provided to the cement manufacturers. Scrap shall be used in steel melting shop (SMS) and SMS slag and kiln accretions shall be properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. Fly ash shall be utilized for the cement manufacturing and filling of mined out area after carrying geo hydrological study to prevent ground water pollution.	• Most of the blast furnace slag has been dispatched to cement manufacturers based on long term MoU with the cement manufacturer. • Details of generation and utilization of Blast Furnace slag and LD slag are given as **Annexure-V.** • The SMS slag (LD slag) is processed in material recovery plant (MRP) inside plant premises for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are ➢ recovered metallics used in steel making process as a scrap, ➢ recovered fines used in sinter making process for replacement of lime, ➢ non-metallic utilization in cement manufacturing, road making, and hard sand applications. • Fly ash is also being supplied to ➢ nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash. ➢ Cement plants through bulker. ➢ Construction of national highway (NH-55 & NH 149). Balance if any is being utilized in reclamation of low lying areas & abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.
xiv	Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid / hazardous	• Solid waste handling, storage, utilization and disposal are being done scientifically. The toxic metal content and compositional analysis of solid waste are being carried out

	waste should be submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.	regularly. The analysis report of solid waste is attached as **Annexure-VI**. • Annual return (Form-IV) of hazardous waste is being regularly submitted to SPCB Odisha. Latest return was submitted vide letter No. TSL/SPCB/TS07/2024-01/462 dated June 20, 2024.
xv	Vehicular pollution due to transportation of raw material and finished products shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.	• Vehicles carrying raw materials are being covered with tarpaulin to proact during transportation. • Water sprinkling arrangement has been made by installation of 128 numbers of rotary gun sprinklers at raw material handling areas to control dust emissions during loading and unloading of raw materials at site. • Additionally, dry fog dust suppression system having 242 nos. of nozzles have been installed in entire coal circuit and at the unloading points of raw material handling area to control fugitive dust. • Six Nos. of wheel washing systems are in operation at DRI, RMHS, BFPP1, BFPP2 and WHRB. • 10 Nos. of mechanized road sweepers is in operation for dry sweeping of internal roads and shop floors with dust suction facility.
xvi	The raw materials should regularly (six monthly) be monitored for trace metals and management plan shall be submitted to SPCB and MOEF Regional Office at Bhubaneswar.	• The analysis of trace metals in raw materials is being done by CSIR-IMMT, Bhubaneswar. Copy of the latest report is enclosed as **Annexure-VII.**
xvii	All internal roads shall be black topped. The roads shall be regularly cleaned with mechanical sweepers. A 3-tier avenue plantation using native species shall be developed along the roads.	• 43 km of internal roads have been concreted/paved. All internal roads are being cleaned regularly by using mechanical road sweepers. • Avenue plantation using native species has been developed along the roads.

xviii	An action plan for transfer from wet to dry quenching shall be submitted to the SPCB and MOEF Regional Office at Bhubaneswar within three months. The target date shall not be more than six years from the date of environmental clearance accorded for 3.1 MTPA Steel Plant i.e. 22.9.2008. Adequate space shall be provided for the retro fitting the dry coke quenching facility.	• Coke dry quenching has been commissioned at both Coke Oven – I & Coke Oven – II.
xix	Risk and tragedy Management Plan along with the mitigation measures shall be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within three months of issue of environment clearance letter.	• Risk and tragedy Management plan (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. The approval letter is attached as **Annexure-VIII**.
xx	As proposed, green belt shall be developed in 33 % of plant area as per the CPCB guidelines in consultation with the DFO.	• Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Sep'24, 33% of area (This includes Plant, R&R and CSR) has been covered under green belt. Rapid afforestation using MiyaWaki method in consultation with IIT, Kharagpur has also been implemented along the boundary wall. • Plantation of saplings are done regularly based on the availability of vacant area. • During the period Apr'24 to Sep'24, 44052 nos. of plant have been planted. Proper maintenance of green coverage is being ensured throughout the year.
xxi	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants should be implemented.	• Tata Steel Limited has implemented all CREP recommendations. The CREP compliance is attached herewith as **Annexure-IX.**
xxii	All the commitments made to the public during the Public Hearing in Public Consultation meeting held on 28th October, 2010 should be satisfactorily implemented and a separate budget for implementing the same should be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	• Compliance to the commitments made to the public during Public Hearing are complied. Public hearing compliance report is attached as **Annexure X**.

xxiii	At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on Public Hearing issues and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.	• Various CSR activities have been undertaken since the inception of the plant by providing facilities of sanitation, drinking water, education, health care, road, communication etc. Further, CSR activities and its related expenditure has been substantially increased after acquisition of the industry by Tata Steel Limited. • We are well with in compliance of w.r.t CSR expenditure @ 2% for the company under section 135(1) of the Companies Act, 2013. • Detail CSR expenditure for the period from Apr'24 to Sep'24 is enclosed as **Annexure-XI**.
xxiv	The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	All necessary infrastructure and housing facilities were provided for workers during construction phase of the plant within the site.
xxv	The company shall set up State-of-the-art-environment control/monitoring and research lab with R& D facilities for waste utilization studies. The laboratory staff shall be provided with adequate training for use and maintenance of the equipment's. An action plan in this regard shall be submitted to SPCB and MOEF Regional Office at Bhubaneswar within three months.	Monitoring of influent, effluent, surface and groundwater quality is being carried out regularly in internal Environment laboratory which has been accredited by NABL vide certificate no. TC-14737 dated 22.10.2024 for 44 nos. Parameters. An environment research group is also working for research activity in environment technology.

GENERAL CONDITION:

SL	CONDITIONS	COMPLIANCE STATUS
i	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	All relevant stipulations made by State Pollution Control Board, Odisha and the State Government are being complied with.
ii	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	As per MoEF&CC notification as per the MoEF& CC Notification No. S.O.980(E) dated: 02.03.2021"no increase in pollution load" (NIPL) was studied by expert agency for the followings and the same were verified by State Pollution Control Board. I. Enhancement of Hot Metal production from 3.919 MTPA to 5.0 MTPA vide OSPCB letter no. 246/IND-II-NOC-NIPL/24 dated 04.01.2022. CTO was granted vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025. II. Installation of one no. of LRF of 190 T/heat and expansion of carrying capacity of two nos. of existing ladle from 180 T/heat to 190 T/heat vide OSPCB letter no.886/IND-II-NOC-NIPL/27 dated 20.01.2022. CTO of LRF 3x190 Ton/heat was also granted by OSPCB and valid till 31.03.2025.
iii	The gaseous emissions from various process units shall conform to the load/mass-based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	• 58 nos. of bag filter, 27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. Details list of pollution control devices is enclosed as **Annexure-I.** • 09 numbers of Gas Cleaning scrubbers have been installed at Coke Oven I&II, Blast Furnace I&II and BOF.
iv	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of PM_{10}, SO_2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack	Seven CAAQM stations have been established in consultation with the SPCB in Tata Steel Ltd. Meramandali complex. Half yearly reports are being submitted to the Regional Office of MoEF&CC, SPCB and CPCB at regular

	emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	intervals. Summary of AAQ monitoring report is attached as **Annexure-XII.** The latest half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
v	Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December 1993 or as amended form time to time. The treated waste water shall be utilized for plantation purpose.	The industrial as well as domestic wastewater is being treated and reused for various purposes like slag quenching, coke quenching, dust suppression and green belt development inside the plant premises. The monitoring reports of Industrial wastewater are being submitted to SPCB/CPCB/MOEF&CC at regular intervals.
vi	The overall noise levels in and around the plant area shall be kept well within the standards 85 dB(A) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dB (A) (daytime) and 70 dB (A) (nighttime).	Acoustic hoods, silencers, enclosures etc. on all sources of noise generation have been provided. Work zone noise monitoring is being carried out and records being maintained. The ambient and work zone noise level monitoring report is enclosed as **Annexure-XIII**.
vii	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act. The workers including the contract workers shall be provided with proper personal protection equipment.	Occupational health surveillance of the workers is being done periodically and records maintained as per the Factories Act. Necessary PPEs are being provided to all the employees including the contractual workers.
viii	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period April'24 to September'24, 36774 m^3 of rainwater has been utilized in process. RWH potential has been studied by engaging an expert agency & the suggested projects are being implemented in phases. 50000 Cum capacity HDPE lined storage pond has been constructed in the year 2021. Also, rainwater collected from DRI & RMHS area are channelized through drains into a series of

		storage pond (3 nos. of lagoons are in operation).
ix	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	• Compliance to all environmental protection measures as recommended in EIA / EMP report is ensured. • Various socio-economic development programs covering education, safe drinking water, sports, health care etc. are undertaken in nearby villages. • Details of breakup of CSR initiatives are enclosed as **Annexure-XI.**
x	The requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	• Adequate funds are being provided by the management for pollution control and to meet recurring costs. Environmental requirements are given top priority for fund allocation and approval of capital projects. • The funds earmarked for environment pollution control measures are not diverted for any other purpose. • The company has invested adequate capital expenditure to improve mix of clean power & also reduction of carbon emissions.
xi	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, If any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Clearance letter was sent to all concerned and uploaded in our Company web site, which can be viewed at http://www.tatasteel.com.
xii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely PM_{10}, SO_2, NO_x (ambient levels as well as stack emissions) or critical sectoral	Compliance status is uploaded in the Company's web site at http://www.tatasteel.com. The compliance report including results of monitored data is periodically submitted to the Regional Office of MoEF&CC, CPCB and SPCB, Odisha. Parameters being monitored in ambient air and stack emission are being displayed near the main gate of the Company.

	parameters, indicated for the projects, shall be monitored and displayed at a convenient location near the main gate of the Company in the public domain.	
xiii	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF&CC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar / CPCB / SPCB shall monitor the stipulated conditions	• The half yearly compliance report is being submitted to the Regional Office of the MoEF&CC, CPCB and SPCB. • The latest half yearly compliance report was submitted vide our letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
xiv	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MOEF at Bhubaneswar by e-mail.	• The Environmental Statement in Form-V is being submitted to SPCB/CPCB/MOEF&CC regularly. • The Environment Statement for the FY 2023-24 was submitted vide letter no. TSL/SPCB/TS-03/2024-15/489, dated 13.09.2024.
xv	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	• The advertisement was published in both Odia & English newspapers named "The Sambad" and "The New Indian Express" respectively on dated 24.07.2012. • The same has already been communicated to the Regional Office of MOEF&CC, Bhubaneswar vide our letter no. BSL/MoEF&CC/BS-01/2012-08 dated 24.07.2012.
xvi	Project authorities shall inform the Regional Office as well as the Ministry, the date of	All the project activities related to 5.6 MTPA integrated steel plant has been completed.

	financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Consent to Operate has been obtained from OSPCB vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025.

SPECIFIC CONDITIONS:

SL	CONDITIONS	COMPLIANCE STATUS
i	Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. Online ambient air quality monitoring and continuous stack monitoring facilities for all the stacks and sufficient air pollution control devices like ESP and Bag house etc. shall be provided to keep the emission levels below 100 mg/Nm^3. Bag filters should be provided to the induction furnace to control the particulate emission below 100 mg/Nm^3. Inter-locking system shall be provide to ESP's. Monitoring reports shall be submitted to the Ministry's Regional office at BBSR, CPCB, and OPCB on six monthly basis.	• 58 nos. of bag filters, 27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. All the pollution control equipment are being operated & monitored continuously. Details list of pollution control devices is enclosed as **Annexure-I.** • 09 numbers of Gas Cleaning scrubbers have been installed at Coke Oven I&II, Blast Furnace I&II and BOF. • To monitor the ambient air quality, 7 numbers of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed in the different locations of Tata Steel Limited in consultation with SPCB, Odisha. • Implemented various improvement projects e.g., installation of new technology power supply controller at Sinter plant (HFTR-High frequency transformer rectifier) in process ESP & Micropulse in dedusting ESP of sinter plant to keep emission level below the norms. • Installation of new Dedusting system has been identified and will be implemented in phase wise manner.
ii	Electrostatic precipitators (ESP's) to DRI plant, waste heat recovery boiler (WHRB) and fluidized bed boiler (FBB) and bag house to blast furnace (BF) shall be provided to control gaseous emission within 100 mg/Nm$^{3.}$ The gases from the DRI Kilns and BF after recovery of heat in WHRB shall be passed through ESP to control gaseous emissions. Smoke hood and fume extraction system with cyclone and bag filters should provided to IF, LRF and CCM to keep the dust in work zone environment within the permissible limit. Cyclone and bag filters shall be provided to SMS.	Following facilities have been installed to control dust emissions: **DRI & WHRB:** • The Plant has installed 10 nos. of DRI Kiln of 500 TPD each with WHRB system connected to 10 nos. of ESP at the hot end of the DRI Kiln and 5 nos. of De-dusting system at the cold end of the DRI kiln. **BLAST FURNACE:** • Seven nos. of bag filter have been installed in Cast House and stock house. To keep the emission well within the norms.

		IF, LRF & CCM: • Smoke hood and fume extraction system of adequate capacity have been provided to IF, LRF & CCM to keep the dust in work zone environment within the permissible limit. **SMS II:** • Two nos. of fume extraction system along with cyclonic system and bag filters have been installed to take care of the fugitive emissions in the Steel Making Shop.
iii	All the standards prescribed for the coke oven plants shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using waste heat recovery steam generators shall be ensured and no flue gases should discharged into the air.	• All efforts are being taken to comply with the prescribed standards and guidelines for the coke oven facility, for which 4 and 11 nos. of bag filter installed in coke oven-1 and coke oven-2 respectively. Also, wastewater treatment plant (BOD plant) has been installed at both coke oven plant. • The cleaned Coke Oven Gas (COG) is utilized in HSM, CO battery heating, Lime Plant, BF power plant and gas fired boiler for power generation. • Provisions have also been made for storage of COG in gas holder tank of capacity 50,000 m3.
iv	Dry coke quenching method shall be adopted in the proposed recovery type of the coke oven within 5 years of grant of environmental clearance.	• Dry quenching has been commissioned for Coke Oven – I & Coke Oven – II and now in operation.
v	Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	• 58 nos. of bag filter,27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. Details list of pollution control devices is enclosed as **Annexure-I.** • Fugitive emission and stack emission monitoring is being carried out as per CPCB guidelines and record is being maintained. Monitoring report for the period April'24 to

		September'24 is attached as **Annexure-II** and **Annexure-III** respectively.
vi	Bag filters, dust suppression system and extraction system shall be provided to raw materials handling areas, crusher house, junction towers, feed points, etc. to control fugitive emissions. Water sprinkling shall be done at loading and unloading points.	• Two Bag filters, adequate no. of Dry Fog Dust Suppression System (DFDS) and Single Fluid Dedusting System (SFDS) have been provided at the coal circuit. Dry fog systems have been provided in the iron ore circuit at crushing and screening points of raw material handling areas. • Pneumatic dust handling system has been provided at ESP hoppers in the Sinter Plant-I. • Chain conveyor dust handling system has been provided at ESP hoppers of sinter plants II and III. • 10 Nos. of Mechanized Road sweepers have been deployed for dry sweeping of roads and shop floors with dust suction facility. • Double lip seals with dual sealing system have been installed in the conveying route of RMHS and in junction houses to minimize material spillage. • 4 Nos. of additional DE systems have been installed in the sinter conveyor line. • Industrial vacuum cleaning system is also in operation.
vii	Vehicular pollution due to transportation of raw material and finished products shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.	• Vehicles carrying raw materials are being covered with tarpaulin to proact during transportation. • Water sprinkling arrangement has been made by installation of 128 numbers of rotary gun sprinklers at raw material handling areas to control dust emissions during loading and unloading of raw materials at site. • Additionally, dry fog dust suppression system having 242 nos. of nozzles have been installed in entire coal circuit and at the unloading points of raw material handling area to control fugitive dust.

		• Six Nos. of wheel washing systems are in operation at DRI, RMHS, BFPP1, BFPP2 and WHRB. • 10 Nos. of mechanized road sweepers is in operation for dry sweeping of internal roads and shop floors with dust suction facility.

viii	Total water requirement should not exceed 1, 29,600 m^3/day. Permission for drawl of 2,40,000 m^3/day is obtained from Department of water resources, Govt. of Orissa, vide letter dated 4th December, 2003. No ground water shall be used. Closed circuit circulating/ cooling water shall be provided to reduce the water consumption. The wastewater from the de-mineralized (DM) plant shall be neutralized in neutralization pit. The wastewater from BF-GCP and coal washery shall be treated in thickener and used in the pig casting machine. Acidic and alkaline effluent from DM water plant shall be neutralized and reused in the plant through ash pond. Blow down from boilers and cooling tower shall be reused in the plant itself. All the other effluent shall be treated in effluent treated plant (ETP) and all the treated wastewater from process or for dust suppression, green belt development and various other activities at the sites. No wastewater shall be discharged outside the premises and zero effluent discharge shall be ensured. Domestic effluent shall be treated in existing sewage treatment plant (ETP) and used for green belt development.	• Freshwater consumption during the period Apr'24 to Sep'24 for the Steel plant is 2308m^3/hr which is well within the requirement of 3400 m^3/hr. • All effluents are being treated in settling tanks (43 nos.) in steel plant attached with respective units and Effluent Treatment Plants (3 nos.) centrally. • Treated effluent is being reused for dust suppression, ash handling, make up for DRI, Sinter and green area development. • Process effluent after treatment is being reused. During the period Apr'24 to Sep'24, 3010291 m3 of treated water has been recycled. • The sanitary sewage is being treated in 4 Nos. of Sewage Treatment Plant and used for green belt development and low-end application in plant. • Rainwater harvesting pond of capacity 50000 m^3 with HDPE liner has been constructed to store & reuse rainwater. • Zero Effluent Discharge (ZED) project is under construction stage and will be implemented in FY 25.
ix	Phenolic effluent shall be treated in BOD plant and used for quenching of hot coke. Continuous monitoring of total organic compounds shall be done at the outlet of ETP (BOD plant)	• The Phenolic effluent is being treated in the BOD plant and treated effluent is being reused for quenching of hot Coke at Coke Oven-I. • Online analyzer has been installed to have a check on the treated water quality of the effluent generated from the BOD Plant.

x	DRI fines, coke breeze, sinter dust, GCP dust, SMS dust, Scale, Iron ore fines shall be used in sinter plant. The coal washery rejects and middling shall be used in AFBC based power plant and shall not be disposed off anywhere else. All the blast furnace slag shall be granulated and provided to cement manufactures for further utilization.	• DRI fines are being used in SMS and Sinter Dust, GCP dust, SMS dust, Scales, Iron Ore Fines are used in Sinter plant. • The entire quantity of blast furnace slag is dispatched to cement manufacturers based on long term MoU with the cement manufacturer. • Details of generation and utilization of Blast Furnace slag is given as **Annexure-V.** • SMS slag is being used in sinter plant after processing in metal recovery plant. • Balance slag is being used for the soling of roads.
xi	AFBC plant shall be installed before installation of sponge iron plant so that utilization of char in the AFBC boiler is ensured. All the char from DRI plant shall be utilized in AFBC boiler of power plant and no char shall be disposed off anywhere else. Unusable scrap, coal and iron ore fines will be used in SMS. All the other solid wastes including broken refractory mass and kiln accretions shall be properly disposed off in environment- friendly manner.	• AFBC plant is not in operation. • Char is being stored in demarcated places and utilized in CFBC boiler. • All unusable scrap, coal and iron ore fines are being utilized in SMS. • Refractory mass and kiln accretions are being properly disposed off.
xii	All the slag from SMS, EAF, LRF and IF shall be used for land filling and road making only after passing through Toxic Chemical Leachability Potential (TCLP) test. Otherwise, slag shall be disposed in secured landfill as per CPCB guidelines. Used oil shall be sold to authorized recyclers/ re-processors only.	• The SMS slag (LD slag) is processed in material recovery plant (MRP) for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are ➢ recovered metallics used in steel making process as a scrap, ➢ recovered fines used in sinter making process for replacement of lime,

		➢ non-mag utilization in cement manufacturing, road making, and hard sand applications. • Used oil is being sold to authorised recyclers/re-processors.

xiii	Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid/hazardous waste shall be submitted to Ministry's Regional office at BBSR, CPCB and OPCB.	• Solid waste handling, storage, utilization and disposal are being done scientifically. The toxic metal content and compositional analysis of solid waste are being carried out regularly. The analysis report of solid waste is attached as **Annexure-VI**. • Annual return (Form-IV) of hazardous waste is being regularly submitted to SPCB Odisha. Latest return was submitted vide letter No. TSL/SPCB/TS07/2024-01/462 dated June 20, 2024.
xiv	A time bound action plan shall be submitted to reduce solid waste its proper utilization and disposal.	• The solid wastes generated from various plant units are being efficiently recycled back within the plant processes. During FY24 overall solid utilization was 100%. Necessary steps are being taken for maximum utilization of solid waste.
xv	Proper utilization of fly ash shall be ensured as per Fly Ash Notification 1999 as amendment in 2003.	• The entire quantity of blast furnace slag is dispatched to cement manufacturers based on long term MoU with the cement manufacturer. • Details of generation and utilization of Blast Furnace slag are given as **Annexure-V.** • The SMS slag (LD slag) is processed in material recovery plant (MRP) for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are ➢ recovered metallics used in steel making process as a scrap, ➢ recovered fines used in sinter making process for replacement of lime,

		➢ non-mag utilization in cement manufacturing, road making, and hard sand applications. • Fly ash brick and paver block have been manufactured inside the plant for use in construction activities including road construction etc. This is also helping in maximum utilization of fly ash. • Fly ash is also being supplied/Used 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 (NH-55). o In filling low lying areas & abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.
xvi	As proposed, green belt shall be developed in 550 acres (33%) out of total 1, 664.5 acres in and around the plant as per the CPCB guidelines in consultation with DFO.	• Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. 33.66% of area (This includes Plant, R&R and CSR) has been covered under green belt. Rapid afforestation using MiyaWaki method in consultation with IIT, Kharagpur has been initiated. • Plantation of saplings are done regularly based on the availability of vacant area. During the period Apr'24 to Sep'24, 44052 nos. of plant have been planted. Proper maintenance of green coverage is being ensured throughout the year.
xvii	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the steel plants shall be implemented.	• Tata Steel Limited has implemented all CREP recommendations. CREP compliance is attached as **Annexure-IX.**

GENERAL CONDITIONS:

SL	CONDITIONS	COMPLIANCE STATUS
i	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	All relevant stipulations made by SPCB and the State Government are being complied with.
ii	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	• As per MoEF&CC notification as per the MoEF& CC Notification No. S.O.980(E) dated: 02.03.2021"no increase in pollution load" (NIPL) was studied by expert agency for the followings and the same were verified by State Pollution Control Board. I. Enhancement of Hot Metal production from 3.919 MTPA to 5.0 MTPA vide OSPCB letter no. 246/IND-II-NOC-NIPL/24 dated 04.01.2022. CTO was granted vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025. II. Installation of one no. of LRF of 190 T/heat and expansion of carrying capacity of two nos. of existing ladle from 180 T/heat to 190 T/heat vide OSPCB letter no.886/IND-II-NOC-NIPL/27 dated 20.01.2022. Trial CTO of LRF 3x190 Ton/heat was also granted by OSPCB and valid till 31.12.2023.
iii	The gaseous emissions from various process units shall conform to the load/mass-based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time the emission level shall go beyond the prescribed standards. Interlocking facility shall be provided so that process can be automatically stopped in case emission level exceeds the limit.	• All the existing units have been provided with adequate air pollution control devices to keep the emission within the stipulated standards. • Results of gaseous emission levels from various stacks conform to the standards and a detailed monitoring report is enclosed as **Annexure-III.**
iv	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where	• Seven CAAQM stations have been established in consultation with the SPCB in Tata Steel Meramandali complex. Half

	maximum ground level concentration of PM10, SO2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	yearly reports are being submitted to the Regional Office of MoEF&CC, SPCB and CPCB at regular intervals. Summary of AAQ monitoring report is attached as **Annexure-X.** • The last half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
v	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Further, specific measures like water sprinkling around the coal stock piles and asphalting or concreting of the roads shall be done to control fugitive emission.	To have a control on fugitive emissions, following measures have taken: • Bag filters have been installed at various junction houses. • Continuous sprinkling of water is being done around the coal stockpiles. • Water sprinkling arrangement has been made by installation of 128 numbers of rotary gun sprinklers at raw material handling areas to control dust emissions during loading and unloading of raw materials at site. • Construction of Paved Quality Concrete (PQC) roads are being made within the plant premises and is being cleaned and maintained through mechanized housekeeping systems. • Periodical water sprinkling on all the internal roads within the plant premises is being done as per the planned schedule. • Double lip seals with dual sealing system have been installed. • Installed dust collector system in conveyor line.
vi	Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. The treated waste water shall be utilized for plantation purpose.	• The industrial as well as domestic wastewater is being treated and utilized for various purposes like slag quenching, coke quenching, dust suppression and green belt development inside the plant premises. • The monitoring reports of Industrial wastewater are being submitted to SPCB/CPCB/MOEF&CC at regular intervals.

vii	The overall noise levels in and around the plant area shall be kept well within the standards 85 dB(A) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dB (A) (daytime) and 70 dB (A) (night time).	• Acoustic hoods, silencers, enclosures etc. on all sources of noise generation have been provided. Work zone noise monitoring is being carried out and record is being maintained. • A report of ambient noise levels recorded within the premises is enclosed as **Annexure-XIII**.
viii	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	• Occupational health surveillance of the workers is being periodically done. PME once in a year, Food handler test : Once in a year. • Necessary PPEs are provided to all the employees including the contractual workers.
ix	The company shall develop surface rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	• Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period Apr'24 to Sep'24, 36774 m^3 of rainwater has been utilized in process. • Surface runoff water collected from DRI & RMHS area are channelized through drains into a series of storage pond for harvesting..
x	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	• Compliance with all environmental protection measures as recommended in EIA / EMP report is ensured. • Various socio-economic development programs covering education, safe drinking water, sports and health care etc are undertaken in nearby villages. • A detailed breakup of CSR initiatives is enclosed as **Annexure- XI.**
xi	The adequate funds shall be earmarked towards capital cost and recurring cost / annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.	• Adequate funds are being provided by the management for pollution control and to meet recurring costs. Environmental requirements are given top priority for fund allocation and approval of capital projects. • The funds earmarked for environment pollution control measures are not diverted for any other purpose.

		• The company has invested adequate capital expenditure to improve mix of clean power & also reduction of carbon emissions.
xii	The Regional Office of this Ministry at Bhubaneswar / CPCB/ OPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	• The half yearly compliance report is being submitted to the Regional Office of the MoEF&CC, CPCB and SPCB. • The last half yearly compliance report was submitted vide our letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024.
xiii	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	• The advertisement was published in both Odia & English newspapers named “The Sambad” and “The New Indian Express” respectively. • The same has already been communicated to the Regional Office of MOEF&CC, Bhubaneswar vide letter no. BSL/ENV/10/08 dated 17.10.2008.
xiv	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	• Project was completed and in operation. Consent to Operate has been obtained from OSPCB vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025.

SPECIFIC CONDITIONS:

SL	CONDITIONS	COMPLIANCE STATUS
i	The gaseous emissions from various process units shall conform to the load/mass based standards notified by the Ministry on 19th May, 1993 and standards prescribed from time to time. The state board may specify more stringent standards for the parameters keeping in the view the nature of the industry and its size and location. At no time the emission level should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.	• 58 nos. of bag filter,27 nos. of ESP have been installed with each operating unit to reduce particulate matter levels in ambient air. Details list of pollution control devices is enclosed as **Annexure-I.** • Results of gaseous emission levels from various stacks conform to the standards and details are enclosed as **Annexure-III.** • 10 Nos. of Mechanized road sweepers have been deployed to clean all concrete roads, and shop floors of individual units. • Water tankers have been deployed for water sprinkling whenever it is required. • Due to all these latest and most efficient air pollution control measures, ambient air quality in the complex is as per the AAQ standard. • 20 numbers of online gas analyzers for gaseous parameters have been provided on stacks. • 39 numbers of online dust monitors have also been installed and commissioned at the stacks. • To monitor the ambient air quality, we have installed 7 numbers of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in the entire complex of Tata Steel Limited in consultation with SPCB, Odisha.
ii	There shall be no discharge of process effluent. As reflected in the EIA/EMP report, the company shall undertake water conservation measures by recycling the water from the gas cleaning plant and cooling tower blow down. The plant design shall be base on 100% recirculation system to achieve zero discharge. The domestic waste water after treatment in STP shall be used for green belt development.	• Rate of water consumption during the period April'24 to September'24 water consumption for the Steel plant was 2308 m^3/hr. • All effluents are being treated in settling tanks (43 nos.) in steel plant attached with respective units and Effluent Treatment Plants (3 nos.) centrally. • Treated water is being reused for dust suppression, ash handling, make up for DRI,sinter and for green area development.

		• Process effluent after treatment is being reused. During the period April'24 to Sept'24, 3010291 m3 of water has been recycled. However, we are further improving the efficiency of the water management system by technology intervention to increase the utilization. • The sanitary sewage is being treated in 4 Sewage Treatment Plants and used for green belt development and low-end application in plant. • Rainwater harvesting of capacity 50000m3 with HDPE liner has been constructed to store & reuse rainwater. • Zero Effluent Discharge (ZED) project is under construction stage and will be implemented in FY 25.
iii	In plant control measures for checking fugitive emissions from spillage/raw materials handling shall be provided. Further specific measures like provisions of dust extraction & dust suppression system for product & raw materials handling, conveyor transfer points, water sprinkling system at waste disposal area to control the fugitive emissions shall be provided. Data on fugitive emission shall be regularly monitored & records maintained.	• Two Bag filter, adequate no. of Dry Fog Dust Suppression System (DFDS) and Single Fluid Dedusting System (SFDS) have been provided at the coal circuit. • Dust suppression system have been provided in the iron ore circuit at crushing and screening points of raw material handling areas. • Pneumatic dust handling system has been provided at ESP hoppers in the Sinter Plant-I. • Chain conveyor dust handling system has been provided at ESP hoppers of sinter plants II and III. • Vehicles carrying raw materials are being covered with tarpaulin to proact during transportation. • Water sprinkling arrangement has been made by installation of 128 numbers of rotary gun sprinklers at raw material handling areas to control dust emissions during loading and unloading of raw materials at site. • Additionally, dry fog dust suppression system having 242 nos. of nozzles have been installed in entire coal circuit and at

		the unloading points of raw material handling area to control fugitive dust. • Six Nos. of wheel washing systems are in operation at DRI, RMHS, BFPP1, BFPP2 and WHRB. • 10 Nos. of mechanized road sweepers is in operation for dry sweeping of internal roads and shop floors with dust suction facility.
iv	The company shall use gas from the DRI for power generation & blast furnace gas for BF Stoves, sinter plant & furnace heating. The exhaust gas from the kiln shall be cleaned by dry gas cleaning system. The waste gas shall be passed through dust settling chamber to settle the coarse dust particulate & post combustion chamber to burn the CO in the flue gas. The boiler shall utilize the waste heat for steam generation. The particulate emissions shall be controlled by installation of ESP & the particulate emissions shall not exceed 100 mg/Nm3.	• The Plant has installed 10 nos. of DRI Kiln of 500 TPD each with WHRB system connected to 10 nos. of ESP at the hot end of the DRI Kiln and 5 nos. of De-dusting system at the cold end of the DRI kiln. • The particulate emission from the Stack is well within the limit. The monitoring data are enclosed as **Annexure-III**.
v	The company shall install centralized de-dusting system to control the primary emissions from the induction furnace top as canopy hood at the top of furnace to capture secondary emissions.	• The centralized de-dusting system has been established to control primary emissions from the induction furnace top as canopy hood to capture secondary emissions.
vi	The company shall take measures for installation of continuous ambient air quality monitoring stations and data sent electronically to SPCB/CPCB.	• Seven Nos. CAAQM stations have been established in consultation with the SPCB in Tata Steel Meramandali complex. Half yearly reports are being submitted to the Regional Office of MoEF&CC, SPCB and CPCB at regular intervals. Summary of AAQ monitoring report is enclosed as **Annexure-XII.** • The last half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450 dated 28.05.2024

vii	SMS slag from induction furnace, EAF & LF shall be used for road making and railway blast. Coal washery middling and char from DRI shall be used for power generation. BF Slag should be granulated & sold to cement manufacturers. Scrap, coal & iron ore fines shall be reused. Fly ash shall be used for bricks manufacturing.	• The entire quantity of blast furnace slag is dispatched to cement manufacturers based on long term MoU with the cement manufacturer. • Details of generation and utilization of Blast Furnace slag & LD Slag are given as **Annexure-V.** • The SMS slag (LD slag) is processed in material recovery plant (MRP) for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are ➢ recovered metallics used in steel making process as a scrap, ➢ recovered fines used in sinter making process for replacement of lime, ➢ non-mag utilization in cement manufacturing, road making, and hard sand applications. • Fly ash is being supplied/Used to ○ Nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash. ○ Cement plants through rake & bulker. ○ Construction of national highway (NH-55 & 149). ○ In filling low lying areas & abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.
viii	Resettlement & Rehabilitation plan for displacement of families shall be as per the land acquisition Act & state government guidelines.	• The Resettlement & Rehabilitation plan for displacement of families has already made as per the Land Acquisition Act & State Government guidelines.
ix	A green belt of adequate width density shall be developed in 195 acres of plant area. Selection of plant species as per the CPCB guidelines.	• Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Mar'24, 33% of area (This includes Plant, R&R and CSR) has been covered under green belt. Rapid

		afforestation using MiyaWaki method in consultation with IIT, Kharagpur has been initiated. • Plantation of saplings are done regularly based on the availability of vacant area. • During the period Apr'24 to Sep'24, 44052 nos. of plant have been planted. Proper maintenance of green coverage is being ensured throughout the year.
x	The company shall undertake community welfare measures for the local villagers & earmark separate funds for construction of schools, hospitals, community hall for peripheral development of all the villagers located around the plant site.	• The following community welfare measures are being undertaken. a. Education: School Infrastructure, education project: QUEST and drinking water at schools b. Drinking Water in the village (Through pipeline, tube well and deep bore well). c. Health: Primary Health Service through mobile medical unit and control of Dengue & Malaria are being under taken. d. A detailed breakup of CSR initiatives is enclosed as **Annexure- XI.**
xi	The company shall obtain forest clearance for diversion of 151.92 acres of village forest land under forest (conservation) act, 1980 before undertaking construction activity.	• Necessary forest clearances have already been obtained vide file no. 8-84/2005-FC dated 13.11.2006.
xii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the factories act.	• Occupational health surveillance of the workers is being periodically done. PME once in a year, Food handler test : Once in a year. • Necessary PPEs are provided to all the employees including the contractual workers.
xiii	Recommendations made in the CREP shall be implemented	• Tata Steel Limited has implemented all CREP recommendations.

xiv	Company shall keep proper housekeeping within the plant premises.	• Various initiatives are being taken for proper housekeeping within the Plant premises. Mechanized Road Sweepers, truck mounted mix canon have also deployed to clean up roads periodically.
xv	The company shall undertake rainwater harvesting measures to harvest the rainwater for utilization in the lean season as well as to recharge the ground water table.	Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period April'24 to September'24, 36774 m^3 of rainwater has been utilized in process. • RWH potential has been studied by engaging an expert agency & the suggested projects are being implemented in phases. 50000 Cum capacity HDPE lined storage pond has been constructed in the year 2021. Also, rainwater collected from DRI & RMHS area are channelized through drains into a series of storage pond (3 nos. of lagoons are in operation).

GENERAL CONDITION:

SL	CONDITIONS	COMPLIANCE STATUS
i	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	• All relevant stipulations made by SPCB and the State Government are being complied.
ii	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	• As per MoEF&CC notification as per the MoEF& CC Notification No. S.O.980(E) dated: 02.03.2021"no increase in pollution load" (NIPL) was studied by expert agency for the followings and the same were verified by State Pollution Control Board. I. Enhancement of Hot Metal production from 3.919 MTPA to 5.0 MTPA vide OSPCB letter no. 246/IND-II-NOC-NIPL/24 dated 04.01.2022. CTO was granted vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025.

		II. Installation of one no. of LRF of 190 T/heat and expansion of carrying capacity of two nos. of existing ladle from 180 T/heat to 190 T/heat vide OSPCB letter no.886/IND-II-NOC-NIPL/27 dated 20.01.2022. CTO was granted vide letter No 531/IND-I-CON-5440 dated 09.01.2024 with validity upto 31.03.2025.
iii	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of PM_{10}, SO_2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	• Seven CAAQM stations have been established in consultation with the SPCB in Tata Steel Meramandali integrated complex. Half yearly reports are being submitted to the Regional Office of MoEF&CC, SPCB and CPCB at regular intervals. Summary of AAQ monitoring report is attached as **Annexure-XII.** • The last half yearly compliance report was submitted vide letter no. TSL/MoEF&CC/BS-01/2024-03/450; dated 28.05.2024.
iv	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. The treated wastewater shall be utilized for plantation purpose.	The industrial as well as domestic wastewater is being treated and reused in various purposes like slag quenching, coke quenching, dust suppression and green belt development inside the plant premises. The monitoring reports of Industrial wastewater are being submitted to SPCB/CPCB/MOEF&CC at regular intervals.
v	The overall noise levels in and around the plant area shall be kept well within the standards 85 dB(A) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dB (A) (daytime) and 70 dB (A) (nighttime).	• Acoustic hoods, silencers, enclosures etc. on all sources of noise generation have been provided. Work zone noise monitoring is being carried out and maintained record. • A report of ambient noise levels recorded within the premises is enclosed as **Annexure-XIII**.

vi	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	• Compliance to all environmental protection measures as recommended in EIA / EMP report is ensured. • Various socio-economic development programs covering education, safe drinking water, sports and health care etc. are undertaken in nearby villages. • A detailed breakup of CSR initiatives is enclosed as **Annexure- XI.**
vii	The project authority will provide separate fund both recurring and non-recurring to implement the conditions stipulated by the MoEF as well as the State Govt. along with the implementation schedule for all the conditions stipulated therein. The funds so provided should not be diverted for any other purposes.	• Adequate funds are being provided by the management for pollution control and to meet recurring costs. Environmental requirements are given top priority for fund allocation and approval of capital projects. • The funds earmarked for environment pollution control measures are not diverted for any other purpose. • The company has invested adequate capital expenditure to improve mix of clean power & also reduction of carbon emissions.
viii	The Regional Office of the Ministry at Bhubaneswar / CPCB / SPCB will monitor the stipulated conditions. A six monthly compliance report and monitoring data along with statistical interpretation should be submitted to them regularly.	• Six monthly compliance report and monitoring data are being submitted regularly. Last report has been submitted vide letter No. TSL/MoEF&CC/BS-01/2024-03/450; dated 28.05.2024.
ix	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	• Published in Times of India (English) dated 06.07.2005 and in Samaya (Oriya) dated 07.07.2005. • The same has already been communicated to the Regional Office of MOEF&CC, Bhubaneswar.

x	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	• Project was completed and in operation. CTO was granted vide letter No 4463/IND-I-CON-5440 dated 23.03.2023 with validity upto 31.03.2025.

LIST OF ENCLOSURES

Sl. No.	Enclosure	Details
1.	Annexure - I	List of Air Pollution Control Device
2.	Annexure - II	Fugitive Emission Report
3.	Annexure - III	Ash Leachability Report
4.	Annexure – IV	Water Analysis Report
5.	Annexure - V	BF Slag & LD Slag Generation & Utilization Details
6.	Annexure - VI	Solid Waste Analysis Report
7.	Annexure - VII	Raw Material Analysis Report
8.	Annexure - VIII	Onsite emergency plan approval letter
9.	Annexure - IX	CREP compliance
10.	Annexure - X	Public Hearing Compliance Report
11.	Annexure - XI	CSR Report
12.	Annexure - XII	AAQ Monitoring Report
13.	Annexure - XIII	Ambient & Work zone Noise Report

Annexure-I

DETAILS OF AIR POLLUTION CONTROL DEVICES

SL	Process	Bag filters (Nos)	ESP (Nos)	Other Pollution Control Devices
1.	RMHS & RMPP	02	-	Gun Sprinklers-128 nos. DFS Nozzles-242 nos. Auto DFS-24nos.
2.	Coke oven - I	04	-	Scrubber-01 nos.
3.	Coke oven - II	11	-	Scrubber-04 nos.
4.	Sinter Plant – I	01	03	-
5.	Sinter – II & III	08	04	-
6.	DRI	05	15	-
7.	Blast Furnace - I	03	-	Scrubber-01 nos.
8.	Blast Furnace - II	04	-	Scrubber-01 nos.
9.	Lime Plant	10	-	-
10.	SMS - II	07	-	-
11.	SMS - III	03	-	Scrubber-02 nos.
12.	Blast Furnace Power Plant - I	-	03	-
13.	Blast Furnace Power Plant - II	-	02	-
	Total	**58**	**27**	

Annexure-II

SUMMARY OF FUGITIVE EMISSION RESULTS MONTHLY AVARAGE VALUES Period: April 2024 to September 2024			
TATA STEEL LIMITED			
Name of units	**Location**	**PM 10 in µg/m3**	**Standard in µg/m3**
	RMHS		
1.	Near JH-21 Yard-7 (Iron ore conveying)	287	2000
2.	Coal Yard -7 Lucky Mineral Office	335	
3.	Infront of PCI building	415	
	RMPP		
4.	Near tertiary Crushing & Screening Building Area	427	2000
5.	Near Iron Crusher Area	395	
	B.B. Plant		
6.	Storage building	510	2000
7.	Flux crushing and screen building	450	
	Coke Oven-I		
8.	Fine crusher station	343	4000
9.	Secondary crusher	513	
	Coke Oven-II		
10.	Coke treatment building	442	4000
11.	Coal crushing building	470	
	DRI		
12.	Near PSB-1 building	715	2000
13.	Near PSB-2 building	505	
14.	Near PSB-3 building	560	
15.	Near PSB- 4 building	637	
16.	Near PSB-5 building	568	
	Sinter Plant I		
17.	Near proportionating Building	382	2000
18.	Near SP-1 Mixing House	368	
	Sinter Plant II		
19.	Near SP-2 chimney Backside area	313	
20.	Near 7003 conveyor Belt	408	
	Sinter Plant III		
21.	Near cooler SP-3 D/15	300	
22.	Near Chiller Plant SP-2,3 & parking area	320	
	Blast Furnace-I		
23.	Near Stock House	435	4000
24.	Near Cast house Area	387	

Annexure-II

	Blast Furnace-II		
25.	Near Cast house Entrance	362	3000
26.	Near Slug pit area	285	
27.	Stock House Near ECR Building	497	
	Lime Plant		
28.	Near Screen Area-1	850	-
	SMS-II		
29.	SMS-2 Furnace area	428	4000
	SMS-III		
30.	BOF Furnace area	280	3000
	HSM		
31.	Near Coil Yard area	318	-
	CRM		
32.	Near canteen area	262	-
	BFPP-2		
33.	Near Ash silo Area	457	3000
	BFPP-1		
34.	Near Ash silo Area	413	4000
	110 MW		
35.	Near Ash silo Area	423	-
	IBMD		
36.	BOF sludge yard	366	-
37.	Near Scarp dumping yard	337	

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

Annexure - III

SUMMARY OF STACK MONITORING

Period: From April 24 to September, 24

S.N	Stack Attached to	Average Monthly Result of Particulate Matter in mg/Nm3						Standard as per CTO
		Apr'24	May'24	Jun'24	Jul'24	Aug'24	Sept'24	
1	AFBC	SD	SD	SD	SD	SD	SD	-
2	Sinter Plant -1 (85 M2 ESP)	25.63	24.62	25.39	23.75	16.38	18.91	100
3	Blast Furnace –I, Cast House	9.79	1.8	1.64	13.12	11.41	11.26	100
4	Blast Furnace –I, Stock House	9.24	8.11	8.46	10.87	3.63	10.56	100
5	SMS- 1	Shut Down (Plant not in Operation)						100
6	SMS 2 (FES 1)	4.08	7.2	6.87	10.11	12.58	19.54	100
7	SMS 2 (FES 2)	23.32	22.45	27.32	25.53	14.1	22.9	100
8	BFPP ESP 1	18.13	21.32	19	18.03	14.92	22.18	50
9	BFPP ESP 2	SD	28.68	37.81	SD	43.65	SD	50
10	BFPP ESP 3	26.32	25.84	10.76	12.56	22.45	12.56	50
11	Sinter Plant- 2	26.69	27.78	28.73	28.01	28.79	28.83	50
12	Sinter Plant- 3	40.56	36.29	34.47	32.73	33.3	32.6	50
13	SMS- 3 BOF (secondary chimney)	22	22.63	21.94	23.32	23.59	23.59	50
14	BFPP- 2 Boiler- 2	10.33	10.39	12.2	7.67	6.97	11.8	50
15	BFPP- 2 Boiler- 3							50
16	Coke oven (Battery- 1)	30.85	21.94	18.43	14.23	10.23	9.61	50
17	Coke oven (Battery- 2)	35.53	28.2	22.43	18.21	10.83	21.45	50
18	Coke oven- 2 (Battery- 2)	22	22.63	21.94	23.32	23.59	23.59	50
19	Blast Furnace –2, Cast House	11.63	9.05	10.37	14.65	12.58	12.33	50
20	Blast Furnace –2, Stock House	3.85	2.36	2.29	4.94	8.99	6.52	50
21	WHRB-1	SD	39.35	29.42	31.35	27.1	32.85	50
22	WHRB-2	28.1	25.58	10.11	23.77	18.83	SD	50
23	WHRB-3	17.09	14.26	13.55	17.22	20.75	26.87	50
24	WHRB-4	13.11	5.83	SD	15.17	16.03	14.02	50
25	WHRB-5	8.22	9	13.47	7.17	10.69	15.09	50
26	WHRB-6	13.72	SD	SD	9.64	11.72	26.39	50
27	WHRB-7	20.9	20.51	22.59	40.79	18.78	21.24	50
28	WHRB-8	2.38	5.45	12.65	15.43	11.1	21.46	50
29	WHRB-9	16.75	18.43	18.77	19.8	SD	SD	50
30	WHRB-10	8.2	5.44	8.29	15.25	13.48	19.62	50
31	DRI, Dedusting- 1	8.75	13.73	18.33	16.61	16.67	14.52	100
32	DRI, Dedusting- 2	24.32	22.46	24.2	30.83	20.99	20.51	100
33	DRI, Dedusting- 3	25.43	21.55	25.85	24.86	21.29	24.82	100
34	DRI, Dedusting- 4	6.98	6.78	5.77	7.39	8.6	15.47	100
35	DRI, Dedusting- 5	48.51	24.48	8.87	4.81	5.35	7.37	100

SD- Shut Down (Plant not in Operation)

SUMMARY OF STACK MONITORING

Period: From April 2024 to September 2024

Month		Apr'24		May'24		Jun'24		Jul'24		Aug'24		Sept'24	
S.N.	Stack Attached to	Result in mg/Nm3											
		SO_2	NO_X	SO_2	NO_X	SO_2	NO_X	SO_2	NO_X	SO_2	NO_X	SO_2	NO_X
1	BFPP ESP 1	1040.96	136.74	1043.04	143.13	1225.48	186.41	1517.84	97.99	1443.96	132.96	1558.6	138.9
2	BFPP ESP 2	SD		1108.85	314.86	1127.79	324.73	SD		976.65	396.46	SD	
3	BFPP ESP 3	828.08	400.62	935.54	346.43	1202.67	390.29	1105.08	300.17	1013.45	384.5	1023.3	378.7
4	Sinter Plant- 2	274.22	150.06	235.8	122.35	303.69	165.29	206.07	181.6	90.18	46.96	206.1	181.6
5	Sinter Plant- 3	262.09	93.34	228.97	81.79	188.11	332.66	162.07	95.05	156.52	54.65	162.1	95.1
6	BFPP- 2 Boiler- 2	1065.17	63.04	692.87	93.01	1237.93	40.75	968.55	37.18	660.06	30.63	845.6	35.8
7	BFPP- 2 Boiler- 3												
8	Coke oven (Battery-1)	33.09	214.65	130.4	199.36	303.69	165.29	44.68	162.21	97.02	149.04	122.8	231.2
9	Coke oven (Battery-2)	40.44	314.27	59.92	381.58	188.11	332.66	49.01	297.91	62.08	298.84	55.2	358.9
10	Coke oven- 2 (Battery- 2)	15.87	67.17	19.77	142.75	27.19	160.76	23.77	146.81	23.14	153.27	20.6	148.9
11	WHRB-1	SD		1182.7	110.51	1193.08	135.31	971.19	132.5	473.48	35.79	680.9	46.5
12	WHRB-2	660.95	46.07	660.95	46.07	578.9	56.93	SD		578.9	56.93	SD	
13	WHRB-3	247.99	78.34	306.14	35.28	479.13	35.28	740.19	58.72	92.71	550	755.2	65.9
14	WHRB-4	563.5	65.92	563.5	65.92	SD		414.25	44.58	546.32	120.42	693	89.3
15	WHRB-5	883.49	79.92	794.43	15.23	859.86	15.23	900.11	28.31	889.29	76.83	718.1	120.9
16	WHRB-6	222.16	71.72	SD		SD		295	62.79	307.59	30.4	434.2	72.9
17	WHRB-7	428.38	99.58	550.19	99.58	535.33	99.58	648.37	43.92	554.19	83.02	622.3	58.9
18	WHRB-8	SD		803.2	161.4	674.9	161.4	SD		SD		SD	
19	WHRB-9	610.67	54.32	402.89	53.68	794.19	30.08	611.18	45.69	SD		SD	
20	WHRB-10	173.83	48.42	166.32	31.9	249.85	61.95	242.51	56.32	773	484	201.8	52.6

SD: Shut Down (Plant not in Operation); UM: Under Maintenance

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

Annexure-IV

Summary of Surface Water Quality Analysis

(Period: From April 2024 to September 2024)

S. N	Parameter	Unit	Kishinda Nala		Lingara Nala		Brahamani River	
			U/S	D/S	U/S	D/S	U/S	D/S
1	pH Value	-	6.92-8.58	7.32-8.20	6.78-8.50	7.36-8.4	6.87-8.29	7.02-8.13
2	Colour	Hazen	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
3	Temperature	Deg C	25-25.3	25-25.2	25-25.2	25-25.2	25-25.3	25-25.0
4	Total Suspended Solids	mg/l	3.8-15.6	2.6-20.0	3.8-19	8.6-18.2	10.8-90	3.2-120
5	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)
6	BOD, 3days at 27°C	mg/l	2.7-5.6	2.0-5.6	BDL(DL:2.0)	5.7-6.4	2.4-9.6	3.8-13
7	Boron as B	mg/l	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)
8	Cadmium as Cd	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)
9	Calcium as Ca	mg/l	34-80.8	34-80.8	13-89.0	26-64.4	12-26.0	12.12-27.0
10	Chlorides as Cl	mg/l	35-158.35	35-148.45	14-152	20-126	11-29.69	12.0-108.0
11	COD	mg/l	9.6-28	16.0-23	10.0-20	19.0-28	8.4-34	13.0-40
12	Copper (as Cu)	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)
13	Cyanide as CN	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)

14	Fluoride as F-	mg/l	0.22-2.65	0.21-1.80	0.26-0.38	0.19-1.54	0.25-0.41	0.20-0.52
15	Hexa Chromium as Cr +6	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)
16	Iron as Fe	mg/l	0.96-4.9	0.17-4.9	0.18-2.0	0.59-1.0	0.17-2.1	2.1-2.2
17	Lead (as Pb)	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)
18	Manganese (as Mn)	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)
19	Mercury (as Hg)	mg/l	BDL(DL:0.0002)	BDL(DL:0.0002)	BDL(DL:0.0002)	BDL(DL:0.0002)	BDL(DL:0.0002)	BDL(DL:0.0002)
20	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)
21	O&G	mg/l	BDL(DL:1.4)	BDL(DL:1.4)	BDL(DL:1.4)	BDL(DL:1.4)	BDL(DL:1.4)	BDL(DL:1.4)
22	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)
23	Phosphate as P	mg/l	0.11-0.85	0.07-0.84	0.10-0.29	0.10-0.40	0.08-0.35	0.12-0.59
24	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)
25	Selenium (as Se)	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)
26	TKN	mg/l	BDL(DL:0.3)	BDL(DL:0.3)	BDL(DL:0.3)	BDL(DL:0.3)	BDL(DL:0.3)	BDL(DL:0.3)
27	Zinc (as Zn)	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)

Note: BDL: Below Detectable Limit; DL: Detectable Limit, U/S: Upstream D/S: Downstream
Source: Monitoring/ Analysis report of S.K. Mitra Private Limited and Environment Laboratory of TSM.

Summary of Treated Domestic Effluent Analysis

(Period: From April 2024 to September 2024)

S.N.	Location	Parameters in Range		
		pH	Suspended Solid in mg/l	BOD (3 days at 27°C) in mg/l
1.	Colony STP	7.40-7.85	23-36	9.0-10.7
2.	AEL STP	7.04-7.81	18-28	8.7-11.3
3.	BF-1 STP	6.91-7.85	18-32	7.8-9.8

Summary of Effluent Treatment Plant Analysis

(Period: From April 2024 to September 2024)

S.N	Location	Parameters in Range					
		pH	Suspended Solid in mg/l	Chemical Oxygen Demand in mg/l	BOD (3days at 27°C) in mg/l	Oil & Grease	Iron as Fe
1.	ETP-1 (Outlet)	7.18-8.15	13-26	19-45	3.5-7.0	<4.0	0.27-0.72
2.	ETP-2 (Outlet)	6.53-7.88	18-24	18-30	3.3-5.2	<4.0	0.10-0.60
3.	ETP-3 (Outlet)	6.76-8.02	25-41	29-37	3.7-5.2	<4.0	0.29-0.89
4.	CRM (ETP Outlet)	7.16-8.13	18-58	100-160	14.6-24.9	<4.0	0.79-2.80
5.	BF-1 (Thickener Outlet)	6.63-7.86	35-86	33-48	4.5-9.5	<4.0	-
6.	BF-2 (Thickener Outlet)	6.69-7.58	42-76	36-47	4.4-9.5	<4.0	-
7.	BOF (Thickener Outlet)	>10.0	63-78	36-51	4.5-8.0	<4.0	-

S.N.	Location	Parameters in Range						
		pH	Suspended Solid in mg/l	Chemical Oxygen Demand in mg/l	BOD (3days at 27°C) in mg/l	Oil & Grease	TCN	Phenol
8.	Coke Oven-1 (BOD-1 Outlet)	6.80-7.64	28-80	120-210	16.5-28.5	<4.0	0.12-0.18	0.76-0.87
9.	Coke Oven-2 (BOD-2 Outlet)	6.77-7.23	22-41	130-180	20.1-26.8	<4.0	0.11-0.14	0.71-0.81

Summary of ground water level monitoring report inside plant premises

(Period: From April 2024 to September 2024)

S.N.	Location with description	Sample Code	Depth of Monitoring Bore Well (m)	Longitude	Latitude	Ground Water Level (m)
1	Colony near STP	GW-1	50.29	20°49.045'	85°15.734'	4.10
2	RMHS Near Wagon Tippler	GW-2	91.44	20°47.752'	85°15.993'	2.12
3	Near Blast Furnace-2	GW-3	49.38	20°47.25'	85°15.613'	5.20
4	Near Railway bridge	GW-4	47.55	20°48.920'	85°15.858'	2.50

Ground Water Quality Analysis

S.N.	Parameter	Unit	GW-2	GW-3	GW-4	GW-6	Standard as per IS-10500-2012
1	p H	-	7.55	7.21	7.80	7.76	6.50-8.50
2	Colour	Hazen	Colourless	Colourless	Colourless	Colourless	15
3	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	-
4	T. Hardness (as CaCO3)	mg/l	278	310	244	282	300
5	Calcium as Ca	mg/l	67.33	74.54	58.52	68.14	75
6	Magnesium as Mg	mg/l	26.84	30.26	23.91	27.33	30
7	Iron as Fe	mg/l	0.13	0.20	0.16	0.15	0.3
8	Chloride as Cl	mg/l	94.30	114.15	71.96	81.89	250
9	Fluoride as F-	mg/l	0.64	0.49	0.68	0.72	1
10	Dissolved solids	mg/l	344	390	298	366	500
11	Nitrate as NO3	mg/l	4.80	6.20	4.20	7.80	45
12	Chromium as Cr+6	mg/l	0.016	0.020	0.024	0.012	0.050
13	Alkalinity as CaCO3	mg/l	78	108	66	86	200

Summary of ground water level monitoring report inside plant premises

Ground Water Level
Period: March 2024

S.N	Location	Sample Code	Longitude	Latitude	Water Level from GL (m) BGL
					May'24
1	Kharagprasad	GW-01	20^0 49.299'	85^0 18.923'	4.2
2	Charadagadia	GW-02	20^0 47.768'	85^0 17.083'	7.5
3	Sibpur	GW-03	20^0 46.941'	85^0 14.394'	6.8
4	Kochilamada	GW-04	20^0 47.541'	85^0 16.802'	5.9
5	Galapada	GW-05	20^0 48.142'	85^0 18.600'	4.7
6	Motonga	GW-06	20^0 48.143'	85^0 18.599'	4.1
7	Narendrapur	GW-08	20^0 49.483'	85^0 15.530'	9.2
8	Khaliberena	GW-09	20^0 46.946'	85^0 14.396'	4.6
9	Ganthigadia	GW-10	20^0 48.501'	85^0 15.118'	2.2

Ground Water Quality Analysis Report of surrounding villages

March 2024

S.N.	Parameters	unit	GW-01	GW-02	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	GW-9
1	pH	-	6.76	7.11	7.59	7.16	7.05	7.29	7.52	7.57	7.54
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Colour	mg/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)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
4	Turbidity	N.T. U	3.45	1.70	2.70	0.75	1.19	1.66	7.75	1.10	4.71
5	Total Dissolved Solids (as TDS)	mg/l	277	1268	493	503	186.0	7.29	565	484	591
6	Aluminium as Al	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)	BDL(DL:0.01)
7	Anionic Surface-Active Agents as (MBAS)	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)	BDL(DL:0.05)
8	Boron as B	mg/l	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)
9	Calcium as Ca	mg/l	40.08	35.27	80.16	52.91	32.06	89.78	16.03	83.37	83.37
10	Chloride as Cl	mg/l	29.0	240.0	57.0	50.0	15.00	118.0	45.0	40.0	47.0
11	Copper as Cu	mg/l	0.012	0.007	0.014	0.011	0.032	0.005	0.008	0.018	0.013
12	Fluoride as F	mg/l	0.12	0.98	0.46	1.10	0.19	1.00	0.94	0.55	1.10
13	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)	BDL(DL:0.1)
14	Iron as Fe	mg/l	0.228	0.125	0.157	0.238	0.989	0.153	0.172	0.339	0.301
15	Magnesium as Mg	mg/l	14.58	126.62	32.08	44.71	5.83	99.14	69.01	39.85	55.40
16	Manganese as Mn	mg/l	0.025	0.032	0.086	0.027	0.077	0.060	0.354	0.027	0.028
17	Mineral Oil	mg/l	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)
18	Nitrate as NO3	mg/l	12.30	182.0	3.76	49.60	3.12	12.10	10.63	3.58	17.20
19	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)	BDL (DL:0.001)
20	Selenium as Se	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)	BDL (DL:0.005)
21	Sulphate as SO4	mg/l	30.67	125.41	63.39	57.25	13.61	129.96	62.25	47.26	82.02
22	Total Alkalinity as CaCO3	mg/l	140	484	304	392	96	320	376	364	413
23	Total Hardness	mg/l	160	608	332	316	104	632	324	372	436

	as CaCO3										
24	**Zinc as Zn**	**mg/l**	0.057	0.079	0.084	0.073	0.227	0.064	0.064	0.089	0.108
25	**Cadmium as Cd**	**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)	BDL(DL:0.01)
26	**Cyanide as CN**	**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)	BDL(DL:0.01)
27	**Lead as Pb**	**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)	BDL (DL:0.005)
28	**Mercury as Hg**	**mg/l**	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)
29	**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)	BDL(DL:0.01)
30	**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)	BDL (DL:0.005)
31	**E. coli**	**/100ml**	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

August 2024

S.N.	Parameters	unit	GW-01	GW-02	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	GW-9
1	**pH**	**-**	7.98	7.85	8.12	8.06	7.85	8.23	7.9	7.9	7.93
2	**Odour**	**-**	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	**Colour**	**mg/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)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
4	**Turbidity**	**N.T. U**	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)	BDL(DL:1.0)
5	**Total Dissolved Solids (as TDS)**	**mg/l**	528	814	1865	932	924	544	942	652	1012
6	**Aluminium as Al**	**mg/l**	0.28	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)
7	**Anionic Surface-Active Agents as (MBAS)**	**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)	BDL(DL:0.05)
8	**Boron as B**	**mg/l**	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)	BDL(DL:0.25)
9	**Calcium as Ca**	**mg/l**	51	51	29	58	47	54	54	22.4	86
10	**Chloride as Cl**	**mg/l**	67	116	297	68	116	59	118	14	164
11	**Copper as Cu**	**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)	BDL(DL:0.02)
12	**Fluoride as F**	**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)	BDL(DL:0.1)
13	**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)	BDL(DL:0.1)
14	**Iron as Fe**	**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)	BDL(DL:0.05)
15	**Magnesium as Mg**	**mg/l**	40.9	39.5	25.3	41.5	27.5	34.8	37.2	37.4	69.4
16	**Manganese as**	**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)	BDL(DL:0.02)

	Mn										
17	**Mineral Oil**	**mg/l**	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)
18	**Nitrate as NO3**	**mg/l**	31.4	BDL(DL:0.2)	BDL(DL:0.2)	32.6	BDL(DL:0.2)	11.6	8.9	25.6	12.4
19	**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)	BDL (DL:0.001)
20	**Selenium as Se**	**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)	BDL (DL:0.005)
21	**Sulphate as SO4**	**mg/l**	87	65	142	54	59	27	97	52	88
22	**Total Alkalinity as CaCO3**	**mg/l**	270	356	749	272	360	372	349	437	312
23	**Total Hardness as CaCO3**	**mg/l**	298	292	178	318	232	280	290	212	504
24	**Zinc as Zn**	**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)	BDL(DL:0.02)
25	**Cadmium as Cd**	**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)	BDL(DL:0.01)
26	**Cyanide as CN**	**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)	BDL(DL:0.02)
27	**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)	BDL(DL:0.01)
28	**Mercury as Hg**	**mg/l**	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)	BDL (DL:0.0002)
29	**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)	BDL(DL:0.01)
30	**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)	BDL (DL:0.005)
31	**E. coli**	**/100ml**	Detected	Detected	Detected	Detected	Detected	Not Detected	Not Detected	Detected	Detected

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

Annexure - V

Details of BF Granulated Slag Generation and Utilization

(Period: April 2024 – September 2024)

Month	Quantity Generated (MT)	Quantity Dispatched (MT)
Apr'24	156789	138103.40
May'24	156224	147189.80
Jun'24	115794	120053.70
Jul'24	149712	149232.76
Aug'24	144254	149391.10
Sep'24	139491	146821.00
Total	**862264**	**850792**

Details of LD Slag Generation and Utilization

(Period: April 2024 – September 2024)

Month	Quantity Generated (MT)	Quantity Dispatched (MT)
Apr'24	84102	304899.57
May'24	84020	269618.53
Jun'24	56168	260529.29
Jul'24	84180	256869.17
Aug'24	85141	221626.21
Sep'24	72464	230463.49
Total	**466075**	**1544006**

Note: 1077931 MT of legacy LD Slag has been utilized during this period.

Annexure-VI

राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
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ETS-0002AB

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NITR/CH/2024/L/0468 Dt. 23.05.2024

BF-1 SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-1 SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL,MERAMANDALI

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	32.64±0.5
2	FeO	Photometric/XRF	%	0.89±0.1
3	Al_2O_3	Photometric/XRF	%	22.26±0.5
4	CaO	Photometric/XRF	%	32.46±0.5
5	MgO	Photometric/XRF	%	8.20±0.5
6	MnO	Photometric/XRF	%	0.018±0.01
7	Sulphur	Photometric/XRF	%	0.39±0.01
8	TiO_2	Photometric/XRF	%	0.837±0.01
9	K_2O	Photometric/XRF	%	0.795±0.01
10	Basicity	Photometric/XRF	-------	1.02

Tested BY

Er. Samarendu Mohanty
Tech. Asst. (SG-II)
Chemical Engg. NIT, Rourkela

Saumya S. Mohapatra
Reviewed BY

Prof. Soumya S. Mohapatra
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BF-1 SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-1 SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL,MERAMANDALI

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.932
2	As	US-EPA Method	mg/Kg	396
3	Se	US-EPA Method	mg/Kg	6.8
4	Sb	US-EPA Method	mg/Kg	198
5	Ba	US-EPA Method	mg/Kg	172
6	Cd	US-EPA Method	mg/Kg	53.02
7	Cr	US-EPA Method	mg/Kg	39.26
8	Cr(VI)	US-EPA Method	mg/Kg	0.924
9	Pb	US-EPA Method	mg/Kg	1.01
10	Mn	US-EPA Method	mg/Kg	1.009
11	Ag	US-EPA Method	mg/Kg	3.06
12	Co	US-EPA Method	mg/Kg	181
13	Cu	US-EPA Method	mg/Kg	522
14	Mo	US-EPA Method	mg/Kg	BDL
15	Ni	US-EPA Method	mg/Kg	79.32
16	V	US-EPA Method	mg/Kg	BDL
17	Zn	US-EPA Method	mg/Kg	84

Tested BY
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BF-1 GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BF-1 GCP SLUDGE**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.7
2	MOISTURE	----------	%	38
3	Cr	Photometric/XRF	%	1.63±0.5
4	Fe	Photometric/XRF	%	30.28±0.5
5	Ni	Photometric/XRF	%	2.63±0.1
6	Mn	Photometric/XRF	%	1.44±0.01
7	F	Photometric/XRF	PPM	1.19±0.01

Tested BY
Er. Samarendu Mohanty
Tech. Asst. (SG-II)
Chemical Engg. NIT, Rourkela

Saumya S. Mohapatra

Reviewed BY
Prof. Soumya S. Mohapatra
Asst. Professor
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BF-1 GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-1 GCP SLUDGE**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.546
2	As	US-EPA Method	mg/Kg	13.16
3	Se	US-EPA Method	mg/Kg	0.654
4	Sb	US-EPA Method	mg/Kg	1.121
5	Ba	US-EPA Method	mg/Kg	123.9
6	Cd	US-EPA Method	mg/Kg	5.9
7	Cr	US-EPA Method	mg/Kg	128.6
8	Cr(VI)	US-EPA Method	mg/Kg	0.869
9	Pb	US-EPA Method	mg/Kg	0.94
10	B	US-EPA Method	mg/Kg	311.9
11	Ag	US-EPA Method	mg/Kg	1.07
12	Co	US-EPA Method	mg/Kg	31.2
13	Cu	US-EPA Method	mg/Kg	54.6
14	Mo	US-EPA Method	mg/Kg	5.48
15	Ni	US-EPA Method	mg/Kg	354.51
16	V	US-EPA Method	mg/Kg	92.08
17	Zn	US-EPA Method	mg/Kg	85.012
18	F^-	US-EPA Method	mg/Kg	0.028
19	CN^-	US-EPA Method	mg/Kg	0.031
20	Hydrazine	US-EPA Method	mg/Kg	0.0103

Tested BY

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Reviewed BY

Saanya S. Mohapatra
Prof. Saanya S. Mohapatra
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BF-1 FLUE DUST QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-1FLUE DUST**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	7.852±0.5
2	Fe2O3	Photometric/XRF	%	51.46±0.1
3	Al_2O_3	Photometric/XRF	%	2.59±0.5
4	CaO	Photometric/XRF	%	1.831±0.5
5	MgO	Photometric/XRF	%	1.601±0.5
6	MnO	Photometric/XRF	%	0.17±0.01
7	Na2O	Photometric/XRF	%	0.076±0.01
8	TiO_2	Photometric/XRF	%	0.069±0.01
9	P2O5	Photometric/XRF	%	0.008±0.01
10	K2O	Photometric/XRF	%	0.021±0.01
11	C	Photometric/XRF	%	30.23±0.5
10	LOI	----------	%	5.34±0.5

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BF-1 FLUE DUST QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-1FLUE DUST**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.09
2	As	US-EPA Method	mg/Kg	31.6
3	Se	US-EPA Method	mg/Kg	3.45
4	Sb	US-EPA Method	mg/Kg	2.14
5	Ba	US-EPA Method	mg/Kg	192.5
6	Cd	US-EPA Method	mg/Kg	0.83
7	Cr	US-EPA Method	mg/Kg	81.49
8	Cr(VI)	US-EPA Method	mg/Kg	0.936
9	Pb	US-EPA Method	mg/Kg	58.20
10	Mn	US-EPA Method	mg/Kg	64.89
11	Ag	US-EPA Method	mg/Kg	1.89
12	Co	US-EPA Method	mg/Kg	13.4
13	Cu	US-EPA Method	mg/Kg	28.023
14	Mo	US-EPA Method	mg/Kg	4.41
15	Ni	US-EPA Method	mg/Kg	33.19
16	V	US-EPA Method	mg/Kg	163.55
17	Zn	US-EPA Method	mg/Kg	120.17

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BF-2 SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-2 SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL,MERAMANDALI

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	31.92±0.5
2	FeO	Photometric/XRF	%	0.821±0.1
3	Al_2O_3	Photometric/XRF	%	21.98±0.5
4	CaO	Photometric/XRF	%	33.02±0.5
5	MgO	Photometric/XRF	%	7.99±0.5
6	MnO	Photometric/XRF	%	0.017±0.01
7	Sulphur	Photometric/XRF	%	0.379±0.01
8	TiO_2	Photometric/XRF	%	0.829±0.01
9	K_2O	Photometric/XRF	%	0.789±0.01
10	Basicity	Photometric/XRF	-------	0.999

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BF-2 SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-2 SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL,MERAMANDALI

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.947
2	As	US-EPA Method	mg/Kg	389
3	Se	US-EPA Method	mg/Kg	6.7
4	Sb	US-EPA Method	mg/Kg	196
5	Ba	US-EPA Method	mg/Kg	169
6	Cd	US-EPA Method	mg/Kg	52.89
7	Cr	US-EPA Method	mg/Kg	38.47
8	Cr(VI)	US-EPA Method	mg/Kg	0.918
9	Pb	US-EPA Method	mg/Kg	1.02
10	Mn	US-EPA Method	mg/Kg	1.008
11	Ag	US-EPA Method	mg/Kg	3.07
12	Co	US-EPA Method	mg/Kg	182
13	Cu	US-EPA Method	mg/Kg	524
14	Mo	US-EPA Method	mg/Kg	BDL
15	Ni	US-EPA Method	mg/Kg	78.42
16	V	US-EPA Method	mg/Kg	BDL
17	Zn	US-EPA Method	mg/Kg	86

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BF-2 GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BF-2 GCP SLUDGE**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.6
2	MOISTURE	----------	%	37.50
3	Cr	Photometric/XRF	%	1.599±0.5
4	Fe	Photometric/XRF	%	30.264±0.5
5	Ni	Photometric/XRF	%	2.629±0.1
6	Mn	Photometric/XRF	%	1.439±0.01
7	F	Photometric/XRF	PPM	1.184±0.01

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BF-2 GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BF-2 GCP SLUDGE**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.549
2	As	US-EPA Method	mg/Kg	13.19
3	Se	US-EPA Method	mg/Kg	0.661
4	Sb	US-EPA Method	mg/Kg	1.127
5	Ba	US-EPA Method	mg/Kg	124.1
6	Cd	US-EPA Method	mg/Kg	5.86
7	Cr	US-EPA Method	mg/Kg	127.5
8	Cr(VI)	US-EPA Method	mg/Kg	0.859
9	Pb	US-EPA Method	mg/Kg	0.96
10	B	US-EPA Method	mg/Kg	312.9
11	Ag	US-EPA Method	mg/Kg	1.08
12	Co	US-EPA Method	mg/Kg	30.89
13	Cu	US-EPA Method	mg/Kg	55.1
14	Mo	US-EPA Method	mg/Kg	5.51
15	Ni	US-EPA Method	mg/Kg	353.69
16	V	US-EPA Method	mg/Kg	91.968
17	Zn	US-EPA Method	mg/Kg	86.124
18	F^-	US-EPA Method	mg/Kg	0.0265
19	CN^-	US-EPA Method	mg/Kg	0.0331
20	Hydrazine	US-EPA Method	mg/Kg	0.0103

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BF-2 FLUE DUST QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-2 FLUE DUST**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	7.769±0.5
2	Fe2O3	Photometric/XRF	%	51.82±0.1
3	Al_2O_3	Photometric/XRF	%	2.63±0.5
4	CaO	Photometric/XRF	%	1.845±0.5
5	MgO	Photometric/XRF	%	1.589±0.5
6	MnO	Photometric/XRF	%	0.169±0.01
7	Na2O	Photometric/XRF	%	0.069±0.01
8	TiO_2	Photometric/XRF	%	0.068±0.01
9	P2O5	Photometric/XRF	%	0.007±0.01
10	K2O	Photometric/XRF	%	0.022±0.01
11	C	Photometric/XRF	%	30.25±0.5
10	LOI	----------	%	5.349±0.5

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DEPT. OF CHEMICAL ENGG. No..... Dt..... N.I.T. ROURKELA-769008

BF-2 FLUE DUST QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BF-2 FLUE DUST**
3. Date of Sampling : 1st MARCH, 2024
4. Date of Analysis : 20th MARCH, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.088
2	As	US-EPA Method	mg/Kg	30.95
3	Se	US-EPA Method	mg/Kg	3.43
4	Sb	US-EPA Method	mg/Kg	2.19
5	Ba	US-EPA Method	mg/Kg	194.6
6	Cd	US-EPA Method	mg/Kg	0.840
7	Cr	US-EPA Method	mg/Kg	81.478
8	Cr(VI)	US-EPA Method	mg/Kg	0.935
9	Pb	US-EPA Method	mg/Kg	59.05
10	Mn	US-EPA Method	mg/Kg	63.953
11	Ag	US-EPA Method	mg/Kg	1.91
12	Co	US-EPA Method	mg/Kg	14.2
13	Cu	US-EPA Method	mg/Kg	29.033
14	Mo	US-EPA Method	mg/Kg	4.512
15	Ni	US-EPA Method	mg/Kg	33.23
16	V	US-EPA Method	mg/Kg	166.68
17	Zn	US-EPA Method	mg/Kg	119.83

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SMS LD SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : SMS **LD SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March , 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	13.084±0.5
2	FeO	Photometric/XRF	%	19.56±0.1
3	Al_2O_3	Photometric/XRF	%	1.23±0.5
4	CaO	Photometric/XRF	%	43.821±0.5
5	MgO	Photometric/XRF	%	10.78±0.5
6	MnO	Photometric/XRF	%	1.12±0.01
7	Sulphur	Photometric/XRF	%	0.068±0.01
8	TiO_2	Photometric/XRF	%	1.231±0.01
9	P2O5	Photometric/XRF	%	1.594±0.01
10	Basicity	Photometric/XRF	-------	3.51

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SMS LD SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : SMS **LD SLAG**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.958
2	As	US-EPA Method	mg/Kg	22.24
3	Se	US-EPA Method	mg/Kg	0.73
4	Sb	US-EPA Method	mg/Kg	1.104
5	Ba	US-EPA Method	mg/Kg	122.90
6	Cd	US-EPA Method	mg/Kg	7.1
7	Cr	US-EPA Method	mg/Kg	129.8
8	Cr(VI)	US-EPA Method	mg/Kg	0.949
9	Pb	US-EPA Method	mg/Kg	1.019
10	Mn	US-EPA Method	mg/Kg	302.4
11	Ag	US-EPA Method	mg/Kg	2.01
12	Co	US-EPA Method	mg/Kg	33.21
13	Cu	US-EPA Method	mg/Kg	59.01
14	Mo	US-EPA Method	mg/Kg	6.89
15	Ni	US-EPA Method	mg/Kg	1052.32
16	V	US-EPA Method	mg/Kg	101.05
17	Zn	US-EPA Method	mg/Kg	81.17

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ETP SLUDGE CRM QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **ETP SLUDGE CRM**
3. Date of Sampling : 01st March, 2024
4. Date of Analysis : 20th JULY, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.86
2	MOISTURE	----------	%	42
3	Cr	Photometric/XRF	%	1.71±0.5
4	Fe	Photometric/XRF	%	26.09±0.5
5	Ni	Photometric/XRF	%	0.66±0.1
6	Mn	Photometric/XRF	%	0.28±0.01
7	F	Photometric/XRF	PPM	47±0.01

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ETP SLUDGE CRM QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **ETP SLUDGE CRM**
3. Date of Sampling : 1st JULY, 2023
4. Date of Analysis : 20th JULY, 2023
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.958
2	As	US-EPA Method	mg/Kg	21.62
3	Se	US-EPA Method	mg/Kg	0.697
4	Sb	US-EPA Method	mg/Kg	1.08
5	Ba	US-EPA Method	mg/Kg	123.88
6	Cd	US-EPA Method	mg/Kg	7.13
7	Cr	US-EPA Method	mg/Kg	129.5
8	Cr(VI)	US-EPA Method	mg/Kg	0.942
9	Pb	US-EPA Method	mg/Kg	1.018
10	B	US-EPA Method	mg/Kg	303.89
11	Ag	US-EPA Method	mg/Kg	2.065
12	Co	US-EPA Method	mg/Kg	33.10
13	Cu	US-EPA Method	mg/Kg	58.09
14	Mo	US-EPA Method	mg/Kg	6.89
15	Ni	US-EPA Method	mg/Kg	1054.32
16	V	US-EPA Method	mg/Kg	102.06
17	Zn	US-EPA Method	mg/Kg	81.15
18	F^-	US-EPA Method	mg/Kg	BDL
19	CN^-	US-EPA Method	mg/Kg	BDL
20	Hydrazine	US-EPA Method	mg/Kg	BDL
21	Phenols	US-EPA Method	mg/Kg	BDL

22	Total N	US-EPA Method	mg/Kg	3.456
23	NH_4 - N	US-EPA Method	mg/Kg	0.258
24	NO_3–N	US-EPA Method	mg/Kg	2.608
25	OIL	US-EPA Method	mg/Kg	54.66

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FLYASH BF-PP-1 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH BF- PP- 1**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	55.19±0.5
2	Fe2O3	Photometric/XRF	%	3.63±0.1
3	Al_2O_3	Photometric/XRF	%	25.89±0.5
4	CaO	Photometric/XRF	%	3.54±0.5
5	MgO	Photometric/XRF	%	1.18±0.5
6	MnO	Photometric/XRF	%	0.02±0.01
7	Na2O	Photometric/XRF	%	0.37±0.01
8	TiO_2	Photometric/XRF	%	1.31±0.01
9	P2O5	Photometric/XRF	%	0.26±0.01
10	K2O	Photometric/XRF	%	0.715
10	LOI	----------	%	6.49

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FLYASH BF-PP-1 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH BF-PP-1**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.107
2	As	US-EPA Method	mg/Kg	31.89
3	Se	US-EPA Method	mg/Kg	3.61
4	Sb	US-EPA Method	mg/Kg	2.18
5	Ba	US-EPA Method	mg/Kg	196.9
6	Cd	US-EPA Method	mg/Kg	0.815
7	Cr	US-EPA Method	mg/Kg	79.43
8	Cr(VI)	US-EPA Method	mg/Kg	0.948
9	Pb	US-EPA Method	mg/Kg	56.69
10	Mn	US-EPA Method	mg/Kg	64.67
11	Ag	US-EPA Method	mg/Kg	1.89
12	Co	US-EPA Method	mg/Kg	11.98
13	Cu	US-EPA Method	mg/Kg	29.1
14	Mo	US-EPA Method	mg/Kg	4.61
15	Ni	US-EPA Method	mg/Kg	34.31
16	V	US-EPA Method	mg/Kg	163.59
17	Zn	US-EPA Method	mg/Kg	122.16

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राउरकेला ROURKELA – 769008, ओडिशा ODISHA

FLYASH BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH BF- PP- 2**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	56.03±0.5
2	Fe2O3	Photometric/XRF	%	3.91±0.1
3	Al_2O_3	Photometric/XRF	%	24.43±0.5
4	CaO	Photometric/XRF	%	3.58±0.5
5	MgO	Photometric/XRF	%	1.15±0.5
6	MnO	Photometric/XRF	%	0.01±0.01
7	Na2O	Photometric/XRF	%	0.33±0.01
8	TiO_2	Photometric/XRF	%	1.27±0.01
9	P2O5	Photometric/XRF	%	0.25±0.01
10	K2O	Photometric/XRF	%	0.689
10	LOI	----------	%	6.48

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Saumya S. Mohapatra

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FLYASH BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH BF-PP-2**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th JULY, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.103
2	As	US-EPA Method	mg/Kg	30.975
3	Se	US-EPA Method	mg/Kg	3.71
4	Sb	US-EPA Method	mg/Kg	2.23
5	Ba	US-EPA Method	mg/Kg	187.5
6	Cd	US-EPA Method	mg/Kg	0.794
7	Cr	US-EPA Method	mg/Kg	78.73
8	Cr(VI)	US-EPA Method	mg/Kg	0.938
9	Pb	US-EPA Method	mg/Kg	55.07
10	Mn	US-EPA Method	mg/Kg	63.88
11	Ag	US-EPA Method	mg/Kg	1.82
12	Co	US-EPA Method	mg/Kg	11.91
13	Cu	US-EPA Method	mg/Kg	29.36
14	Mo	US-EPA Method	mg/Kg	4.59
15	Ni	US-EPA Method	mg/Kg	34.37
16	V	US-EPA Method	mg/Kg	164.69
17	Zn	US-EPA Method	mg/Kg	121.86

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SMS FeS DUST QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **SMS FeS DUST**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	7.978±0.5
2	Fe2O3	Photometric/XRF	%	50.62±0.1
3	Al_2O_3	Photometric/XRF	%	2.58±0.5
4	CaO	Photometric/XRF	%	1.91±0.5
5	MgO	Photometric/XRF	%	1.84±0.5
6	MnO	Photometric/XRF	%	0.20±0.01
7	Na2O	Photometric/XRF	%	0.081±0.01
8	TiO_2	Photometric/XRF	%	0.073±0.01
9	P2O5	Photometric/XRF	%	0.0075±0.01
10	K2O	Photometric/XRF	%	0.023±0.01
11	C	Photometric/XRF	%	30.512±0.5
10	LOI	----------	%	5.42±0.5

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SMS FeS Dust QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **SMS FeS DUST**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.09
2	As	US-EPA Method	mg/Kg	31.25
3	Se	US-EPA Method	mg/Kg	3.69
4	Sb	US-EPA Method	mg/Kg	2.28
5	Ba	US-EPA Method	mg/Kg	178.6
6	Cd	US-EPA Method	mg/Kg	0.812
7	Cr	US-EPA Method	mg/Kg	82.48
8	Cr(VI)	US-EPA Method	mg/Kg	0.964
9	Pb	US-EPA Method	mg/Kg	58.80
10	Mn	US-EPA Method	mg/Kg	68.10
11	Ag	US-EPA Method	mg/Kg	1.992
12	Co	US-EPA Method	mg/Kg	12.74
13	Cu	US-EPA Method	mg/Kg	28.87
14	Mo	US-EPA Method	mg/Kg	4.682
15	Ni	US-EPA Method	mg/Kg	34.195
16	V	US-EPA Method	mg/Kg	164.31
17	Zn	US-EPA Method	mg/Kg	119.16

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BFPP-1 BED ASH QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **BFPP- 1 BED ASH**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL, Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	56.45±0.5
2	Fe2O3	Photometric/XRF	%	3.78±0.1
3	Al_2O_3	Photometric/XRF	%	24.43±0.5
4	CaO	Photometric/XRF	%	2.75±0.5
5	MgO	Photometric/XRF	%	1.24±0.5
6	MnO	Photometric/XRF	%	0.013±0.01
7	Na2O	Photometric/XRF	%	0.34±0.01
8	TiO_2	Photometric/XRF	%	1.18±0.01
9	P2O5	Photometric/XRF	%	0.38±0.01
10	K2O	Photometric/XRF	%	0.72±0.01
10	LOI	----------	%	5.63±0.5

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BFPP-1 BED ASH QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BFPP- 1 BED ASH**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.071
2	As	US-EPA Method	mg/Kg	27.86
3	Se	US-EPA Method	mg/Kg	2.75
4	Sb	US-EPA Method	mg/Kg	2.26
5	Ba	US-EPA Method	mg/Kg	161.6
6	Cd	US-EPA Method	mg/Kg	0.79
7	Cr	US-EPA Method	mg/Kg	77.56
8	Cr(VI)	US-EPA Method	mg/Kg	0.854
9	Pb	US-EPA Method	mg/Kg	53.8
10	Mn	US-EPA Method	mg/Kg	64.8
11	Ag	US-EPA Method	mg/Kg	1.88
12	Co	US-EPA Method	mg/Kg	12.46
13	Cu	US-EPA Method	mg/Kg	28.38
14	Mo	US-EPA Method	mg/Kg	4.38
15	Ni	US-EPA Method	mg/Kg	31.36
16	V	US-EPA Method	mg/Kg	156.8
17	Zn	US-EPA Method	mg/Kg	121.24

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BFPP-2 BED ASH QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BFPP- 2 BED ASH**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	59.06±0.5
2	Fe2O3	Photometric/XRF	%	3.83±0.1
3	Al_2O_3	Photometric/XRF	%	21.35±0.5
4	CaO	Photometric/XRF	%	2.56±0.5
5	MgO	Photometric/XRF	%	1.17±0.5
6	MnO	Photometric/XRF	%	0.16±0.01
7	Na2O	Photometric/XRF	%	0.29±0.01
8	TiO_2	Photometric/XRF	%	1.209±0.01
9	P2O5	Photometric/XRF	%	0.24±0.01
10	K2O	Photometric/XRF	%	0.64±0.01
10	LOI	----------	%	5.07±0.1

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BFPP-2 BED ASH QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BFPP- 2 BED ASH**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 20th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.08
2	As	US-EPA Method	mg/Kg	28.42
3	Se	US-EPA Method	mg/Kg	2.74
4	Sb	US-EPA Method	mg/Kg	2.27
5	Ba	US-EPA Method	mg/Kg	156.8
6	Cd	US-EPA Method	mg/Kg	0.79
7	Cr	US-EPA Method	mg/Kg	76.42
8	Cr(VI)	US-EPA Method	mg/Kg	0.794
9	Pb	US-EPA Method	mg/Kg	53.3
10	Mn	US-EPA Method	mg/Kg	65.8
11	Ag	US-EPA Method	mg/Kg	1.842
12	Co	US-EPA Method	mg/Kg	12.41
13	Cu	US-EPA Method	mg/Kg	25.29
14	Mo	US-EPA Method	mg/Kg	4.27
15	Ni	US-EPA Method	mg/Kg	30.34
16	V	US-EPA Method	mg/Kg	158.6
17	Zn	US-EPA Method	mg/Kg	120.14

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FLYASII (165MW PP) QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH (165 MW PP)**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	59.89±0.5
2	Al_2O_3	Photometric/XRF	%	21.76±0.5
3	CaO	Photometric/XRF	%	3.68±0.5
4	MgO	Photometric/XRF	%	1.19±0.5
5	MnO	Photometric/XRF	%	0.02±0.01
6	Na2O	Photometric/XRF	%	0.35±0.01
7	TiO_2	Photometric/XRF	%	1.29±0.01
8	P2O5	Photometric/XRF	%	0.24±0.01
10	K2O	Photometric/XRF	%	0.632
11	LOI	----------	%	6.42

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FLYASH (165MW PP) QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH (165 MW PP)**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.114
2	As	US-EPA Method	mg/Kg	31.056
3	Se	US-EPA Method	mg/Kg	3.68
4	Sb	US-EPA Method	mg/Kg	2.19
5	Ba	US-EPA Method	mg/Kg	183.40
6	Cd	US-EPA Method	mg/Kg	0.806
7	Cr	US-EPA Method	mg/Kg	79.83
8	Cr(VI)	US-EPA Method	mg/Kg	0.929
9	Pb	US-EPA Method	mg/Kg	56.06
10	Mn	US-EPA Method	mg/Kg	63.65
11	Ag	US-EPA Method	mg/Kg	1.79
12	Co	US-EPA Method	mg/Kg	12.98
13	Cu	US-EPA Method	mg/Kg	28.53
14	Mo	US-EPA Method	mg/Kg	4.71
15	Ni	US-EPA Method	mg/Kg	36.41
16	V	US-EPA Method	mg/Kg	175.88
17	Zn	US-EPA Method	mg/Kg	124.84

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BED ASH (165 MW PP) QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BED ASH (165MW PP)**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	61.08±0.5
2	Fe2O3	Photometric/XRF	%	2.96±0.1
3	Al_2O_3	Photometric/XRF	%	20.07±0.5
4	CaO	Photometric/XRF	%	2.38±0.5
5	MgO	Photometric/XRF	%	1.14±0.5
6	MnO	Photometric/XRF	%	0.145±0.01
7	Na2O	Photometric/XRF	%	0.285±0.01
8	TiO_2	Photometric/XRF	%	1.199±0.01
9	P2O5	Photometric/XRF	%	0.25±0.01
10	K2O	Photometric/XRF	%	0.76±0.01
10	LOI	----------	%	5.10±0.1

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BED ASH (165 MW PP) QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BED ASH (165 MW PP)**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.07
2	As	US-EPA Method	mg/Kg	27.67
3	Se	US-EPA Method	mg/Kg	2.68
4	Sb	US-EPA Method	mg/Kg	2.56
5	Ba	US-EPA Method	mg/Kg	154.75
6	Cd	US-EPA Method	mg/Kg	0.76
7	Cr	US-EPA Method	mg/Kg	73.40
8	Cr(VI)	US-EPA Method	mg/Kg	0.786
9	Pb	US-EPA Method	mg/Kg	54.62
10	Mn	US-EPA Method	mg/Kg	67.74
11	Ag	US-EPA Method	mg/Kg	1.756
12	Co	US-EPA Method	mg/Kg	11.92
13	Cu	US-EPA Method	mg/Kg	24.48
14	Mo	US-EPA Method	mg/Kg	4.27
15	Ni	US-EPA Method	mg/Kg	32.45
16	V	US-EPA Method	mg/Kg	157.58
17	Zn	US-EPA Method	mg/Kg	122.24

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SMS BOF SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **SMS BOF SLUDGE**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL ,Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.85
2	MOISTURE	----------	%	41
3	Cr	Photometric/XRF	%	1.64±0.5
4	Fe	Photometric/XRF	%	24.15±0.5
5	Ni	Photometric/XRF	%	0.617±0.1
6	Mn	Photometric/XRF	%	0.285±0.01
7	F	Photometric/XRF	PPM	48±0.01

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SMS BOF SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel, Meramandali, Odisha**
2. Sampling Location : **SMS BOF SLUDGE**
3. Date of Sampling : 1st March, 2024
4. Date of Analysis : 25th March, 2024
5. Sample Collected By : TATA STEEL, Meramandali

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
		TRACE ANALYSIS REPORT		
1	Hg	US-EPA Method	mg/Kg	0.485
2	As	US-EPA Method	mg/Kg	12.81
3	Se	US-EPA Method	mg/Kg	0.645
4	Sb	US-EPA Method	mg/Kg	1.116
5	Ba	US-EPA Method	mg/Kg	123.65
6	Cd	US-EPA Method	mg/Kg	6.22
7	Cr	US-EPA Method	mg/Kg	126.86
8	Cr(VI)	US-EPA Method	mg/Kg	0.820
9	Pb	US-EPA Method	mg/Kg	0.942
10	B	US-EPA Method	mg/Kg	308.54
11	Ag	US-EPA Method	mg/Kg	1.09
12	Co	US-EPA Method	mg/Kg	34.20
13	Cu	US-EPA Method	mg/Kg	55.64
14	Mo	US-EPA Method	mg/Kg	5.847
15	Ni	US-EPA Method	mg/Kg	341.97
16	V	US-EPA Method	mg/Kg	92.08
17	Zn	US-EPA Method	mg/Kg	84.024
18	F^-	US-EPA Method	mg/Kg	0.047
19	CN^-	US-EPA Method	mg/Kg	0.029

20	Hydrazine	US-EPA Method	mg/Kg	0.0118

Tested BY
Er. Samarendu Mohanty
Tech. Asst. (SG-II)
Chemical Engg. NIT, Rourkela

Saumya S. Mohapatra

Reviewed BY
Prof. Saumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
Principal Investigator

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NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA – 769008, ओडिशा ODISHA

RIGHT TO INFORMATION

DEPT. OF CHEMICAL ENGG. No..... Dt..... N.I.T. ROURKELA-769008

SMS -2 LD SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **SMS-2 LD SLUDGE**
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 22th JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.9
2	MOISTURE	----------	%	46
3	Cr	Photometric/XRF	%	1.67±0.5
4	Fe	Photometric/XRF	%	30.32±0.5
5	Ni	Photometric/XRF	%	2.67±0.1
6	Mn	Photometric/XRF	%	1.54±0.01
7	F	Photometric/XRF	PPM	1.23±0.01

Tested BY
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Prof. Soumya S. Mohapatra
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SMS-2 LD SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **SMS-2 LD SLUDGE**
3. Date of Sampling : 10h JULY, 2023
4. Date of Analysis : 22th JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.576
2	As	US-EPA Method	mg/Kg	13.2
3	Se	US-EPA Method	mg/Kg	0.67
4	Sb	US-EPA Method	mg/Kg	1.13
5	Ba	US-EPA Method	mg/Kg	124.6
6	Cd	US-EPA Method	mg/Kg	6.2
7	Cr	US-EPA Method	mg/Kg	129.7
8	Cr(VI)	US-EPA Method	mg/Kg	.876
9	Pb	US-EPA Method	mg/Kg	0.96
10	B	US-EPA Method	mg/Kg	312.6
11	Ag	US-EPA Method	mg/Kg	1.09
12	Co	US-EPA Method	mg/Kg	32.2
13	Cu	US-EPA Method	mg/Kg	53.5
14	Mo	US-EPA Method	mg/Kg	5.54
15	Ni	US-EPA Method	mg/Kg	353.32
16	V	US-EPA Method	mg/Kg	93.01
17	Zn	US-EPA Method	mg/Kg	86.013
18	F^-	US-EPA Method	mg/Kg	0.029
19	CN^-	US-EPA Method	mg/Kg	0.036

20	Hydrazine	US-EPA Method	mg/Kg	0.0102

Tested BY
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Saumya S. Mohapatra

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FLYASH SILO-1 BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH SILO-1 BF- PP- 2**
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 25th JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	SiO_2	Photometric/XRF	%	51.22±0.5
2	Fe2O3	Photometric/XRF	%	3.32±0.1
3	Al_2O_3	Photometric/XRF	%	22.01±0.5
4	CaO	Photometric/XRF	%	3.67±0.5
5	MgO	Photometric/XRF	%	1.26±0.5
6	MnO	Photometric/XRF	%	0.02±0.01
7	Na2O	Photometric/XRF	%	0.34±0.01
8	TiO_2	Photometric/XRF	%	1.25±0.01
9	P2O5	Photometric/XRF	%	0.22±0.01
10	K2O	Photometric/XRF	%	0.76
10	LOI	----------	%	3.58

Tested BY

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Saumya S. Mohapatra
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Prof. Saumya S. Mohapatra
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RIGHT TO INFORMATION

DEPT. OF CHEMICAL ENGG. N.I.T. ROURKELA-769008 No..... Dt.....

FLYASH SILO-1 BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **FLYASH SILO-1 BF- PP- 2**
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 25th JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.13
2	As	US-EPA Method	mg/Kg	34.4
3	Se	US-EPA Method	mg/Kg	3.54
4	Sb	US-EPA Method	mg/Kg	2.09
5	Ba	US-EPA Method	mg/Kg	178.6
6	Cd	US-EPA Method	mg/Kg	0.73
7	Cr	US-EPA Method	mg/Kg	67.46
8	Cr(VI)	US-EPA Method	mg/Kg	0.816
9	Pb	US-EPA Method	mg/Kg	53.9
10	Mn	US-EPA Method	mg/Kg	62.8
11	Ag	US-EPA Method	mg/Kg	2.13
12	Co	US-EPA Method	mg/Kg	11.5
13	Cu	US-EPA Method	mg/Kg	25.1
14	Mo	US-EPA Method	mg/Kg	4.46
15	Ni	US-EPA Method	mg/Kg	34.18
16	V	US-EPA Method	mg/Kg	184.5
17	Zn	US-EPA Method	mg/Kg	114.13

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BF-2 LD GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BF-2 LD GCP SLUDGE**
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 22th JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
COMPOSITIONAL ANALYSIS REPORT				
1	pH	----------	---------	7.9
2	MOISTURE	----------	%	46
3	Cr	Photometric/XRF	%	1.67±0.5
4	Fe	Photometric/XRF	%	26.12±0.5
5	Ni	Photometric/XRF	%	0.67±0.1
6	Mn	Photometric/XRF	%	0.29±0.01
7	F	Photometric/XRF	PPM	46±0.01

Tested By
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Tech. Asst. (SG-II)
Chemical Engg. NIT, Rourkela

Soumya S. Mohapatra
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Prof. Soumya S. Mohapatra
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राउरकेला ROURKELA – 769008, ओडिशा ODISHA

RIGHT TO INFORMATION

BF-2 LD GCP SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : **M/s. TATA Steel,Meramandali, Odisha**
2. Sampling Location : **BF-2 LD GCP SLUDGE**
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 22nd JULY, 2023
5. Sample Collected By : Mr.P.SAHU ,N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
TRACE ANALYSIS REPORT				
1	Hg	US-EPA Method	mg/Kg	0.576
2	As	US-EPA Method	mg/Kg	13.2
3	Se	US-EPA Method	mg/Kg	0.67
4	Sb	US-EPA Method	mg/Kg	1.13
5	Ba	US-EPA Method	mg/Kg	124.6
6	Cd	US-EPA Method	mg/Kg	6.2
7	Cr	US-EPA Method	mg/Kg	129.7
8	Cr(VI)	US-EPA Method	mg/Kg	0.876
9	Pb	US-EPA Method	mg/Kg	0.96
10	B	US-EPA Method	mg/Kg	312.6
11	Ag	US-EPA Method	mg/Kg	1.09
12	Co	US-EPA Method	mg/Kg	32.2
13	Cu	US-EPA Method	mg/Kg	53.5
14	Mo	US-EPA Method	mg/Kg	5.54
15	Ni	US-EPA Method	mg/Kg	353.32
16	V	US-EPA Method	mg/Kg	93.01
17	Zn	US-EPA Method	mg/Kg	86.013
18	F^-	US-EPA Method	mg/Kg	0.029
19	CN^-	US-EPA Method	mg/Kg	0.036

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20	Hydrazine	US-EPA Method	mg/Kg	0.0102

DEPT. OF CHEMICAL ENGG. N.I.T. ROURKELA-769 008 No. Dt.

Tested BY

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Chemical Engg. NIT, Rourkela

Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
Principal Investigator

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

Azadi Ka Amrit Mahotsav

TEST REPORT

Ref. No. LT02-CCD/11/24 **Date: 18.11.2024**

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:	18.09.2024
Date(s) of Conducting Test:	03.10.2024
Date of Completion of Test:	08.11.2024

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.

18/11/2024
(J. Das)
Pr. Technical Officer
Central Characterization Dept.

18/11/24.
(Dr. B. Nayak)
Chief Scientist
PL & Head, CCD

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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CSIR - INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY
(Council of Scientific & Industrial Research)
Bhubaneswar - 751013, Odisha, INDIA

Azadi Ka Amrit Mahotsav

TEST REPORT

Ref. No. LT02-CCD/11/24 **Date: 18.11.2024**

Table-1. Proximate analysis of coal samples.

Sample ID	Moisture (%)	Volatile Matter (%)	Ash (%)	Fixed Carbon (%)
Indian coal	2.43	24.71	43.31	29.55
Imported coal	2.58	22.64	12.32	62.46

Table-2. Chemical composition analysis of coal samples.

Sl. No.	Component	Concentration in Test Samples, %	
		Indian Coal	Imported Coal
1	SiO_2	21.91	5.76
2	Al_2O_3	13.64	3.93
3	Fe_2O_3	1.56	0.35
4	TiO_2	0.78	0.10
5	MnO	0.007	0.006
6	CaO	0.28	0.44
7	MgO	0.10	0.08
8	Na_2O	0.62	0.32
9	K_2O	0.74	0.11
10	P_2O_5	0.09	0.18
11	S/SO_3	0.34/0.85	0.66/1.65
12	LOI	57.29	86.05

18/11/2024
(J. Das)
Pr. Technical Officer
Central Characterization Dept.

18/11/24
(Dr. B. Nayak)
Chief Scientist
PL & Head, CCD

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Bhubaneswar - 751013, Odisha, INDIA

Azadi Ka Amrit Mahotsav

TEST REPORT

Ref. No. LT02-CCD/11/24 **Date: 18.11.2024**

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	15.68	2.15
2	Cd	mg/kg	0.19	0.07
3	Cu	mg/kg	39.07	12.81
4	Ni	mg/kg	37.62	18.04
5	Co	mg/kg	17.62	8.36
6	Cr	mg/kg	65.05	18.62
7	Zn	mg/kg	53.84	25.96
8	Ag	mg/kg	1.09	0.39
9	Sb	mg/kg	6.33	1.73
10	Mo	mg/kg	3.46	0.39
11	V	mg/kg	70.84	22.08
12	Se	mg/kg	1.28	0.21
13	Ba	mg/kg	174.08	31.01
14	As	mg/kg	110.6	25.7
15	Hg	mg/kg	1.17	0.86
16	B	%	0.28	0.11
17	F in water leaching (1:20) solutions.	mg/L	0.58	0.21

18/11/2024
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Pr. Technical Officer
Central Characterization Dept.

18/11/24
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PL & Head, CCD

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Bhubaneswar - 751013, Odisha, INDIA

Azadi Ka Amrit Mahotsav

TEST REPORT

Ref. No. LT02-CCD/11/24 **Date: 18.11.2024**

Table-4. Chemical composition analysis of Iron ore and Lime stone samples.

Sl. No.	Component	Concentration in Test Samples, %	
		Iron Ore	Lime Stone
1	SiO_2	1.61	1.92
2	Al_2O_3	2.82	0.88
3	Fe_2O_3	89.90	0.04
4	TiO_2	0.19	0.007
5	MnO	0.015	0.005
6	CaO	0.16	44.37
7	MgO	0.02	11.1
8	Na_2O	0.87	1.24
9	K_2O	0.07	0.18
10	P_2O_5	0.11	0.008
11	S/SO_3	0.08/0.20	0.09/0.23
12	LOI	2.86	42.09

18/11/2024
(J. Das)
Pr. Technical Officer
Central Characterization Dept.

18/11/24
(Dr. B. Nayak)
Chief Scientist
PL & Head, CCD

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Bhubaneswar - 751013, Odisha, INDIA

Azadi Ka Amrit Mahotsav

TEST REPORT

Ref. No. LT02-CCD/11/24 **Date: 18.11.2024**

Table-5. Trace element analysis of Iron ore and Lime stone samples.

Sl. No.	Parameters	Trace element concentrations in test samples		
		Unit	Iron Ore	Lime Stone
1	Pb	mg/kg	0.67	0.09
2	Cd	mg/kg	BDL	BDL
3	Cu	mg/kg	10.71	4.42
4	Ni	mg/kg	0.58	2.49
5	Co	mg/kg	7.42	5.95
6	Cr	mg/kg	64.03	9.93
7	Zn	mg/kg	28.95	12.88
8	Ag	mg/kg	0.15	0.35
9	Sb	mg/kg	0.08	0.03
10	Mo	mg/kg	BDL	0.26
11	V	mg/kg	39.10	2.47
12	Se	mg/kg	BDL	BDL
13	Ba	mg/kg	65.0	10.04
14	As	mg/kg	1.86	15.90
15	Hg	mg/kg	0.67	0.36
16	B	%	0.56	0.78

18/11/2024

(J. Das)
Pr. Technical Officer
Central Characterization Dept.

18/11/24.

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

Government of Odisha
DIRECTORATE OF FACTORIES AND BOILERS, ODISHA.
KHARAVEL NAGAR, UNIT-3, BHUBANESWAR-751001, PH. NO. 2396070.
****

Letter No. IV (IH) (3)-149/11/ 3143 / Dated, the 19/10/2022

To

The Occupier,
M/s. TATA Steel Meramundali,
At- Narendrapur, PO- Kusupanga, Meramundali,
Dist. - Dhenkanal.

Sub: Acceptance of Updated On-Site Emergency Plan

Ref: Your letter Your L. No. TSM/DFBC/22/62 dated 12.08.2022.

Sir,

In inviting the reference on the subject cited above & in pursuance of provision under Rule 12 of the Odisha Factories (Control of Major Accident Hazard) Rules, 2001, the updated On-Site Emergency Plan of your MAH factory having identified **Hazardous substances LDO,HSD,LPG, LIQUID OXYGEN, HYDROGEN, NaOH, H_2SO_4 & TRANSFORMER OIL** bearing Sl.No. **176/22** is hereby provisionally accepted, subject to conditions as mentioned hereunder:-

01. Consequent upon any modification / alteration in future the On-Site Emergency plan shall be prepared and submitted for acceptance.
02. The **possible hazards** associated with the factory and ***'Dos' and 'Don'ts'*** shall be displayed in prominent pace adjacent to main gate & conspicuous places inside the factory with the measures to be taken in case of such incident.
03. Each key personnel of the command structure shall be provided with a **worksheet** containing their duties and responsibilities.
04. **Mock Drill** shall be scheduled through PAReSHRAM portal at least once in every six months involving zonal Asst. Director of Factories and Boilers / Divisional Dy. Directors of Factories and Boilers concerned & DCG members.
05. Annual report on hold of Mock Drills shall be submitted to the authorities of District Administration under intimation to Assistant Director of Factories & Boilers/Deputy Director of Factories & Boilers/Director of Factories & Boilers
06. Awareness programmes on hazard & mitigation shall be made amongst workers and people living in the vicinity

The accepted copy of the updated On-Site Plan is sent herewith, the receipt of which may please be acknowledged and photocopy of the same be provided to the following authorities.

- Addl. Secretary to Govt. of Odisha, Home (Special Section) Department, Bhubaneswar.
- Principal Secretary to Govt. of Odisha, Labour & ESI Department, Bhubaneswar
- Collector & District Magistrate, Dhenkanal.
- Superintendent of Police, Dhenkanal.

P.T.O.

- District Fire Office, Dhenkanal.
- Chief Medical Officer, Dhenkanal.
- Asst. Director of Factories & Boilers, Dhenkanal Zone.
- Dy. Director of Factories & Boilers, Angul Division.

Yours faithfully,

Director of Factories and Boilers, Odisha

Memo No. 3194 / Dated, the 19/10/2022

Copy to the Asst. Director of Factories and Boilers Dhenkanal Zone / Dy. Director of Factories and Boilers, Angul Division for information and necessary action.

Dy. Director of Factories and Boilers, Safety

(-) copy to renewal file

Annexure-IX

CORPORATE RESPONSIBILTY FOR ENVIRONMENT PROTECTION COMPLIANCE

1. Coke Oven Plants

Action Points (I) : To meet the parameters PLD (% leaking doors), PLL (% leaking lids), PLO (% leaking off take), of the notified standards under EPA within three years (by December 2005). Industry will submit time bound action plan and PERT Chart along with the Bank Guarantee for the implementation of the same.

Compliance: PLD (% leaking doors), PLL (% Leaking lids), PLO (% leaking off take) are being monitored on monthly basis and reports are within the notified standards. Summary report for April 2024 to September 2024 is enclosed.

No. of Batteries	No. of Observations	Number of times standard exceeded	Parameters							
			PLD (%)		PLL (%)		PLO (%)		Charging Emission (Sec.)	
			Max	Min	Max	Min	Max	Min	Max	Min
Coke Oven-1 Battery# 1	18	Nil	0	0	0	0	1.64	0	69	55
Coke Oven-1 Battery# 2	18	Nil	5.74	0.78	0	0	1.56	0	72	50
Coke Oven-2 Battery# 1	18	Nil	8.45	7.25	0	0	0	0	41	37

Action Points (II) : To rebuild at least 40% of the coke oven batteries* in next 10 years (by December 2012).

Compliance: Not applicable as the batteries at coke ovens #1 & 2 are new.

2. Steel Melting Shop

Action Points (I) : Fugitive emissions - To reduce 30% by March 2004 and 100% by March 2008 (including installation of secondary de-dusting facilities).

Compliance : Primary and secondary dust extraction system have been installed to reduce Fugitive dust emission from SMS. Summary report for the period from April 2024 to September 2024 is enclosed.

Sl. No.	Name of the Unit	PM_{10} Concentration in µg/m3	Standard in µg/m3
1.	SMS-II furnace area	428	4000
2.	SMS-III BOF furnace area	280	3000

3. Blast Furnace

Action Points (I) Direct inject of reducing agents -- by June 2013

Compliance : The blast furnace has been commissioned with direct injection of PCI up to 200 Kg/Ton of Hot metal. Summary report for the period from April 2024 to September 2024 is enclosed.

Sl. No.	Name of the Unit	PCI in Kg/Ton (Avg)
1.	BF-I	177
2.	BF-II	172

4. Solid Waste/ Hazardous Waste Management

Action Points (I) Utilization of Steel Melting Shop (SMS) / Blast Furnace (BF) Slag as per the following schedule: By 2004 - 70%, By 2006 - 80% and By 2007 - 100%.

Compliance :

- Most of the industrial solid wastes are reused internally in different units. Like Flue dust, GCP sludge, Bag filter dust of SMS & BF, coal dust, mill scale, lime fines are used in sinter making. DRI Char is being used along with coal in Power plant.
- The entire quantity of blast furnace slag is dispatched to cement manufacturers based on long term MoU with the cement manufacturer.
- Fly ash is also being supplied to
  - nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash.
  - Cement plants through bulker.
  - Construction of national highway (NH-55).
  - Balance if any is being utilized in reclamation of low lying areas & abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents.
- The SMS slag (LD slag) is processed in material recovery plant (MRP) for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are as below:

  - recovered metallics used in steel making process as a scrap,
  - recovered fines used in sinter making process for replacement of lime,
  - non-mag utilization in cement manufacturing, road making, and hard sand applications.

  Solid waste utilization for the period from April – September 2024 is given in the following table:

Sl. No.	Name of the Unit	Generation in MT	Utilization in MT
1.	BF Slag	862264	850792
2.	LD Slag	466075	1544006

NB. 1077931 MT of legacy LD Slag has been utilized during this period.

Fly ash : 100 %
BF slag : 98.66%
SMS Slag: 100%

5. Hazardous Wastes

Action Points (I) : Charge of tar sludge / ETP sludge to Coke Oven by June 2003.

Compliance : The tar sludge/ETP sludge is being reused in coke oven along with coal for energy recovery.

Action Points (II): Inventorization of the Hazardous Waste as per Hazardous waste (M&H) Rules, 1989 as amended in 2000 and implementation of the Rules by Dec.2003. (tar sludge, acid sludge, waste lubricating oil and type fuel falls in the category of Hazardous Waste)

- **Compliance:** Inventorization of the Hazardous Waste has been done as per the Hazardous & Other Waste (Management and Transboundary Movement) Rules,2016. Accordingly, Hazardous Waste Authorisation has been taken from State Pollution Control Board Odisha, which is valid till 31.03.2025. Summary report of tar sludge / BOD plant sludge generation and utilization report for the period from April to September 2024 is enclosed.

Sl. No.	Name of the Unit	Tar sludge Generation in MT	Tar sludge Utilization in MT	BOD sludge Generation in MT	BOD sludge Utilization in MT
1.	Coke Oven-I & II	1380.40	1380.40	1228.86	1228.86

6. Water Conservation/ Water Pollution

Action Points (I) To reduce specific water consumption to 5 m3/t for long products and 8 m3/t for flat products by December 2005.

Compliance: The following initiative have been undertaken to reduce the specific water consumption.

Reduction of freshwater consumption in closed circuit by increasing the Cycle of Concentration (COC) up to 8. Reuse of treated wastewater back in the process

- **Industrial wastewater treatment**: Installed state- of-art technologies 3 nos. ETPs at CRM & Coke Ovens and 3 nos. of thickener at Blast Furnaces 1&2 and Steel Making Shops.
- **Surface runoff Treatment**: 02 nos. of common effluent treatment plants have been installed to treat surface runoff from DRI, Power Plant and RHMS. 27 Nos. of settling pits have been constructed to remove the suspended solids.
- **Domestic wastewater treatment**: Installed 5 nos. STPs with Fluidized aerobic bed (FAB). Reuse of treated water for cooling tower make up, coal washery make up, dust suppression, slag quenching, slurry making and gardening purposes. SOP has been framed and implemented for operation & maintenance of all ETPs and STPs.
- **Coke Ovens** are equipped with Coke Dry Quenching Unit. WHRB of capacity 94.5 TPH at Coke Oven – II & 64 TPH at Coke Oven - I have been commissioned.

A rainwater harvesting (RWH): High-Density Polyethylene ('HDPE') lined pond of capacity 50,000 m3 had been constructed for harvesting of rainwater and reuse in different applications.

The specific water consumption of the of last three years is given below :

FY 22 : 3.42 m^3/tcs.
FY 23 : 3.55 m^3/tcs
FY 24 : 3.19 m^3/tcs
FT 25 (April'24 – Sept'24) : 3.74 m^3/tcs
Action Points (II): To operate the CO-BP effluent treatment plant efficiently to achieve the notified effluent discharge standards. - by July 2003.

Compliance : The Phenolic effluents of both the Coke Ovens are being treated in BOD plant. The treated effluent is within the stipulated and reused in Coke & slag quenching and dust suppression.

Action Points (III) : Installation of Continuous stacks monitoring system & its calibration in major stacks and setting up of the online ambient air quality monitoring stations by June 2005.

Compliance : 39 Nos. Continuous online stack monitoring system for PM (Continuous Emission Monitoring System - CEMS) and 20 Nos. Continuous online stack monitoring system for Gaseous parameter (SO2 & NOx) (Continuous Emission Monitoring System - CEMS). 7 Nos. Ambient Air Quality Monitoring system (CAAQMS) has also been commissioned. Real time data is being transferred to OSPCB server through RTDMS (IOT device). All analyzers are being calibrated half yearly.

Action Points (IV) : To operate the existing pollution control equipment efficiently and to keep proper record of run hours, failure time and efficiency with immediate effect. Compliance report in this regard is submitted to CPCB / SPCB every three months.

Compliance : All the pollution control facilities are being operated efficiently and record is being maintained. Details of energy meter readings of ESPs/Bag filters are being furnished to OSPCB on monthly basis.

7. Sponge Iron Plants

Action Points (I) : Inventorisation of sponge iron plants to be completed by SPCBs/CPCB by June 2003 and units will be asked to install proper air pollution control equipment by December 2003 to control primary and secondary emissions.

- **Compliance** : The following air Pollution Control Equipment's have been installed to control primary and secondary emissions.
  - 5 Nos. of ESPs have installed at product handling area.
  - 3 Nos. bag filters have installed at junction house and transfer building to control fugitive dust emission.
  - 2 Nos. Wheel Washing System also is in operation.
  - 10 Nos. Pug mill have installed at Cold ESP and Char Silos.

- Seal plates installed across all conveyors to prevent material fall at ground.
- Belt sway switches are installed to prevent the one-sided movement of conveyors and to stop the conveyor movement immediately in case of material spillage.
- Suitably designed nozzles installed at unloading point to prevent dust fall.
- Increased the frequency of road sweeping machine operation and strict monitoring.

Compliance to the commitment made during Public Hearing on 28.10.2010 at 11.00 am for proposed expansion of steel plant from 3.1 to 5.6 MTPA

1. Points raised: Measures taken for air pollution and fugitive dust control

Commitment made: For air pollution control ESP, bag filters, dry fog collection systems and fugitive dust water sprinklers, mobile tankers are provided. The air pollution control equipment are operative. There is improvement in the DRI areas with regard to dust/fugitive emissions.

Compliance:

- 5 Nos. of ESPs have installed at product handling area, 5 Nos. bag filters have installed at junction house and transfer building to control fugitive dust emission.1 Nos. Wheel Washing System also is in operation.10 Nos. Pug mill have installed at WHRB ash unloading point. 5Nos. of pug mill have been installed at Cold ESP and Char Silos. Pneumatic conveying of raw material / ash to reduce fugitive emission from solid/ dust handling.
- Encapsulation of conveying system & Installation of Telescopic chute to minimize dust emission during unloading of bottom ash.
- Provisions of high efficiency dust collection systems like Electrostatic precipitators 27 nos.), Bag filters (58 nos.), Scrubbers (9 nos.) etc.
- Installation of dust suppression system (DFS- 242 nozzles) at coal circuit, iron ore circuit and at Ash transfer points. Installation of gun sprinklers (128 Nos) at raw material yard to reduce fugitive emission.
- Technological improvements like Power supply of ESP (Electrostatic precipitator) using High frequency transformer rectifier/Micro pulse-based rectifier.
- Spillage reduction in conveyor junction houses by installation of new technology sealing using double skirt rubber and commissioning of new dust extraction system in junction houses helped to reduce fugitive emission significantly.
- Periodic maintenance of pollution control equipment & proper housekeeping is being done by a professional expert team.
- Five Nos. Wheel Washing System have been installed at BFPP-I , BFPP-II, RMHS & DRI-WHRB to minimize carry over of mud/dust with the trucks and consequently deposition on road which in turn contribute to ambient air quality. Washing water is being recycled.
- 6 no. of Portable PM_{10} Analyzer have been installed at strategic location of different unit to assess Ground Level Concentration of PM_{10}.
- IVC (Industrial Vacuum Cleaner) has been installed for mechanical cleaning of dust to reduce fugitive emission during manual cleaning.
- Dust suppression system has been installed in Wagon Tippler to reduce fugitive dust emission during Wagon tippling.

- Successful commissioning of Portable dedusting machine at the conveyor junction house to reduce fugitive emission.
- 10 Nos. of Mechanized Road sweepers have been deployed for dry sweeping of internal roads and shop floors with dust suction facility.
- Vehicles carrying raw materials are being covered with tarpaulin to proact during transportation.

2. Points raised: Wastewater Management

Commitment made: The discharge of wastewater/runoff from plant to outside is minimized and facilities are on progress for retaining all treated wastewater and will be reused in captive plantation and dust suppression etc.

Compliance:

- All effluents are being treated in setting tanks (19 nos.) in steel plant attached with respective units and Effluent Treatment Plants (3 nos.) centrally.
- Treated water is being reused for dust suppression, ash handling, make up for DRI & cooling towers and for green area development.
- Process effluent after treatment is being reused. During the period April'24 to September'24, 3010291 m3 of water has been recycled. However, we are further improving the efficiency of the water management system by technology intervention to increase the utilization.
- The sanitary sewage is being treated in 4 Sewage Treatment Plants and used for green belt development and low-end application in plant.
- Rainwater harvesting of capacity 50000m3 with HDPE liner has been constructed to store & reuse rainwater.
- Zero Effluent Discharge (ZED) project will be implemented in FY 25.

3. Solid waste management

Commitment made:

The bottom ash slurry is being disposed off in two ash ponds already constructed. The entire ash will be made semi solid and will be dispatched in HDSD system to MCL mine cavities already acquired. At present ash is dumped inside vacant areas of the plant premises.

Compliance :

- Solid waste handling, storage, utilization and disposal are being done scientifically. The toxic metal content and compositional analysis of solid waste are being carried out regularly.
- The SMS slag (LD slag) is processed in material recovery plant (MRP) for separation of metallic from the non-magnetic part and sized for various applications. Some of the key applications of LD slag product are:

- recovered metallics used in steel making process as a scrap,
- recovered fines used in sinter making process for replacement of lime,
- non-mag utilization in cement manufacturing, road making, and hard sand applications.

- Fly ash is also being supplied to nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash.
- Fly ash is also being supplied to cement plants through rake & bulker.
- Fly ash is being used in the construction of national highway (NH-55).
- Ash is also being used in filling low lying areas & abandoned stone quarries as per guidelines of CPCB/ OSPCB after grant of necessary consents. Presently no fly ash is being disposed in MCL mine void.

4. Obtaining clearance for coal washery

Commitment made:
The industry has already obtained consent to operate of the Board as stated.

- Compliance : Consent to Operate has been obtained from SPCB vide letter no 4463/IND–I–CON-5440, dated. 23.03.2023 and is valid up to 31.03.2025.

5. Employment opportunities

Commitment made:

By setting up the unit lots of scopes will be generated with regard to employment for the local people, indirect employment, generation of small business etc. This will enhance the quality of life in the project affected areas.

Compliance:
All displaced persons (40 Nos) from the village Raghunathpur have been given permanent employment. Moreover, for project affected persons (indirectly about 22332 Nos) of all adjacent seven villages have been given indirect job.

6. Plantation in 33% of the acquired area

They have not planted in 33% of the total area. However, plantation work is in progress in outside areas as well as inside plant premises.

Compliance:

Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Mar'24, 33% of area (This includes Plant,

R&R and CSR) has been covered under green belt. Rapid afforestation using MiyaWaki method in consultation with IIT, Kharagpur has been initiated. Plantation of saplings are done regularly based on the availability of vacant area.

7. Regarding water supply to the affected villages

They have supplied drinking water facilities to villages (Sarpa, Raghunathpur, Narendrapur, and Sibpur in Dhenkanal and Ghantigadia & Talbahal in Angul districts). Besides, they have supplied 8" pipes of 1500 meters under RWSS water supply scheme for supply of water to village Kusupanga, Mangalpur, Manpur and Kurunti.
However, supplying of drinking water to the periphery villages will be expedited and in summer water shall be provided in tankers wherever it is required.

Compliance:

Various CSR activities have been undertaken since the inception of the plant by providing facilities of sanitation, drinking water, education, health care, road, communication etc. Further, CSR activities and its related expenditure has been substantially increased after acquisition of the industry by Tata Steel Limited.

Drinking water through pipeline is being supplied to seven nearby adjacent villages such as Ghantigadhia, Raghunathpur, Sarpa, Nuagaon, Shibapur, Talbahal and Narendrapur.

8. Regarding water supply to the affected villages Other peripheral development

Lots of activities so far done by the project proponent in all the affected villages like water supply, electrification etc. This expansion will definitely help in performing these activities in future. The unit assured villagers to do medical camp and eradication of blindness campaign for peripheral and affected villages.

The industry will take up following peripheral development and will also do as per directions of the concerned authorities:

1. Extensive plantation in outside areas will be carried out.
2. Scope for local persons for ITI training.
3. Health check up camps will be made in the affected areas.
4. Supply of drinking water to the project affected persons.
5. Village roads will be constructed as per the requirements.
6. Aid will be provided to village schools.

Compliance :

- Extensive plantation in outside areas have been carried out in nearby villages.
- We are organizing the health check up camps in the adjacent villages on regular basis.
- Drinking water through pipeline is being supplied to seven nearby adjacent villages such as Ghantigadhia, Raghunathpur, Sarpa, Nuagaon, Shibapur, Talbahal and Narendrapur.
- Village roads are being constructed and repaired on need basis.

- Schools in adjacent villages are being supported by us in terms of infrastructure like school buildings, boundary walls, drinking water, study material and remunerations to teachers.

9. Change of place of public consultation

The venue, time and date were decided by the district administration.

Annexure-XI

CSR Expenditure and Activities

(Around Tata Steel Ltd, Meramandali & TSM-CPP(AEL))

Period: From April'24 to October'24

PROGRAM HEAD	Expenditure in Lakh	MAJOR INTERVENTIONS/REMARKS
HEALTH	62.07	Public Health Unit; Rishta; Project Drishti
Agriculture	57.18	Agricultural activity
Environment	2.91	Plantation at Nuahata, Odapada
Skill Development	6.89	Disability program
DRINKING WATER	61.72	Installation of tubewells; supply of drinking water (Kusupanga, Krunti, Narendrapur, Talbahal)
EDUCATION	307.98	School infrastructure; Education project: Green school project
SPORTS	4.86	Marathon
Miscellaneous	189.25	Volunteerism, Safety, Common expenses
TOTAL	**692.86**	

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
Apr'24	CAAQMS-1	102.28	62.32	10.93	18.19	0.65
	CAAQMS-2	175.93	65.91	21.66	11.29	0.73
	CAAQMS-3	190.14	57.82	6.32	17.72	0.74
	CAAQMS-4	188.94	92.00	6.74	15.49	0.25
	CAAQMS-5	242.45	103.72	14.83	10.14	0.26
	CAAQMS-6	187.03	42.24	9.46	21.26	0.60
	CAAQMS-7	171.23	56.78	47.08	22.41	0.75
May'24	CAAQMS-1	96.68	42.29	10.96	18.44	0.65
	CAAQMS-2	197.94	49.97	21.52	10.88	0.73
	CAAQMS-3	188.34	46.43	2.46	17.04	0.73
	CAAQMS-4	180.35	64.39	5.92	8.59	0.25
	CAAQMS-5	212.01	79.43	12.89	8.09	0.96
	CAAQMS-6	119.63	54.33	8.74	26.53	1.00
	CAAQMS-7	88.12	30.45	42.26	15.57	0.74
June'24	CAAQMS-1	69.79	33.19	10.94	18.23	0.65
	CAAQMS-2	133.17	44.09	22.35	10.14	0.73
	CAAQMS-3	140.52	38.25	2.47	17.10	0.74
	CAAQMS-4	129.88	46.72	5.63	7.52	0.25
	CAAQMS-5	172.83	66.47	14.20	8.11	0.29
	CAAQMS-6	111.10	43.96	9.98	25.51	0.61
	CAAQMS-7	81.98	31.77	42.92	14.76	0.74
July'24	CAAQMS-1	60.65	23.87	11.18	18.23	0.65
	CAAQMS-2	69.64	26.84	23.40	10.92	0.73
	CAAQMS-3	130.47	40.19	2.88	18.68	0.73
	CAAQMS-4	64.11	26.06	6.57	7.56	0.25
	CAAQMS-5	70.88	23.19	12.56	7.37	0.26
	CAAQMS-6	93.72	32.33	14.15	22.00	1.00
	CAAQMS-7	79.19	31.86	42.77	15.56	0.74

Aug'24	CAAQMS-1	39.77	13.36	10.94	18.17	0.66
	CAAQMS-2	70.70	26.51	22.80	10.40	0.73
	CAAQMS-3	116.34	44.98	2.42	18.57	0.73
	CAAQMS-4	41.51	14.87	5.50	7.25	0.25
	CAAQMS-5	64.21	22.33	17.89	8.22	0.96
	CAAQMS-6	103.24	34.32	17.38	22.77	1.00
	CAAQMS-7	81.22	32.12	44.71	16.96	0.74
Sept'24	CAAQMS-1	53.36	14.71	12.02	19.18	0.65
	CAAQMS-2	117.33	33.27	22.93	12.45	0.73
	CAAQMS-3	109.91	35.40	2.13	18.83	0.74
	CAAQMS-4	41.72	16.18	5.62	7.97	0.24
	CAAQMS-5	69.92	23.59	16.41	14.66	0.26
	CAAQMS-6	85.08	35.78	15.30	21.52	1.00
	CAAQMS-7	82.82	36.70	46.91	15.00	0.74

All values are in $\mu g/m^3$ 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.

Annexure-XIII

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No.EMD/LAB/2024/0002

S. N	Name of the unit	Location	April	May	June	July	August	September
			Leq					
1	BF-2 Cast House	Near Motor I D fan 1	82.9	82.8	82.4	83.2	82.1	83.6
		Near Motor I D fan-2	84.8	86.3	85.1	85.1	85.3	85.7
		Near Motor I D fan-3	85.2	85.2	84.9	84.8	85	85.2
		Near Cooling tower area	80.3	80.9	80.8	80.5	80.5	79.8
		Near Fire Pump House Building area	90.5	90.1	90.9	90.7	92.1	90.9
		PCI-1	82.2	83	80.8	82.2	83.5	84.1
		PCI-2	86.1	SD	83	84.8	82	83
		CA Fan-1,2,3	90.1	87.9	87.8	87.9	86.9	87.4
		Control room	59.8	60.1	60.5	60	58.1	60
		Near B F-2 Furnace area	81.1	80.8	79.8	80.5	81.4	79.9
2	BF-2 Stock House	Near ID fan 1	84.2	84.8	84.9	84.4	83.7	84.1
		Near ID fan 2	84.6	85	84.7	85.1	84.9	85.2
		Control room office	59.3	58.9	59.3	59.2	59.4	61.8
3	Lime Plant	Near De dusting-2 ID fan	84.4	85.1	84.4	84.1	81.8	82.7
		Near Blower room area	92.1	91.6	87.5	89.7	93.2	93.6
		Near Cooling tower area	81.6	82.9	81.1	82	80.3	79.4
		Near De dusting-3 ID fan	82.5	82.1	83.2	82.8	81.6	82.8
		Near De dusting-4 ID fan	84.8	84	SD	SD	SD	SD
		Near Pump House area	86.1	86.8	86.4	85.6	85.4	85.9
		Screening House 01	SD	84.3	85.3	85.7	80.3	SD
		Screening House 02	SD	88.3	87.7	87.8	SD	85.3
		Screening House 03	85	84.9	92.7	90	SD	86.9
		Screening House 04	SD	86.9	90.2	89.5	SD	87.6
		Screening House 05	84.2	SD	SD	SD	SD	87.8
		Delivery Building	83.5	83.1	82.9	83.2	82.2	81.8
		Near Outside Office area	82.7	79.3	77.7	76.8	77.9	76.7
		Gas Boosting Station	91.5	93.8	88.2	89.1	86.8	87.1
		Inside office building	58.8	61.4	60	60.4	62.1	62.5
4	BF PP-1 Boiler-01	Near ID Fan -1	SD	82.9	SD	SD	SD	SD
		Near ID Fan -2	82.5	84.9	SD	81.1	84.6	83
		Near FD fan	89.3	90.8	SD	89.7	90	87.2
		Near Boiler-1 Area	81.1	83.4	SD	83	84.8	83.3
5	BF PP-1 Boiler-02	Near ID Fan -1	SD	85.2	86	SD	85.5	SD
		Near ID Fan-2	SD	87.4	86.4	SD	87.4	SD
		Near FD fan	SD	93.5	93.8	SD	95.7	SD
		Near Boiler-2 Area	SD	85.8	85.3	SD	84.7	SD
6	BF PP-1 Boiler-03	Near ID Fan -1	84.5	SD	85.5	86.2	SD	85.6
		Near ID Fan -2	86.8	SD	87.5	87.8	SD	86.7
		Near FD fan	95	SD	94.2	96.4	SD	96.7
		Near Blower (9 m)	89.1	91.4	90.4	91.3	90.9	90.8
		TG Floor (8.5 m)	87.5	88.5	89.3	87.5	87.2	86.8
		Near Boiler-3 Area	84.9	SD	84.1	85.3	SD	84.1
		Near Control room office	67.2	60.9	61.2	63.4	63.5	63.8
7	Gas fired boiler 60 TPH Area	Near ID fan -1	80.1	80.5	80.2	80.5	79.6	80.8
		Near ID fan -2	80.5	81.3	80.3	80.7	79	81.1
		Near FD fan 1	82	82.4	81.6	82	82.6	82.7
		Near FD fan 2	82.3	82.1	81.8	81.8	80.1	81.8
		60 TPH Blower feed water pump	83.9	84	83.8	83.9	83.9	83.7
		Near Boiler area	81.4	82.7	81.4	81.6	80.2	80

Annexure-XIII

Environment Laboratory
TATA Steel Meramandali, Odisha

S. N	Name of the unit	Location	April	May	June	July	August	September
			Leq					
8	Gas fired boiler 125 TPH Area	Near ID fan -1	82.1	82.5	81.5	83	84	SD
		Near ID fan -2	84.8	84.3	84.8	84.8	83.9	SD
		Near FD fan -1	87.6	87.9	88.4	87.3	88.9	SD
		Near FD fan -2	88.1	88.1	88.8	88.4	87	SD
		Near Boiler area	82.8	81.6	81.4	82	83.6	SD
		125 TPH Blower feed Water pump	86.5	85.1	86.5	85.1	87.7	SD
9	Gas fired boiler 250 TPH Area	Near ID fan -1 area	80	SD	SD	82.5	80.8	81.2
		Near ID fan -2 area	80.5	SD	SD	82.7	81.7	81.6
		Near FD fan -1 area	82.5	SD	SD	82.3	82.9	83.7
		Near FD fan -2 area	83.6	SD	SD	84.5	83.1	82.3
		Near Boiler area	81.7	SD	SD	84.7	82.2	80.9
		250 TPH Blower feed water pump	86.5	SD	SD	86.2	87.9	85.1
		Office and Control Room	60.1	58.4	60	59.3	62.1	59.6
10	DRI	KILN NO-1						
		Near Cooling tower area	SD	78.5	80.1	79.8	80.2	77.6
		Near De-dusting 01 ID Fan	SD	85.8	85.3	85.1	85.7	85.3
		Near 1& 2 control room office	60.4	61.2	58.5	62.1	59.3	63.1
		Near Cooler area	SD	80.6	80.4	80.3	80.1	78.2
		Near Lobe Compressor room	SD	87.3	85.8	85.3	85.1	85.9
		KILN NO-2						
		Near Cooling tower area	SD	81.2	SD	80.2	SD	SD
		Near Cooler area	SD	79.5	SD	79.1	SD	SD
		Near Lobe Compressor room	SD	84.5	SD	84.9	SD	SD
		KILN NO-3						
		Near Cooling tower area	79.7	SD	SD	SD	81.4	80
		Near De-dusting 02 ID Fan	85.8	SD	SD	SD	86	86.8
		Near 3& 4control room office	61.7	61.8	60	60.9	58.1	60.4
		Near Cooler area	79.6	SD	SD	SD	80.5	81
		Near Lobe Compressor room	86.4	SD	SD	SD	85	84.9
		KILN NO-4						
		Near Cooling tower area	80.4	SD	SD	SD	80	78.9
		Near Cooler area	80.9	SD	SD	SD	80.7	79.5
		Near Lobe Compressor room	84.2	SD	SD	SD	84.9	83.4
		KILN NO-5						
		Near Cooling tower area	79.6	81.9	SD	80	81.5	79.6
		Near De-dusting 03 ID Fan	85.6	87.8	SD	85.4	85.8	86.3
		Near 5& 6 control room office	59.1	62.1	59.4	60.2	58.9	60.6
		Near Cooler area	79.9	79.5	SD	80.1	81.5	80.1
		Near Lobe Compressor room	84.4	86.1	SD	85.3	85.1	85.8
		KILN NO-6						
		Near Cooling tower area	79.8	SD	SD	SD	80.1	81.1
		Near Cooler area	80.2	SD	SD	SD	80.4	80.4

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		Near Lobe Compressor room	87.8	SD	SD	SD	85.9	84
		KILN NO-7						
		Near Cooling tower area	79.6	SD	SD	SD	SD	79.8
		Near De-dusting 04 ID Fan	85.9	86.7	SD	85.6	85.9	86.3
		Near 7& 8 control room office	58.2	59.7	58.4	61.3	58.1	59.4
		Near Cooler area	80.1	SD	SD	SD	SD	80
		Near Lobe Compressor room	85.3	SD	SD	SD	SD	85.2
		KILN NO-8						
		Near Cooling tower area	SD	79.9	SD	80.4	81.5	79.3
		Near Cooler area	SD	81.4	SD	81	80.4	79.8
		Near Lobe Compressor room	SD	82.2	SD	86.2	86.1	84.5
		KILN NO-9						
		Near Cooling tower area	78.5	80.3	79.4	80.3	SD	SD
		Near 9&10 control room office	57.9	60.6	60	59.3	59.7	59.7
		Near Cooler area	80.6	81.1	80	80.2	SD	SD
		Near Lobe Compressor room	84.1	84.2	84.9	85.2	SD	SD
		KILN NO-10						
		Near Cooling tower area	78.2	80.8	81.3	79.3	81.3	80.6
		Near De-dusting 05 ID Fan	85.8	85.7	86.2	86.1	85.8	85.9
		Near Cooler area	79	79.4	81.1	80.8	79.3	80.5
		Near Lobe Compressor room	83.5	81.9	84.9	85.4	85.8	84.3
11	**110 MW Power Plant**	Boiler-01						
		ID Fan	SD	81.6	83.4	82.3	82.4	82
		Near Boiler area	SD	83.7	84.5	84.8	84.8	84.4
		Boiler-02						
		ID Fan	82.9	SD	SD	81.5	SD	SD
		Near Boiler area	84.8	SD	SD	83.8	SD	SD
		Boiler-03						
		ID Fan	81.8	83.3	SD	82.4	80.3	82.3
		Near Boiler area	83.5	83.6	SD	83.5	81.3	83.7
		Boiler-04						
		ID Fan	82.1	82.1	SD	83.9	81.1	81.6
		Near Boiler area	83.2	83.8	SD	84.3	83.1	82.5
		Boiler-5						
		ID Fan	85.5	85.1	SD	85.4	84.7	85.4
		Near Boiler area	82.3	83.4	SD	82.3	83.2	82.1
		Boiler-6						
		ID Fan	85.9	SD	SD	85.8	SD	85.8
		Near Boiler area	81.5	SD	SD	84.5	SD	83.5
		Boiler-7						
		ID Fan	SD	SD	SD	SD	85.6	84.9
		Near Boiler area	SD	SD	SD	SD	82.8	83
		Boiler-8						
		ID Fan	SD	84.8	SD	84.8	85	84.6
		Near Boiler area	SD	81.6	SD	84.3	81.7	81.7
		Boiler-9						
		ID Fan	83.6	84.8	84.8	84.9	SD	SD
		Near Boiler area	81.4	82.5	82.5	82.8	SD	SD
		Boiler-10						
		ID Fan	86.2	85.8	85	85.6	85.9	86.3
		Near Boiler area	82.1	81	81.8	83.2	80.5	82.5

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		AFBC Boiler Area	SD	SD	SD	SD	SD	SD
		Near 33 TG MW	SD	SD	85.3	85.4	SD	SD
		Near 77 TG MW	87.1	87.1	SD	86.5	86.3	85.5
12	BF-1 Cast House	Near Bag House Motor I D fan-1	85.2	85.4	85.6	85.4	SD	85.3
		Near Bag House Motor I D fan-2	85.6	SD	85.8	85.5	85.4	85.7
		Near Bag House Motor I D fan-3	SD	85.9	86.1	85.1	85.1	86
		Near Bag House Motor I D fan-4	86.1	85.8	SD	84.9	84.9	85.2
		Near secondary Cooling tower area	80.8	80.6	82.1	81.2	81	81.4
		Near Main Pump House Building area	86.9	86.2	87.5	88.4	88.8	87.9
		Near PCI building	SD	89.3	87.3	SD	SD	85.8
		Near B F-1 Furnace	81.9	80.2	80.7	79.3	80	80.2
13	BF-1 Stock House	Near Bag House Motor I D fan-1	SD	SD	SD	SD	SD	SD
		Near Bag House Motor I D fan-2	85.4	85.8	86.2	85	85.3	85.8
		BF-1 Office	60.4	59.8	60	59.3	59.2	58.4
		Near Fines building Area	80.2	81.1	82	82	80.5	82.3
14	*CRM*	Near CRM Mill Complex Area	81	79.2	81.1		80.8	83.9
		Near Fire water pump house area	85.2	86.1	85.3		85.4	85
		Near T.L.L	86.2	85.6	SD		84.9	87.8
		Near A.R.P building	SD	86.1	85		84.6	85.2
		Near Air Receiver Tank area	96	95.8	92.1		94.1	89.7
		Near ETP area	83.3	84.8	84.8		82.3	80.2
		Near GP-1 Zinc Pot	SD	87.7	84.9		SD	SD
		Near GP-2 Zinc Pot	87.5	88.9	85.5		84.9	SD
		Near GP-3 Zinc Pot	SD	85.4	85.1		86.1	88
		Colour Coating Line	84.3	84.8	83.8		85	82.8
		Mill-1	86.8	86.3	85		86.7	86.4
		Mill-2	86.2	85.8	87.1		87.7	SD
		Mill-3	85.6	85.3	85.2		SD	85.5
		CRM Plant Office	60.4	60.1	59		58.5	58.4
		ECL	SD	SD	84.4		88.1	87.2
		CRCA	85.6	85.2	83.9		84.7	SD
		SPM	85.3	85.7	88.6		87.9	88.1
		RGM	81	82.3	82.6		SD	82.4
15	Sinter Plant-1	Near Main ID fan 1	82.1	82.9			91	84.8
		Near Cooler fan area 1	85.6	83.7			85.1	82.6
		Near Cooler fan area-2	85.8	84			84.6	84.6
		Near Cooler fan area-3	85	83.9			82.9	84
		Near Cooler fan area-4	84.8	85.1			85.3	85
		Near 85m2 ESP ID Fan	87.1	86			86.3	85.9
		Near 110m2 ESP ID fan	89	86.5			86.9	86.3
		Near Pump House Building area	80	80.6			81.1	82
		Near bag filter ID fan	88.8	88.1			87.1	86.9
		Product Screen	87.4	85.8			85.9	86.5
		Flux and Coke Crushing House	82.8	81.4			80.3	81.4
		Sinter Machine 15 mtr	84.5	84.3			85.8	85.1
		9 m office room	58.4	58.8			57.5	60
		15 m office	59.8	60.1			57.3	60.4
		19 m office	70.6	59.3			58.1	60.5
		Store area	78.4	79.4			77.5	81.6

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		Electrical office	67.4	61.5			61.7	59.8
		Proportioning Building	80.2	81.9			80.7	80.7
		Mixing House	81.1	82			81.3	81.6
		Sinter machine 19 mtr	85.4	85.1			81.9	85.3
		Near Stone Cutter Building area	84.8	84.8	84.2	84.8	84.8	83.5
		Near M.H.S I.D fan	84.5	84.3	84.6	84.6	84.6	84.9
16	**Coke Oven-1**	Near Coal Pushing & Charging I D Fan Area	SD	SD	SD	81.4	SD	SD
		Near Battery-1 area	80	80	81.4	80.5	SD	81.5
		Near Battery-2 area	81.2	80.2	80.9	81.1	81	80.3
		Control room office	60.1	60.2	59.5	60.3	59.6	59.5
		Laboratory	58.8	58	58.4	59	59.1	58
		Near Main ESP ID	83.9	82.9	81.7	83.9	84.8	84.5
		Near PD ESP ID fan	81.5	82.1	80.2	82	81.5	83.1
		Near Cooler fan -1	86.1	87.1	86.5	86.7	86.2	86.3
17	**Sinter Plant-02**	Near Cooler fan -2	85.9	86.1	85.7	86.3	85.8	76.7
		Near Cooler fan -3	86.2	87.6	86.3	87	86	76.3
		Control Room Area	60.2	61.2	60.4	58.9	58.3	58.2
		ESP Area	79.9	80.2	80.5	81.2	80.4	81.3
		Near M. N. D Area	80	79.9	81.1	80.3	80.1	81.5
		Near Main ESP ID fan	84.6	84.8	83.7	84	84.5	84.8
		Near PD ESP ID fan	81.7	81.9	80.8	81.3	81.6	82.8
		Near Cooler fan -1	86	88.5	87.9	86.1	86.9	85.9
		Near Cooler fan -2	85.4	87.6	87.1	87.3	87	85.7
		Near Cooler fan -3	88.8	88.6	87.6	87.2	87.9	85.2
		SP2,3RCPHTPM circle	91	90.7	90.2	91.4	90.9	90.1
18	**Sinter Plant-03**	ESP Area	80.8	81.8	80	80.5	80.3	82.1
		Pumphouse Area	82.1	83.2	82.9	81.1	81.1	82.9
		Near M. N. D Area	81.6	82.3	80.7	81.4	80	81.4
		Control Room Area	58.8	59.3	59.7	59.5	59.7	59.4
		Infront of Entrance of DG 250 KVA SP2&SP3 (Door Close Condition)	84.1	84.4	83.9	82.8	83.6	83.9
		Near Secondary ID fan-1	91	SD		91.9	91.4	91.5
		Near Secondary ID fan-2	91.3	91.7		91.8	91.9	SD
		Near Secondary ID fan area-3	SD	91.4		90	SD	92
		Near Secondary ID fan area-4	90.3	91.3		89.5	91.5	92.1
		Near Cooling Tower area	83.4	81.2		84.8	82.6	84.6
19	**BOF Shop**	Near Primary/ Secondary ID fan area-1/2	81.8	82.3		82	82	81.2
		BOF Briquetting plant	SD	78.5		81.5	80.8	81.4
		Bag House T44B ID fan	84.2	82.7		84.5	SD	SD
		BOF office area	61.4	66.3		62.3	62.3	62.4
		Near Wage bridge area	76.3	77.8		79.3	78.5	80.6
		Near Motor ID fan area-1 area		91.1		91.6	90.7	92.8
		Near Motor ID fan area-2 area		88.9		89.3	90.1	91.6
	SMS-2-FES-1&2	Near Motor ID fan area-4 area		88.4		90.4	SD	90.3
		Near Motor ID fan area-6 area		88.3		89.8	89.2	90.1
		Booster House (ID Fan)		84.1		84.5	84.2	84.9
20		Near Control room Area		79.4		58.4	60.8	58.8
		Near COG Fan Area	83.6	85.1	84.7	85.2	85.1	84.4
		Near RHF Office area (Pulpit)	80.7	80.6	81.9	81.7	83	81.7
21	**HSM**	Near RM-2 area	87.9	87.2	86.3	85.8	85.2	86.2
		Near Roll Shop area	78.7	77.5	78.2	79.3	78.4	79.9
		Near HSM Quality Lab area	61.2	62	61.9	62.1	63.1	62.7
		Near B F G Motor fan RHF area	SD	84.4	84.2	83	82.7	83.2

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		Near Combustion air blower - 1	86.9	87.1	86.1	86.7	86.6	85.9
		Near Combustion air blower-2	87.2	86.8	85.8	85.5	85.8	SD
		DC pulpit office area	62.4	61.3	62.1	61.5	62.2	62
		Near RM-1 area	85.4	85.9	85.2	85.9	85.2	85.8
		FM area	86.7	86.3	86.7	86.2	85.9	85.7
		Laminar area	89.7	88.9	88.2	87.8	87.3	87.8
		Near DC sampling Station	84.5	84.9	84.4	84.1	83.7	82.9
		Near Re-heating Furness area	81.7	81.2	82.3	80.9	81.4	81.7
22	Coke Oven-2	Near Exhauster house area	87.2	87.5	87.8	86.8	86.9	86.3
		Near Chemical Dosing E.T.P room area	80	80.2	80.4	80.6	79.3	80.4
		Near Pusher car Emission control system ID Fan	81.7	81.6	80.1	83.7	82	82.1
		Near Guide car emission I D Fan	82.8	82.8	81.4	83.5	81.6	80
		Near Water pumphouse area	86.7	86.9	88.9	87.3	87.5	86.8
		Near Battery cellar ventilation blower	SD	SD	SD	SD	SD	SD
		Near Battery coke oven gas de-graphitizing blower	SD	SD	SD	SD	SD	SD
		Pushing emission control system ID fan	81.2	81.7	81.9	82.1	82.7	81.5
		Control Room Office	60	58	58.4	59.7	61.7	58.4
23	BFPP-2 Boiler-2	Near I.D. fan-1	82.4	SD	87	86.3	86.1	SD
		Near I.D. fan-2	83.9	SD	88.3	87.5	85.3	SD
		Near P.A. fan	90.8	SD	90.6	90.1	90.3	SD
		Near S.A. fan	90.9	SD	90	90.5	88.4	SD
		Near Boiler -2 area	84.8	SD	84.3	83.7	83.7	SD
		Near cooling tower-area	84.2	84.6	84.8	84.1	83.3	84.6
24	BFPP-2 Boiler-3	Near I.D. fan-1	SD	85.1	87.5	SD	SD	83.5
		Near I.D. fan-2	SD	84.9	86.3	SD	SD	84.1
		Near P.A. fan	SD	90	89.8	SD	SD	89.7
		Near S.A. fan	SD	88.6	87.9	SD	SD	88.8
		Near TG floor	90.4	89.8	89	89.9	89	87.8
		Near Blower	91.8	89.3	89.4	90.2	91.3	88.6
		Control room	58.3	60.2	62.2	60.7	62.4	58.4
		Near Boiler -3 area	SD	83.8	83.8	SD	SD	85
25	Oxygen Plant-02	Near Nitrogen compressor House-1	106.3	104.5	SD	105.7	107.4	105.9
		Near Nitrogen compressor House-2	105.8	SD	95.6	105.2	107.2	106
		Near Nitrogen compressor House-3	104.9	106.3	SD	SD	108.3	106.3
		Near Air compressor House area-1	108	109.6	97.3	98.2	96.7	98.9
		Near Control room office out side area	92.5	94.8	81.1	98.6	95.1	96.1
		Control Room Office	60.4	61.5	61.2	61.8	61.1	61.9
		Near A/ C Package room area	83.7	83.2	76.8	78.1	82.2	82.3
		Near Argon cold box area	81.8	81.6	81.9	79.7	80.1	82
		Near cooling tower	80.5	79.3	70.4	75.3	81.4	81.9
		Near 340 TPD new compressor House exit	81.4	89.5	89.8	88.9	89.9	87.5
		Near 340 TPD new compressor House Entrance	85.9	89.2	90.8	89.6	90.2	91.8

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		Near 1120 TPD air compressor house	87.3	86.8	100	97.6	98.3	98.9
		Pump House area	85.8	86	83.6	84.8	86.1	86.5
		Near Turbine-1 area	85.1	84.9	84.5	84.7	84.5	83.7
26	BB Plant	Near BB Plant Bunker ID fan-1	80	82.7	81.4	83.5	82.1	
		Near BB Plant flux building ID fan-2	83.2	83.9	82.6	82.4	83.6	
		Near BB Plant crushing & screening building	80.2	79.8	80	81.5	80.5	
		Near BB Plant coke screening building	79.7	79.3	80.1	79.2	81.4	
		Near BB Plant compressor house 1 &2	82.8	SD	SD	SD	SD	
		BB Plant Office	59.5	59.7	59.4	59.3	58.8	
27	RMPP	Near CSB-1 I D Fan	81.7	SD	83	82.5	SD	83.5
		Near CSB-2 I D Fan	SD	85.1	84.1	85.1	SD	84.9
		Near BB plant site office	78.5	80.3	79.3	78.6	77.9	80.2
		Near P.C.S building	80	81.5	78.4	80.9	SD	81.1
		Near T.C.S building	79.6	81.7	80	81.6	SD	82.3
		Near S.C.S building	79.8	82	79.9	81.4	SD	80.7
		Control Room Office	58.7	56	58.4	58.1	60.7	58.5
		Near Pumphouse Area	80.4	80.5	83.4	81.2	80.6	81.1
		Near O.P.S building	81.8	81.4	82.6	81.5	80.1	80.6
		Near O.S.C building	82.5	82.4	82	81.7	79.6	80.4
		Near O.T.C building	83	82.6	81.5	82.3	83.5	83.6
28	110 MW Compressor House AEL	Near Entrance Point	84.1	82.1	83.8	84.2	84.5	83.5
		Near Compressor	90.2	92.3	90.7	91.5	92.3	92.8
		Inside Operator office	79.7	80.3	75.1	80	75.9	80.3
	150 MW Ash Conveying Compressor House AEL	Near Entrance Point	85.1	84.4	84.5	85.8	85.2	85.1
		Near Compressor	91.7	90.4	91	92	90.3	93.6
		Inside Operator office	81.4	80.6	76.3	79.9	76.5	81.4
29	165 MW Compressor House AEL	Near Entrance Point	81.7	82.5	79.3	81.5	85.1	80.5
		Near Compressor	92	90.3	92	91.7	91.9	92.8
		Inside Operator office	78.6	77.5	69.2	80.2	80.1	80.4
30	300 MW Power Plant AEL	**CFBC Boiler-1**						
		Near ID Fan-1	SD	SD	SD	SD	SD	SD
		Near ID Fan-2	SD	SD	SD	SD	SD	SD
		Near S A Fan	SD	SD	SD	SD	SD	SD
		Near P.A. Fan	SD	SD	SD	SD	SD	SD
		Near Boiler -1 Area	SD	SD	SD	SD	SD	SD
		CFBC- Boiler-2						
		Near ID Fan-1	SD	85.4	85.9	SD	SD	85.9
		Near ID Fan-2	SD	85.8	86	SD	SD	85.7
		Near S A Fan	SD	91	95.5	SD	SD	91.3
		Near P.A. Fan	SD	91.1	96	SD	SD	91.5
		Near Boiler -2 Area	SD	84.5	84.9	SD	SD	85.8
		CFBC- Boiler-3						
		Near ID Fan-1	85.8	84.9	86.8	85.1	SD	85.2
		Near ID Fan-2	86.1	85.1	86.2	85.4	SD	85.9
		Near S A Fan	90.7	90.4	94.5	94.1	SD	91.8
		Near P.A. Fan	90.9	91.6	94.3	94.7	SD	91.2
		Near Boiler -3 Area	85.6	85.1	84.8	84.1	SD	85
		CFBC- Boiler-4						
		Near ID Fan-1	85.4	SD	84.1	84.4	SD	85.1

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		Near ID Fan-2	86	SD	83.6	84	SD	85.4
		Near S A Fan	90.5	SD	94.3	93.7	SD	92
		Near P.A. Fan	91	SD	93.7	94.2	SD	91.3
		Near Boiler -4	85.2	SD	83.9	84.6	SD	85.8
		CFBC- Boiler-5						
		Near ID Fan-1	78.2	80	83.1	80.4	80.3	SD
		Near ID Fan-2	79.3	80.3	82.6	80.5	80.5	SD
		Near S A Fan	92.1	91.7	87.1	91.5	91.7	SD
		Near P.A. Fan	91.3	91.5	88.8	91.1	91.5	SD
		Near Boiler -5	85.4	85.8	84.7	85.1	85.1	SD
		CFBC- Boiler-6						
	185 MW Power Plant AEL	Near ID Fan-1	80	80.8	SD	80.1	81.6	SD
		Near ID Fan-2	80.2	81.6	SD	80.4	80.7	SD
		Near S A Fan	91.5	91	SD	90.5	91.6	SD
		Near P.A. Fan	90.8	91.6	SD	91.4	91.4	SD
		Near Boiler -6	86	85.4	SD	85.3	83.9	SD
		Near Silo Area	84.8	84.3	84.5	83.5	83.7	82.5
		Near 150 MW TG	91.1	90.4	89.8	90.1	90	90.1
		Near 165 MW TG	91.5	90.2	90.6	90	89.6	90.5
		Control Room Office	59.3	61.5	61.8	61.8	59.3	60.8
		Hammer Building Area	84.3	83.6	80	81.5	80.2	81.1
	Coal Washary	Screening Building	80	80.6	79.5	81	81.9	80.4
		Power Plant Feeding Silo	83.5	82.4	82.7	83.6	82.8	84.2
31		Lab & Office Area	58.1	59.1	58.9	58.5	59.3	58.9
		Yard No-1 to 4	78.1	78.4	78.5	78.7	80	80.1
		Yard No-5 to 6	79.3	79.9	79.3	79.8	80.2	80.3
		Near 3 EP-2 RMHS-III Electrical Building	68.4	60.3	60	80.1	72.5	81.6
		RMHS Office	59.1	58.4	58.2	59.4	58.8	58.7
		Wagon Tippler -1	SD	81.5	SD	82.1	SD	SD
	RMHS	Wagon Tippler -4	80	81.7	80.4	SD	SD	82
		Wagon Tippler -3	80.1	82.1	SD	81.6	SD	SD
		Wagon Tippler -2	79.6	81	SD	SD	SD	SD
		Tunnel area	81.2	83.3	82.3	83.1	SD	83.4
		RMHS-2 offline crusher Screen area	85.1	84.8	80.8	82	SD	83.3
32		RMHS-2 offline crusher area	81.2	81.5	84.5	84.8	SD	84.8
		Entrance of air compressor house gate 1	82.1	81.4	82.1	81.5	81.5	82.6
		Entrance of air compressor gate 2	83.7	82.5	81.8	81.3	81.6	82.3
		Inside store cum rest house	80	78.7	71.5	79.5	80	80.6
	CCH 2	Inside compressor house	91.7	93.7	92.4	90.2	91.8	96.1
		Near air compressor	93.5	96.1	95.2	93.5	92.3	96.9
		Inside office area	76.9	59.4	59.8	59.3	58.5	60.3
33		Inside compressor operator cabin	80.3	79.3	78.5	78	80.4	80.7
		Entrance of air compressor house	84.3	83.1	83.4	83.3	83.2	83.6
	BFPP2 ash conveying compressor house	Inside compressor house	87.1	85.1	85	85.1	85.7	85.3
34		Near air compressor	88.6	87.3	86.2	86.5	86.8	86.1

Annexure-XIII

Environment Laboratory
TATA Steel Meramandali, Odisha

35	**IBMD**	Crusher Tata office (container)	58	57	58.1	58.6	58	58.7
		Entrance of Weigh Bridge	70.2	81.5	79.2	82	80.2	80.6
		Scraped Yard	81	80.6	81.2	83.2	82.1	82
		New Sarpa MRP-II (Operator Cabin)	59.3	58.3	59.7	59.3	58	SD
		New MRP Screen-II-New MRP	81.1	81.1	78.8	80.2	80.4	SD
		New MRP Screen-I-New MRP	81.2	80.4	79.2	80.4	81.2	SD
		New MRP-Loading Point Area	83.5	82.7	81.9	81.6	82.2	SD
		Office & Operator Cabin (Old MRP)	59.7	59.2	60.1	58.1	58.8	58.4
		Old MRP Screen-I&II-New MRP	80.6	80.5	80.8	81.5	81.5	80.8
		Old MRP Screen-III-New MRP	80.4	80.7	79.9	80.1	81	80.5
		Old MRP-Loading Point	82.5	81	81.3	81.5	82.4	81.7

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Address of Laboratory :
Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000009350F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/8N6A9S
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/TG432G
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Itapa
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-5, MSK/BBSR/FIELD/RDS-05

Report No. : MSKPL/ED/2024-25/8N6A9S **Sample No. :** MSKNB/ED/2024-25/05/TG432G

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.47
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	38.3
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	33.9
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	81.9
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	6.6

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

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West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

Scan for Portal

ULR: TC-695024000009349F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/2F6A9E
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/RR434U
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Kochilamara
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-9, MSK/BBSR/FIELD/RDS-09

Report No. : MSKPL/ED/2024-25/2F6A9E **Sample No. :** MSKNB/ED/2024-25/05/RR434U

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.41
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	34.1
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	35.4
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	77.0
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	BDL(DL:6.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

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West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000009348F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/SM6A9E
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/KV435J
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Khaliberana
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-11, MSK/BBSR/FIELD/RDS-11

Report No. : MSKPL/ED/2024-25/SM6A9E **Sample No. :** MSKNB/ED/2024-25/05/KV435J

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.57
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	47.3
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	32.9
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	84.7
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	7.1

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------ END ------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

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Tel. : +91 7044036120
Email: udayanlab@mitrask.com

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ULR: TC-695024000009347F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/Q06A9G
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/KS430D
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Mangalpur
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-3, MSK/BBSR/FIELD/RDS-03

Report No. : MSKPL/ED/2024-25/Q06A9G **Sample No. :** MSKNB/ED/2024-25/05/KS430D

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.48
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	38.2
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	30.6
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	74.4
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	6.7

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------ END ------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

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West Bengal
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Email: udayanlab@mitrask.com

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ULR: TC-695024000009346F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/KG6A90
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/BA431U
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Narandrapur
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-4, MSK/BBSR/FIELD/RDS-04

Report No. : MSKPL/ED/2024-25/KG6A90 **Sample No. :** MSKNB/ED/2024-25/05/BA431U

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.42
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	43.3
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	41.1
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	90.5
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	7.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

-------- END --------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

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Doc No.: MSK/GEN/19/07

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ULR: TC-695024000009345F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/5R6A9B
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/AK42FA
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Nalachandrapur (Nalatangra)
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-12, MSK/BBSR/FIELD/RDS-12

Report No. : MSKPL/ED/2024-25/5R6A9B **Sample No. :** MSKNB/ED/2024-25/05/AK42FA

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.51
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	50.2
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	44.8
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	87.3
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	7.9

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------ END ------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Sourhyadeep Mukhopadhyay
Designation : Lab In charge

Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
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Mitra S. K. Private Limited

MSK TESTING • INSPECTION

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Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

Scan for Portal

ULR: TC-695024000009344F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/TN6A9Q
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/4K4338
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Galpada
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-10, MSK/BBSR/FIELD/RDS-10

Report No. : MSKPL/ED/2024-25/TN6A9Q **Sample No. :** MSKNB/ED/2024-25/05/4K4338

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.36
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	40.5
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	39.6
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	71.6
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	6.8

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

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Email: udayanlab@mitrask.com

TC-6950

Scan for Portal

ULR: TC-695024000009343F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/7T6A9P
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/1842EN
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Motanga
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 754 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,10,23, 24)
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-6, MSK/BBSR/FIELD/RDS-06

Report No. : MSKPL/ED/2024-25/7T6A9P **Sample No. :** MSKNB/ED/2024-25/05/1842EN

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR)	2 (8 Hours)	0.49
2	Fine Particulate Matter (PM2.5)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	44.6
3	Oxides of Nitrogen as (NO2)	micro gm/m3	IS 5182 (Part 6)	80 (24 Hours)	35.2
4	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23)	100 (24 Hours)	78.3
5	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2)	80 (24 Hours)	BDL(DL:6.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

MSK TESTING • INSPECTION

Address of Laboratory :
Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000009342F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/6S6A9E
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/PR42EK
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/05/2024
5. Place of sampling	Motanga
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-01

Report No. : MSKPL/ED/2024-25/6S6A9E **Sample No. :** MSKNB/ED/2024-25/05/PR42EK

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result
1	Leq dB(A) day	dB(A)	IS 9989	51.4
2	Leq dB(A) night	dB(A)	IS 9989	45.7

Opinion : NA

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

Address of Laboratory :
Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

Scan for Portal

ULR: TC-695024000009341F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/AJ6A9C
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/MU42EE
Date of receipt of sample:	20/05/2024
Date(s) of performance:	20/05/2024 - 22/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/05/2024
5. Place of sampling	Ganthigadia
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-01

Report No. : MSKPL/ED/2024-25/AJ6A9C **Sample No. :** MSKNB/ED/2024-25/05/MU42EE

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result
1	Leq dB(A) day	dB(A)	IS 9989	49.6
2	Leq dB(A) night	dB(A)	IS 9989	46.4

Opinion : NA

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

Mitra S. K. Private Limited

Building No.D5, Unit No- 230, Bhumi World Industrial Park,
Mumbai, Nashik Highway, Pimplas Village, Bhiwandi, Near
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Dist. Thane- 421302.
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MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001865
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/01397
Date of receipt of sample	: 27.05.2024
Date(s) of performance	: 27.05.2024 – 30.05.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000151489/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Fugitive Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	25/05/2024
5. Place of sampling	Coke Oven-1 Battery-1
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS : 5182 (Part-12), TPM-02,04,05 & USEPA
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan
9. Field Equipments Used	MSK/BBSR/FIELD/RDS-03

Report No. : MSKGL/ED/2024-25/001865 **Sample No. :** MSKGL/ED/2024-25/05/01397

RESULT

Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Result
1	Carbon Monoxide (as CO)	mg/m3	TPM/MSK/ENV(AP)/3/4 January 04	0.81
2	Lead (as Pb)	micro gm/m3	USEPA-IO 3,4, June	0.03
3	Oxide of Nitrogen (as NO2)	microgram/m3	TPM/MSK/ENV(AP)/4/05 January 04	48.9
4	Respirable Suspended Particulate Matter (PM10), Cyclonic Flow Technique	microgram/m3	TPM/MSK/ENV(AP)/4/02 Issue no-01 Issue Date January 04	84.5
5	Sulphur Dioxide (as SO2)	micro gm/m3	TPM/MSK/ENVTPM/MSK/ENV(AP) 04/04 January 04	7.9
6	Benzo(a)Pyrene	ng/m3	IS 5182 (Part-12)	4.3

Opinion : NA

Statement of Conformity : NA

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Mitra S. K. Private Limited

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Mumbai, Nashik Highway, Pimplas Village, Bhiwandi, Near
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MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001866
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/01629
Date of receipt of sample	: 30.05.2024
Date(s) of performance	: 30.05.2024 – 02.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000151489/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Fugitive Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	28/05/2024
5. Place of sampling	BF-1 Cast House
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS : 5182 (Part-12), TPM-02,04,05 & USEPA
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan
9. Field Equipments Used	MSK/BBSR/FIELD/RDS-05

Report No. : MSKGL/ED/2024-25/001866 **Sample No. :** MSKGL/ED/2024-25/05/01629

RESULT

Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Result
1	Carbon Monoxide (as CO)	mg/m3	TPM/MSK/ENV(AP)/3/4 January 04	0.74
2	Lead (as Pb)	micro gm/m3	USEPA-IO 3,4, June	BDL(DL:0.01)
3	Oxide of Nitrogen (as NO2)	microgram/m3	TPM/MSK/ENV(AP)/4/05 January 04	43.6
4	Respirable Suspended Particulate Matter (PM10), Cyclonic Flow Technique	microgram/m3	TPM/MSK/ENV(AP)/4/02 Issue no-01 Issue Date January 04	78.5
5	Sulphur Dioxide (as SO2)	micro gm/m3	TPM/MSK/ENVTPM/MSK/ENV(AP) 04/04 January 04	6.9
6	Benzo(a)Pyrene	ng/m3	IS 5182 (Part-12)	BDL(DL:0.5)

Opinion : NA

Statement of Conformity : NA

Reviewed By:
Signature : Ananta Kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001861
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/01542
Date of receipt of sample	: 29.05.2024
Date(s) of performance	: 29.05.2024 – 01.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/05/2024
5. Place of sampling	Caaqms-2(AEL)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/001861 **Sample No. :** MSKGL/ED/2024-25/05/01542

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	65.9	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	63.1	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Kalyan Bhiwandi Bypass,Tal - Bhiwandi
Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001862
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/01628
Date of receipt of sample	: 01.06.2024
Date(s) of performance	: 01.06.2024 – 02.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	29/05/2024
5. Place of sampling	Caaqms-3(CRM)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/001862 **Sample No. :** MSKGL/ED/2024-25/05/01628

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	65.5	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	62.4	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Mitra S. K. Private Limited

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Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001863
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/01630
Date of receipt of sample	: 03.06.2024
Date(s) of performance	: 03.06.2024 – 04.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	30/05/2024
5. Place of sampling	Caaqms-5(Coke Oven-2)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/001863 **Sample No. :** MSKGL/ED/2024-25/05/01630

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	68.1	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	65.8	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For Mitra S.K. Private Limited
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Mitra S. K. Private Limited

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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

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/001864
Date	: 08.06.2024
Sample No.	: MSKGL/ED/2024-25/05/00133
Date of receipt of sample	: 02.06.2024
Date(s) of performance	: 02.06.2024 – 03.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	31/05/2024
5. Place of sampling	Caaqms-6(Wagon Tippler)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/001864 **Sample No. :** MSKGL/ED/2024-25/05/00133

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	69.0	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	65.4	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation. : Operation Incharge

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kumar Rath
Name : Mr.Ananta Kumar Rath
Designation : Technical Manager

- *The results relate only to the item(s) tested.*
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Mitra S. K. Private Limited

Address of Laboratory :
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3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

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ULR: TC-695024000008863F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/NH5181
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/RX3F1U
Date of receipt of sample:	16/05/2024
Date(s) of performance:	16/05/2024 - 21/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000148695/A06, Date - 15/12/2022
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/05/2024
5. Place of sampling	Caaqms-1(Colony)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKPL/ED/2024-25/NH5181 **Sample No. :** MSKNB/ED/2024-25/05/RX3F1U

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	69.4	Industrial	75	-
2	Leq dB(A) night	dB(A)	IS 9989	63.4	Industrial	-	70

Opinion : NA

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Bapsi Sana
Designation : Executive Chemist

Authorized Signatory:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650006
Email : info@mitrask.com Website : www.mitrask.com

Mitra S. K. Private Limited

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Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002239
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00689
Date of receipt of sample	: 13.06.2024
Date(s) of performance	: 13.06.2024 – 18.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	12/06/2024
5. Place of sampling	Caaqms-1(Colony)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002239 **Sample No. :** MSKGL/ED/2024-25/06/00689

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	68.1	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	62.0	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kuma Rath
Name : Mr. Ananta Kumar Rath.
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kuma Rath
Name : Mr. Ananta Kumar Rath.
Designation : Operational Manager

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Mitra S. K. Private Limited

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Kalyan Bhiwandi Bypass,Tal - Bhiwandi
Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002240
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00949
Date of receipt of sample	: 14.06.2024
Date(s) of performance	: 14.06.2024 – 19.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/06/2024
5. Place of sampling	Caaqms-2(AEL)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002240 **Sample No. :** MSKGL/ED/2024-25/06/00949

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	70.0	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	64.2	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Dist. Thane- 421302.
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Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002241
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00960
Date of receipt of sample	: 18.06.2024
Date(s) of performance	: 18.06.2024 – 22.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/06/2024
5. Place of sampling	Caaqms-3(CRM)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002241 **Sample No. :** MSKGL/ED/2024-25/06/00960

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	66.7	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	63.6	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	; MSKGL/ED/2024-25/002242
Date	: 10.07.2024
Sample No.	; MSKGL/ED/2024-25/06/00962
Date of receipt of sample	: 19.06.2024
Date(s) of performance	: 19.06.2024 – 23.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/06/2024
5. Place of sampling	Caaqms-5(Coke Oven-2)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002242 **Sample No. :** MSKGL/ED/2024-25/06/00962

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	69.2	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	62.9	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002243
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00964
Date of receipt of sample	: 25.06.2024
Date(s) of performance	: 25.06.2024 – 28.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	24/06/2024
5. Place of sampling	Caaqms-4(HSM Water Complex)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002243 **Sample No. :** MSKGL/ED/2024-25/06/00964

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	67.7	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	64.3	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002244
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00966
Date of receipt of sample	: 26.06.2024
Date(s) of performance	: 26.06.2024 – 30.06.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	25/06/2024
5. Place of sampling	Caaqms-6(Wagon Tippler)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002244 **Sample No. :** MSKGL/ED/2024-25/06/00966

RESULT

Chemical							
Sl No.	**Parameter**	**UOM**	**Method**	**Result**	**Zone**	**Limit as per CPCB at Day (06.00-22.00)**	**Limit as per CPCB at Night (22.00-06.00)**
1	Leq dB(A) day	dB(A)	IS 9989	66.2	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	62.4	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta Kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Kalyan Bhiwandi Bypass,Tal - Bhiwandi
Dist. Thane- 421302.
Tel. : 0252 2672352.
Email: mumbailab@mitrask.com
Web : www.mitrask.com

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer:
TATA STEEL LTD.
NH-55, NARENDRAPUR,MERAMANDLI
DHENKANAL,Odisha-759129 India

Report No.	: MSKGL/ED/2024-25/002245
Date	: 10.07.2024
Sample No.	: MSKGL/ED/2024-25/06/00968
Date of receipt of sample	: 27.06.2024
Date(s) of performance	: 27.06.2024 – 02.07.2024
Location of performance of	: Permanent Facility
Ref. No. & Date	: 3000148695/A06
Discipline	: Chemical

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

ANALYSIS RESULT

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/06/2024
5. Place of sampling	Caaqms-7(Material Gate)
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1981
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-03

Report No. : MSKGL/ED/2024-25/002245 **Sample No. :** MSKGL/ED/2024-25/06/00968

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	69.5	Industrial	75	--
2	Leq dB(A) night	dB(A)	IS 9989	65.8	Industrial	--	70

Opinion : NA

Statement of Conformity : NA

End

Reviewed By:
Signature : Ananta kumar Rath
Name : Mr. Ananta Kumar Rath
Designation. : Operational Manager

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature : Ananta kumar Rath
Name : Mr. Ananta Kumar Rath
Designation : Operational Manager

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Mitra S. K. Private Limited

Address of Laboratory :
Building No. P- 48, Udayan Industrial Estate,
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West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000008866F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/U3519Y
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/KF3F1Y
Date of receipt of sample:	17/05/2024
Date(s) of performance:	17/05/2024 - 21/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/05/2024
5. Place of sampling	Sarapa
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-01

Report No. : MSKPL/ED/2024-25/U3519Y **Sample No. :** MSKNB/ED/2024-25/05/KF3F1Y

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	49.2	Industrial	75	-
2	Leq dB(A) night	dB(A)	IS 9989	46.7	Industrial	-	70

Opinion : NA

Statement of Conformity NA

-------- END --------

Reviewed By:
Signature :
Name : Mr. Bapai Jana
Designation : Executive Chemist

Authorized Signatory:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008
Email : info@mitrask.com Website : www.mitrask.com

Mitra S. K. Private Limited

Address of Laboratory :
Building No. P- 48, Udayan Industrial Estate,
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West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000008865F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/LM518Z
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/R43F15
Date of receipt of sample:	16/05/2024
Date(s) of performance:	16/05/2024 - 21/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	14/05/2024
5. Place of sampling	Sibapur
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-01

Report No. : MSKPL/ED/2024-25/LM518Z **Sample No. :** MSKNB/ED/2024-25/05/R43F15

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	48.4	Industrial	75	-
2	Leq dB(A) night	dB(A)	IS 9989	46.9	Industrial	-	70

Opinion : NA

Statement of Conformity NA

------- END -------

Reviewed By:
Signature :
Name : Mr. Bapai Jana
Designation : Executive Chemist

Authorized Signatory:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650006
Email : info@mitrask.com Website : www.mitrask.com

Mitra S. K. Private Limited

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West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com

TC-6950

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ULR: TC-695024000008864F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR,MERAMANDLI,DHENKANAL
ODISHA India Pin 759129

Report No. :	MSKPL/ED/2024-25/DN5181
Date :	22/05/2024
Sample No. :	MSKNB/ED/2024-25/05/253F1F
Date of receipt of sample:	16/05/2024
Date(s) of performance:	16/05/2024 - 21/05/2024
Location of performance of	Permanent Facility
Reference No. & Date :	3000151489/A06, Date - 01/04/2023
Discipline:	Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Noise
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/05/2024
5. Place of sampling	Kochilamara
6. Environmental conditions during sampling & Transport	NA
7. Sampling Plan & Method used	IS 9989:1988
8. Identification of the personnel performing sampling by MSK	Ananda Sahoo
9. Field Equipments Used	MSK/BBSR/FIELD/SLM-01

Report No. : MSKPL/ED/2024-25/DN5181 **Sample No. :** MSKNB/ED/2024-25/05/253F1F

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result	Zone	Limit as per CPCB at Day (06.00-22.00)	Limit as per CPCB at Night (22.00-06.00)
1	Leq dB(A) day	dB(A)	IS 9989	48.9	Industrial	75	-
2	Leq dB(A) night	dB(A)	IS 9989	45.9	Industrial	-	70

Opinion : NA

Statement of Conformity NA

-------- END --------

Reviewed By:
Signature :
Name : Mr. Bapsi Jana
Designation : Executive Chemist

Authorized Signatory:
Signature :
Name : Mr. Pradip Bag
Designation : Technical In charge

Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
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Email : info@mitrask.com Website : www.mitrask.com