



TSM/MoEF&CC/BS-01/2023-03/394
November 30, 2023

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'23 to Sept'23.

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, 3.1 and 1.5 MTPA Integrated Steel Plant of Tata Steel Ltd., Meramandali for the period from April 2023 to September 2023 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:// environmental clearance.nic.in](http://environmentalclearance.nic.in).

Hope the above are in line with the statutory requirements.

Thanking you,

Yours faithfully,

~~For Tata Steel Limited~~

Anoop Srivastava
Chief Environment

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.

TATA STEEL LIMITED

Narendrapur Kusupanga Meramandali Dhenkanal 759 121 Odisha India Tel 91 6762 352000
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

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.	<ul style="list-style-type: none"> 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. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
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.	<ul style="list-style-type: none"> All conditions of EC for 3.1 MTPA steel Plant 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 regularly. The latest half yearly compliance report was submitted vide letter no. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
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.	<ul style="list-style-type: none"> 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 facilities for all the stacks shall be provided	<ul style="list-style-type: none"> 55 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.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	<p>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.</p>	<p>Details list of pollution control devices is enclosed as Annexure-I.</p> <ul style="list-style-type: none"> • 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 implemented in phase wise manner.
v	<p>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.</p>	<ul style="list-style-type: none"> • 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 system have been provided in the iron ore circuit at crushing and screening points of raw material handling areas at the following locations. • 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. • 09 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

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

		<p>of RMHS and in junction houses to minimize material spillage.</p> <ul style="list-style-type: none"> • 5 Nos. of dust collectors (Potable bag filter) have also 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 16 th November, 2009 shall be followed.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 55 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'23 to Sep'23 is attached as Annexure-II and Annexure-III respectively.
viii	Proper PPE shall be provided to all the workers including contract workers.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • The natural nallah (Kisinda Nallah) present on the northern side of the plant has not been disturbed.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	the nallah shall be shifted and the area should be developed into garden for public use.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Freshwater consumption during the period Apr'23 to Sep'23 for the Steel plant is 3081m³/hr. • All effluents are being treated in primary treatment plants (19 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 and green area development. • Process effluent after treatment is being reused. During the period Apr'23 to Sep'23, 2975753 m³ of treated 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 4Nos. of Sewage Treatment Plant and used for green belt development and low-end application in plant. • Rainwater harvesting pond of capacity 50000 m³ with HDPE liner has been constructed to store & reuse rainwater. • Zero Effluent Discharge (ZED) project is under construction stage and will be implemented by March 2024.
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.	<ul style="list-style-type: none"> • Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period Apr'23 to Sep'23, 53865 m³ 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	<ul style="list-style-type: none"> • Monitoring of influent, effluent, surface and groundwater quality is being carried out regularly in Environment laboratory which has been accredited by NABL vide

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	<p>Board or described under the Environment (Protection) Act whichever are more 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.</p>	<p>certificate no. TC-10959 dated 02.09.2022 for 44 nos. Parameters.</p> <ul style="list-style-type: none"> Leachate study is being carried out and submitted to OSPCB periodically. The monitoring reports are enclosed as Annexure- IV.
xiii	<p>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.</p>	<ul style="list-style-type: none"> 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 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 <ul style="list-style-type: none"> 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 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. During the period Apr'23 to Sep'23, 167114 Nos. of fly ash bricks and 471208 Nos. of paver block has been constructed and utilized in road construction in the plant. Fly ash is also being supplied to <ul style="list-style-type: none"> nearby fly ash brick manufacturing units, free of cost, for maximum utilization of ash. Cement plants through bulker.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

		<ul style="list-style-type: none"> ○ Construction of national highway (NH-55 & NH 149). <p>Balance if any is being utilised in reclamation of low lying areas & abandoned stone quarries as per guidelines of CPCB/OSPCB after grant of necessary consents.</p>
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 waste should be submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.	<ul style="list-style-type: none"> ● 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 of hazardous waste is being regularly submitted to SPCB Odisha. Latest return was submitted vide letter No. TSM/SPCB/BS07/2023-07/351 dated June 19, 2023.
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.	<ul style="list-style-type: none"> ● 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. ● Five Nos. of wheel washing systems are in operation at DRI, RMHS, BFPP1, BFPP2 and WHRB. ● 09 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	<ul style="list-style-type: none"> ● 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.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	SPCB and MOEF Regional Office at Bhubaneswar.	
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.	<ul style="list-style-type: none"> • 42.8 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Sep'23, 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 also been implemented along the boundary wall. • Plantation of saplings are done regularly based on the availability of vacant area. During the period Apr'23 to Sep'23, 35813 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.	<ul style="list-style-type: none"> • Tata Steel Limited has implemented all CREP recommendations. The CREP compliance is attached herewith as Annexure-XIV.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

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.	<ul style="list-style-type: none"> • Compliance to the commitments made to the public during Public Hearing are complied. Public hearing compliance report is attached as Annexure XV.
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.	<ul style="list-style-type: none"> • 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 year Apr'23 to Sep'23 is enclosed as Annexure-IX.
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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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-10959 dated 02.09.2022. for 44 nos. Parameters. An environment research group is also working for research activity in environment technology.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> 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. 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.	<ul style="list-style-type: none"> 55 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 NO _x are anticipated in consultation with the	<ul style="list-style-type: none"> 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

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	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.	CPCB at regular intervals. Summary of AAQ monitoring report is attached as Annexure-X . The latest half yearly compliance report was submitted vide letter no. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
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 from time to time. The treated waste water shall be utilized for plantation purpose.	<ul style="list-style-type: none"> 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. <p>The monitoring reports of Industrial wastewater are being submitted to SPCB/CPCB/MOEF&CC at regular intervals.</p>
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).	<ul style="list-style-type: none"> 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-XI.
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.	<ul style="list-style-type: none"> Occupational health surveillance of the workers is being periodically done and records maintained as per the Factories Act. Necessary PPEs are 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.	<ul style="list-style-type: none"> Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period Apr'23 to Sep'23, 53865 m³ 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. In the first phase 50000 Cum capacity

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

		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.	<ul style="list-style-type: none"> • 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-IX.
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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	SPCB. The criteria pollutant levels namely PM ₁₀ , SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sectoral 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.	<ul style="list-style-type: none"> Parameters being monitored in ambient air and stack emission are being displayed near the main gate of the Company.
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	<ul style="list-style-type: none"> 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. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
xiv	The environmental statement for each financial year ending 31 st 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.	<ul style="list-style-type: none"> The Environmental Statement in Form-V is being submitted to SPCB/CPCB/MOEF&CC regularly. The Environment Statement for the FY 2022-23 was submitted vide letter no. TSL/SPCB/BS-03/2022-14/249, dated 25.09.2023.
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	<ul style="list-style-type: none"> 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.

Compliance Status of Environmental Clearance for Expansion of Integrated Steel Plant (3.1 MTPA to 5.6 MTPA) at Tata Steel Limited, Meramandali, District Dhenkanal, Odisha vide MoEF&CC File no. J-11011/829/2008-IA-II (I) dated 20.07.2012 and subsequent amendment dated 10.09.2015, 11.05.2015, 17.09.2019 & 15.07.2022.

	forwarded to the Regional office at Bhubaneswar.	
xvi	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.	<ul style="list-style-type: none">• This is an existing plant where project activities are going on. We shall inform the Regional Office as well as the Ministry about the financial closure, when it is completed.

SPECIFIC CONDITIONS:

SL	CONDITIONS	COMPLIANCE STATUS
i	<p>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/Nm³. Bag filters should be provided to the induction furnace to control the particulate emission below 100 mg/Nm³. 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.</p>	<ul style="list-style-type: none"> • 55 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. • 20 nos. online CEMS w.r.t gas and 39 nos. online CEMS w.r.t dust have been installed and operated continuously. • 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. • Six monthly monitoring report is being submitted regularly to MoEF&CC, CPCB and SPCB. • During FY21, detail analysis was done on the various point sources, line sources & area sources & implemented various improvement project e.g. installation of new technology power supply controller at Sinter plant (HFTR- High frequency transformer rectifier in process ESP & Micro pulse in dedusting ESP of sinter plant is the first of its kind technology application in ESP).
ii	<p>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/Nm³. 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.</p>	<p>Following facilities have been installed to control dust emissions:</p> <p>DRI & WHRB:</p> <ul style="list-style-type: none"> • 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. <p>BLAST FURNACE:</p> <ul style="list-style-type: none"> • Two nos. of bag filter have been installed in Cast House and stock house. To keep the emission well within the norms.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

		<p>IF, LRF & CCM:</p> <ul style="list-style-type: none"> 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. <p>SMS II:</p> <ul style="list-style-type: none"> 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 be discharged into the air.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 55 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'23 to September'23 is attached as Annexure-II and Annexure-III respectively.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

vi	<p>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.</p>	<ul style="list-style-type: none"> • Two bag filters, and adequate no. of DFDS and SFDS have been provided at coal circuit. • Five numbers of bag filters have also been provided in the iron ore circuit at crushing and screening points of raw material handling areas at the following locations: <ul style="list-style-type: none"> • 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. • 242 numbers of nozzles in dry fog dust suppression system have been provided at 46 numbers of junction houses of raw material handling area to control dust emissions during loading and unloading of raw materials at site. • Further, 128 nos. of rotary gun sprinklers have been installed throughout the raw material handling yards. • Mechanized road sweepers have been deployed for dry sweeping of roads and shop floors with dust suction facility.
vii	<p>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.</p>	<ul style="list-style-type: none"> • Vehicles carrying raw materials are being covered with tarpaulin. • 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. • Four Nos. of wheel washing systems have been installed at RMHS, BFPP1, BFPP2 and DRI.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

viii	<p>Total water requirement should not exceed 1, 29,600 m³/day. Permission for drawl of 2,40,000 m³/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.</p>	<ul style="list-style-type: none"> • Rate of water consumption during the period Apr'23 to Sep'23 water consumption for the Steel plant is approx. 3081.24 m³/hr. • All effluents are being treated in primary treatment plants (19 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 & cooling towers and for green area development. • Process effluent after treatment is being reused. During the period Apr'23 to Sep'23, 2975753 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 pond of capacity 50000m³ with HDPE liner has been constructed to store & reuse rainwater. • Zero Effluent Discharge (ZED) project is under construction and will be implemented by March 2024.
ix	<p>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)</p>	<ul style="list-style-type: none"> • 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.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

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.	<ul style="list-style-type: none"> • 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 & LD Slag are 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ➤ 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.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

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.	<ul style="list-style-type: none"> • 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 of hazardous waste is being regularly submitted to SPCB Odisha. A copy of HW annual return for the period April'22 to March'23 is enclosed as Annexure-XII.
xiv	A time bound action plan shall be submitted to reduce solid waste its proper utilization and disposal.	<ul style="list-style-type: none"> • The solid wastes generated from various plant units are being efficiently recycled back within the plant processes. During FY23 overall solid utilization was 98%. 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.	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ➤ 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

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

		<p>maximum utilization of fly ash. During the period Apr'23 to Sep'23, 167114 Nos. of fly ash brick has been manufactured and utilized.</p> <ul style="list-style-type: none"> • 471208 Nos. of paver block has been manufactured and used in road construction in the plant. • Fly ash is also being supplied/Used to <ul style="list-style-type: none"> ○ 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). ○ 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.	<ul style="list-style-type: none"> • Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Sep'23, 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,23 to Sep,23 is 35813 nos. has been planted and details plantation is Annexure-XIII. • Proper maintenance of green coverage is being ensured throughout the year by a dedicated horticulture team.
xvii	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the steel plants shall be implemented.	<ul style="list-style-type: none"> • Tata Steel Limited has implemented all CREP recommendations. CREP compliance is attached as Annexure-XIV.

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.	<ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> • 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.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

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 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.	<ul style="list-style-type: none"> • Seven 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 attached as Annexure-X. • The last half yearly compliance report was submitted vide letter no. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
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 asphaltting or concreting of the roads shall be done to control fugitive emission.	<p>To have a control on fugitive emissions, following measures have taken:</p> <ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

		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).	<ul style="list-style-type: none"> 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-XI.
viii	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the process when required. During the period Apr'23 to Sep'23, 53865 m³ 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. In the first phase 50000 m³ capacity 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 lagoons are in operation).
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.	<ul style="list-style-type: none"> 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- IX.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 27.09.2008.

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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.
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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Project was completed and in operation. Consent to Operate was granted vide letter no. 4463/IND-I-CON-5440 dated 23.03.2023.

SPECIFIC CONDITIONS:

SL	CONDITIONS	COMPLIANCE STATUS
i	<p>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.</p>	<ul style="list-style-type: none"> • 55 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-II. • 9 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	<p>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 based on 100% recirculation system to achieve zero discharge. The domestic waste water after treatment in STP shall be used for green belt development.</p>	<ul style="list-style-type: none"> • Rate of water consumption during the period Apr'23 to Sep'23 water consumption for the Steel plant was 3081.24 m³/hr. • All effluents are being treated in primary treatment plants (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 and for green area development.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

		<ul style="list-style-type: none"> • Process effluent after treatment is being reused. During the period Apr'23 to Sep'23, 2975753 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 by March 2024.
iii	<p>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.</p>	<ul style="list-style-type: none"> • 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. • 242 numbers of nozzles in dry fog dust suppression system have been provided at junction houses of raw material handling area. • Further, 128 nos. of rotary gun sprinklers have been installed throughout the raw material handling yards. • Mechanized road sweepers have been deployed for dry sweeping on roads and shop floors. • Regular monitoring of fugitive emission is carried out and report being submitted.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

		<ul style="list-style-type: none"> To improve AQI further, the company is analyzing the various point sources, line sources & area sources & continuously working to reduce workplace emission by standardizing maintenance practices, adopting new technology (HFTR, MFTR. Mist Gun water sprinklers, Portable Donaldson Dust extraction system) & also installation new dust extraction system wherever required.
iv	<p>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.</p>	<ul style="list-style-type: none"> 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	<p>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.</p>	<ul style="list-style-type: none"> 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	<p>The company shall take measures for installation of continuous ambient air quality monitoring stations and data sent electronically to SPCB/CPCB.</p>	<ul style="list-style-type: none"> 07Nos. 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-X. The last half yearly compliance report was submitted vide letter no. no. TSM/MoEF&CC/BS-01/2023-02/344 dated 31.05.2023.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

vii	<p>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.</p>	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ➤ 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. During the period Apr'23 to Sep'23, 167114 Nos. of fly ash brick has been manufactured and utilized. • 471208 Nos. of paver block has been manufactured and used in road construction in the plant. • Fly ash is also being supplied/Used to <ul style="list-style-type: none"> ○ 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.
-----	--	---

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

viii	Resettlement & Rehabilitation plan for displacement of families shall be as per the land acquisition Act & state government guidelines.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Green belt development is under progress in and around the plant complex by planting indigenous species as per CPCB guidelines. Till Sep'23, 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'23 to Sep'23, 35813 nos. of plant has been planted and details plantation is Annexure-XIII. Proper maintenance of green coverage is being ensured throughout the year by a dedicated horticulture team.
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.	<ul style="list-style-type: none"> The following community welfare measures are being undertaken. <ol style="list-style-type: none"> Education: School Infrastructure, education project: QUEST and drinking water at schools Drinking Water in the village (Through pipeline, tube well and deep bore well). Health: Primary Health Service through mobile medical unit and control of Dengue & Malaria are being under taken. A detailed breakup of CSR initiatives is enclosed as Annexure- IX.
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.	<ul style="list-style-type: none"> Necessary forest clearances have already been obtained vide file no. 8-84/2005-FC dated 13.11.2006 enclosed as Annexure-XV.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

xii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the factories act.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Tata Steel Limited has implemented all CREP recommendations.
xiv	Company shall keep proper housekeeping within the plant premises.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Lagoons and HDPE pond have been constructed to harvest rainwater. This water is reused in the operation process when required. During the period April'23 to September'23, 53865 m³ 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. In the first phase 50000 Cum capacity 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 (3nos. of lagoons are been in operation).

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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. <ol style="list-style-type: none"> 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	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 NO _x 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.	<ul style="list-style-type: none"> 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-X. The last half yearly compliance report was submitted vide letter no. TSM/MoEF&CC/BS-01/2023-02/344; dated 31.05.2023.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

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.	<p>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.</p> <p>The monitoring reports of Industrial wastewater are being submitted to SPCB/CPCB/MOEF&CC at regular intervals.</p>
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).	<ul style="list-style-type: none"> • 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-XI.
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.	<ul style="list-style-type: none"> • 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- IX.
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.	<ul style="list-style-type: none"> • 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.

Compliance Status of Environmental Clearance of Expansion of Integrated Steel Plant (1.5 MTPA to 3.1 MTPA at Tata Steel Works, Meramandali, District Dhenkanal, Odisha vide MoEF&CC Letter nos. J-11011/829/2008-IA-II (I) dated 29.06.2005.

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.	<ul style="list-style-type: none"> • Six monthly compliance report and monitoring data are being submitted regularly. Last report has been submitted vide letter No. TSM/MoEF&CC/BS-01/2023-02/344; dated 31.05.2023.
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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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 APCDs
2.	Annexure -II	Fugitive Emission Monitoring Report
3.	Annexure -III	Gaseous Emission Monitoring 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	CSR Report
10.	Annexure -X	AAQ Monitoring Report along with 12 parameters
11.	Annexure -XI	Ambient & Work zone Noise Report
12.	Annexure -XII	Hazardous Waste Annual Return
13.	Annexure -XIII	Plantation Details
14.	Annexure -XIV	CREP Compliance
15.	Annexure -XV	PH Compliance
16.	Annexure-XVI	Forest Clearance Stage -II

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 plant -- II & III	07	04	-
6.	DRI	03	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	-

SUMMARY OF FUGITIVE EMISSION RESULTS MONTHLY AVERAGE VALUES				
Period: April 2022 to September 2023				
TATA STEEL LIMITED				
Name of units	Location	PM 10 in $\mu\text{g}/\text{m}^3$	Standard in $\mu\text{g}/\text{m}^3$	
RMHS				
1.	Near JH-21 Yard-7 (Iron ore conveying)	333	2000	
2.	Coal Yard -7 Lucky Mineral Office	385		
3.	Infront of PCI building	507		
RMPP				
4.	Near tertiary Crushing & Screening Building Area	657	2000	
5.	Near Iron Crusher Area	645		
B.B. Plant				
6.	Storage building	1093	2000	
7.	Flux crushing and screen building	800		
Coke Oven-I				
8.	Fine crusher station	547	4000	
9.	Secondary crusher	540		
Coke Oven-II				
10.	Coke treatment building	738	4000	
11.	Coal crushing building	665		
DRI				
12.	Near PSB-1 building	1150	2000	
13.	Near PSB-2 building	1375		
14.	Near PSB-3 building	1322		
15.	Near PSB- 4 building	1058		
16.	Near PSB-5 building	922		
Sinter Plant I				
17.	Near proportionating Building	427	2000	
18.	Near SP-1 Mixing House	593		
Sinter Plant II				
19.	Near SP-2 chimney Backside area	422		
20.	Near 7003 conveyor Belt	552		
Sinter Plant III				
21.	Near cooler SP-3 D/15	283		
22.	Near Chiller Plant SP-2,3 & parking area	300		
Blast Furnace-I				
23.	Near Stock House	1202	4000	
24.	Near Cast house Area	380		
Blast Furnace-II				
25.	Near Cast house Entrance	282	3000	

Annexure-II

26.	Near Slug pit area	387	
27.	Stock House Near ECR Building	1353	
Lime Plant			
28.	Near Screen Area-1	1667	-
SMS-II			
29.	SMS-2 Furnace area	675	4000
SMS-III			
30.	BOF Furnace area	503	3000
HSM			
31.	Near Coil Yard area	518	-
CRM			
32.	Near canteen area	303	-
BFPP-2			
33.	Near Ash silo Area	550	3000
BFPP-1			
34.	Near Ash silo Area	467	4000
110 MW			
35.	Near Ash silo Area	872	-
IBMD			
36.	BOF sludge yard	355	
37.	Near Scarp dumping yard	382	-

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

SUMMARY OF STACK MONITORING

Period: From April 2023 to September 2023

S.N	Stack Attached to	Average Monthly Result in mg/m ³						Standard as per CTO
		Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23	
1	AFBC	SD	SD	SD	SD	SD	SD	-
2	Sinter Plant -1 (85 M2 ESP)	14.08	6.91	4.58	4.65	8.01	21.16	100
3	Blast Furnace -I, Cast House	2.79	2.55	5.03	2.88	9.30	19.25	100
4	Blast Furnace -I, Stock House	9.59	11.59	13.05	8.03	7.47	7.16	100
5	SMS- 1	SD	SD	SD	SD	SD	SD	100
6	SMS 2 (FES 1)	12.14	17.10	25.06	19.97	17.05	12.21	100
7	SMS 2 (FES 2)	16.63	13.60	15.61	4.12	6.58	6.98	100
8	BFPP ESP 1	21.09	SD	16.55	12.50	20.65	14.85	50
9	BFPP ESP 2	18.22	20.54	19.45	23.35	18.21	18.78	50
10	BFPP ESP 3	26.60	18.00	23.18	14.03	19.52	18.66	50
11	Sinter Plant- 2	31.24	33.26	28.60	30.70	30.45	34.40	50
12	Sinter Plant- 3	43.27	40.96	36.14	35.76	38.16	40.66	50
13	SMS- 3 BOF (secondary chimney)	13.46	10.09	11.69	14.23	16.89	9.58	50
14	BFPP- 2 Boiler- 2	11.55	13.48	12.96	16.50	16.52	16.37	50
15	BFPP- 2 Boiler- 3							50
16	Coke oven (Battery- 1)	15.77	16.20	16.25	14.78	31.87	19.50	50
17	Coke oven (Battery- 2)	24.81	29.86	28.27	23.80	18.00	16.65	50
18	Coke oven- 2 (Battery- 2)	24.20	18.97	20.67	22.31	22.82	22.79	50
19	Blast Furnace -2, Cast House	8.71	9.28	7.52	4.94	7.35	7.46	50
20	Blast Furnace -2, Stock House	11.67	6.13	8.04	4.95	10.59	11.12	50
21	WHRB-1	SD	SD	29.78	25.22	12.94	13.95	50
22	WHRB-2	17.97	11.14	14.52	11.32	SD	18.99	50
23	WHRB-3	25.33	17.81	16.19	20.83	20.84	20.46	50
24	WHRB-4	22.88	26.61	9.04	12.54	21.90	SD	50
25	WHRB-5	10.83	16.84	26.40	19.07	25.80	26.36	50
26	WHRB-6	SD	22.60	15.30	18.32	20.99	19.36	50
27	WHRB-7	19.12	23.93	SD	19.20	36.24	25.47	50
28	WHRB-8	10.72	25.02	14.15	6.45	11.40	13.98	50
29	WHRB-9	5.82	14.00	14.68	SD	24.10	23.35	50
30	WHRB-10	12.48	11.27	13.97	10.90	15.62	20.97	50
31	DRI, Dedusting- 1	13.02	6.69	16.72	18.45	11.67	18.03	100
32	DRI, Dedusting- 2	22.75	22.49	10.11	19.74	21.88	21.98	100
33	DRI, Dedusting- 3	15.48	20.73	25.63	13.70	19.40	16.00	100
34	DRI, Dedusting- 4	13.92	8.16	4.24	5.44	3.79	3.27	100
35	DRI, Dedusting- 5	11.29	11.62	18.29	9.72	8.15	18.15	100

SD- Shut Down (Plant not in Operation)

SUMMARY OF STACK MONITORING

Period: From April 2023 to September 2023

S.N.	Month	Apr'23			May'23			Jun'23			Jul'23			Aug'23			Sep'23		
		Result in mg/m ³																	
		SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx	SO ₂	NOx
1	BFPP ESP 1	1083.3	205.05	SD	SD	1135.7	158.45	1572.96	166.22	1419.82	151.73	1201.07	140.56						
2	BFPP ESP 2	908.52	449.1	873.82	393.28	390.6	67.46	1207.59	474.30	1022.00	554.62	765.10	395.33						
3	BFPP ESP 3	887.5	350.92	1100.47	387.91	1009.9	338.97	1336.54	379.51	863.64	279.07	799.84	331.04						
4	Sinter Plant-2	513.3	155.78	349.28	100.29	344.75	164.16	167.78	107.10	291.92	152.92	235.43	141.45						
5	Sinter Plant-3	333.5	119.73	92.68	114.62	169.05	178.06	253.16	247.57	328.80	281.45	442.55	316.85						
6	BFPP- 2 Boiler- 2	1333.35	32.76	1448.38	40.77	1218.6	46.30	634.20	23.40	739.93	31.40	962.56	66.24						
7	BFPP- 2 Boiler- 3																		
8	Coke oven (Battery-1)	110.52	376.32	16.20	82.20	209.44	312.28	521.79	324.31	615.38	370.42	62.64	288.02						
9	Coke oven (Battery-2)	175.3	454.17	29.86	51.45	50.34	409.79	102.02	454.71	26.03	487.43	21.66	423.93						
10	Coke oven- 2 (Battery- 2)	143.35	69.36	18.97	98.01	205.29	69.11	232.69	69.79	71.79	34.12	56.56	87.77						
11	WHRB-1	SD	SD	408.61	61.06	528.25	96.86	1208.69	151.38	1336.44	153.60	747.93	74.70						
12	WHRB-2	673.00	99.20	673.00	99.2	673.00	99.2	673.00	99.2	SD	SD	SD	SD						
13	WHRB-3	753.19	269.05	731.21	250.95	309.06	213.76	492.34	239.59	798.50	35.00	699	31						
14	WHRB-4	1222.89	128.94	381.74	135.70	73.48	145.88	769.70	39.00	460.50	127.91	SD	SD						
15	WHRB-5	559.17	72.51	501.08	49.66	602.67	55.59	424.70	83.03	474.06	46.44	450.92	28.40						
16	WHRB-6	SD	SD	289.00	102.94	186.22	46.58	770.00	51.00	114.49	17.04	392.82	35.76						
17	WHRB-7	684.77	39.03	200.75	60.43	SD	SD	762.60	123.00	252.15	70.56	298.29	67.86						
18	WHRB-8	NA	NA	NA	NA	NA	NA	NA	NA	584.93	85.95	602.39	76.39						
19	WHRB-9	1060.06	5.87	825.41	202.69	202.69	202.69	SD	SD	638.93	74.87	589.35	81.28						
20	WHRB-10	675.29	61.01	661.81	79.99	43.10	43.10	597.93	42.34	495.75	44.95	422.48	30.20						

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

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

14	Fluoride as F-	mg/l	0.35 - 4.2	0.22 - 2.4	0.24 - 1.06	0.53 - 2.17	0.24 - 0.74	0.21 - 0.72
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	0.09 - 0.56	0.06 - 2.01	< 0.26	< 1.58	0.07 - 4.8	0.06 - 3.9
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	0.09 - 0.46	0.07 - 0.62	0.06 - 0.32	0.08 - 0.16	0.08 - 0.52	0.07 - 0.68
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 2023 to September 2023

S.N.	Location	Parameters in Range		
		pH	Suspended Solid in mg/l	BOD (3 days at 27°C) in mg/l
1.	Colony STP	6.88-7.94	5.4-25	2.5-22
2.	AEL STP	7.02-7.55	<2.5-24	4.3-16
3.	BF-1 STP	6.84-7.2	<2.5-4.2	<2.0-7.8

Summary of Effluent Treatment Plant Analysis
 Period: From April 2023 to September 2023

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)	6.7-7.04	<2.5-74	<4.0-20	<2.0-5.1	<5	<0.05-2.0
2.	ETP-2 (Outlet)	<2.5-74	<2.5-28	<4.0-24	<2.0-5.9	<5	0.06-1.1
3.	ETP-3 (Outlet)	6.71-7.65	11-96	<4.0-44	<2.0-11.0	<5	<0.1-0.56
4.	CRM (ETP Outlet)	7.02-7.59	7.5-92.0	<4.0-104	<2.0-29.0	<5	<0.05-1.8
5.	BF-1 (Thickener Outlet)	6.97-7.56	15-96	36-92	-	<5	0.2-2.0
6.	BF-2 (Thickener Outlet)	6.97-7.77	10-59	8-124	-	<5	0.12-1.5
7.	BOF (Thickener Outlet)	7.04-7.6	24-92	<4.0-44	-	<5	7.8-64

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)	6.78-7.6	6.0 - 30	40 - 68	10 - 22	<5	<0.02 - 0.2	<0.01
9.	Coke Oven-2 (BOD-2 Outlet)	6.94-7.66	4.7 - 104	104 - 164	28 - 52	<5	<0.02	<0.01-0.85

Summary of ground water level monitoring report inside plant premises

Period: From April 2023 to September 2023

S.N.	Location with description	Sample Code	Depth of Monitoring Bore Well	Longitude	Latitude	Ground Water Level (m) July-23
1	Colony near STP	GW-1	165ft	20°49.045'	85°15.734'	2.14
2	RMHS Near Wagon Tippler	GW-2	300ft	20°47.752'	85°15.993'	3.82
3	Near Blast Furnace-2	GW-3	162ft	20°47.25'	85°15.613'	2.2
4	Near Railway bridge	GW-4	156ft	20°48.920'	85°15.858'	3.24

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	-	7.85	8.12	7.8	7.64	6.5-8.5
2	Colour	Hazen	Colorless	Colorless	Colorless	Colorless	15
3	Odour	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	-
4	T. Hardness (as CaCO3)	mg/l	200	380	370	380	300
5	Calcium as Ca	mg/l	48	80	108	80	75
6	Magnesium as Mg	mg/l	19.20	43.20	24	43.20	30
7	Iron as Fe	mg/l	0.08	0.48	0.05	0.08	0.3
8	Chloride as Cl	mg/l	44.54	49.48	133.61	128.66	250
9	Fluoride as F-	mg/l	0.29	0.32	0.28	0.34	1
10	Dissolved solids	mg/l	280	434	630	510	500
11	Nitrate as NO3	mg/l	0.97	1.42	0.98	1.01	45
12	Chromium as Cr+6	mg/l	0.01	0.01	0.01	0.01	0.05
13	Alkalinity as CaCO3	mg/l	148.5	128.7	316.8	297	200

Summary of ground water level monitoring report inside plant premises

Ground Water Level
Period: May 2023

S.N	Location	Sample Code	Longitude	Latitude	Water Level from GL (m) BGL	
						May'23
1	Kharagprasad	GW-01	20° 49.299'	85° 18.923'		4.20
2	Charadagadia	GW-02	20° 47.768'	85° 17.083'		6.20
3	Sipur	GW-03	20° 46.941'	85° 14.394'		5.30
4	Kochilamada	GW-04	20° 47.541'	85° 16.802'		5.90
5	Galapada	GW-05	20° 48.142'	85° 18.600'		4.90
6	Motonga	GW-06	20° 48.143'	85° 18.599'		5.20
7	Asanabania	GW-07	20° 47.534'	85° 16.802'		5.90
8	Narendrapur	GW-08	20° 49.483'	85° 15.530'		5.10
9	Khaliberena	GW-09	20° 46.946'	85° 14.396'		5.40
10	Ganthigadia	GW-10	20° 48.501'	85° 15.118'		4.20

		(DL:0.5)	(DL:0.5)	(DL:0.5)	(DL:0.5)	(DL:0.5)	(DL:0.5)	(DL:0.05)	(DL:0.05)	(DL:0.05)	(DL:0.5)	(DL:0.5)	(DL:0.5)
18	Nitrate as NO3	mg/l	1.02	2.11	1.25	1.21	0.70	1.9	1.6	1.32	0.89	2.25	
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)	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)	BDL (DL:0.005)	
21	Sulphate as SO4	mg/l	3.58	8.8	4.25	4.2	2.05	6.98	4.8	3.89	4.08	10.2	
22	Total Alkalinity as CaCO3	mg/l	244.8	387.6	204	204	61.2	306	163.2	204	163.2	367.2	
23	Total Hardness as CaCO3	mg/l	284.2	490	235.2	274.4	78.4	352.8	215.6	254.8	196	450.8	
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)	BDL (DL:0.02)	
25	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)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	
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)	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)	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)	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)	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)	BDL (DL:0.005)	
31	E. coli	/100 ml	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Detected	

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)	BDL (DL:0.5)	BDL (DL:0.5)
18	Nitrate as NO3	mg/l	0.84	0.94	0.84	1.20	0.87	0.86	BDL (DL:1.0)	1.01	0.95	0.78	
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)	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)	BDL (DL:0.005)	BDL (DL:0.005)
21	Sulphate as SO4	mg/l	3.20	14.56	3.65	10.6	2.98	12.85	1.42	5.20	4.52	4.80	
22	Total Alkalinity as CaCO3	mg/l	110	420	150	220	100	380	40	180	160	300	
23	Total Hardness as CaCO3	mg/l	126.1	485	164.90	388	116.4	388	48.50	203.70	174.60	349.20	
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)	BDL (DL:0.02)	BDL (DL:0.02)
25	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)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)
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)	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)	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)	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)	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)	BDL (DL:0.005)	BDL (DL:0.005)
31	E. coli	/100 ml	Detected	Detected	Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

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

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/243F4K_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/DMU40J_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Brahmani Upstream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/243F4K_1

Sample No. : MSKNB/FD/2023-24/06/DMU40J_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (IE=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34): 1988	0.66
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.18
6	Sulphide (as S)	mg/l	IS 3025 (Part 29): 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34): 1988	1.24
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

— END —

Reviewed By:

Signature

Name : Dr. Amarjya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Dr. Souryadeep Mukhopadhyay

Designation

Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch 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

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-695023000004311F

Report No. : MSKPL/FD/2023-24/243F4K

Sample No. : MSKNB/FD/2023-24/06/0MU40J

RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.09
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	7.0
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	7.14 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay

Lab In charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (At) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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-695023000004311F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/243F4K

Date :

15/08/2023

Sample No. :

MSKNB/FD/2023-24/06/0MU40J

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Brahmani Upstream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/243F4K

Sample No. : MSKNB/FD/2023-24/06/0MU40J

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	16.0
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	8.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	14.85
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	118
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.70
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.21
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name

Designation

Dr. Amarliya Kumar Gupta, Dr.
Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Souryadeep Mukhopadhyay
Lab in charge

Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/MN3F4R_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/8383ER_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Brahmani Down stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23), 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/MN3F4R_1

Sample No. : MSKNB/FD/2023-24/06/8383ER_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.32
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.32
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.80
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Gouryadeep Mukhopadhyay
Lab in charge

The results relate only to the sample(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (6th Floor), 74B, A.F.C. Bose Road, Kolkata - 700016, West Bengal, India
Tel : 91 33 40140000 / 22650007 Fax: 91 33 22650008
Email: info@mitrask.com Website: www.mitrask.com



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-695023000004312F

Report No. : MSKPL/FD/2023-24/WN3F4R

Sample No. : MSKNB/FD/2023-24/06/8383ER

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:0.01)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.12
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	5.2
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	7.42 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Sourmyadeep Mukhopadhyay
Lab In charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.



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-695023000004312F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/MN3F4R

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/8383ER

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Brahmani Down stream
4. Date of sampling	07/08/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C.Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/MN3F4R

Sample No. : MSKNB/FD/2023-24/06/8383ER

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	12.0
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	12.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	9.90
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	120
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.44
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.36
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name

Designation

Dr. Amartya Kumar Gupta, Dr.
Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab In charge

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Reference No. & Date :

MSKPL/FD/2023-24/LS3F4X_1

15/06/2023

MSKNB/FD/2023-24/06/EM542N_1

08/06/2023

08/06/2023 - 15/06/2023

3000151489/AD6, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Kishinda Up Stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/LS3F4X_1

Sample No. : MSKNB/FD/2023-24/06/EM542N_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.80
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.66
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	2.01
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Name

Designation

Dr. Amartya Kumar Gupta, Dr.
Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab In charge

The results relate only to the item(s) tested
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sol. Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (AR) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.



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-69502300004313F

Report No. : MSKPL/FD/2023-24/L3F4X

Sample No. : MSKNB/FD/2023-24/06/EM542N

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.16
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 8) : 1984	25 DEG
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	12.8
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	6.89 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.



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-69502300004313F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/L53F4X

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/EM542N

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	Kishinda Up Stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/L53F4X

Sample No. : MSKNB/FD/2023-24/06/EM542N

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	3.0
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	76
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	16.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	74.23
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	760
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1988	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	1.73
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.74
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Souryadeep Mukhopadhyay

Designation : Lab In charge

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/UW401Y_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/FUQ3F3_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Kishinda Down Stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/UW401Y_1

Sample No. : MSKNB/FD/2023-24/06/FUQ3F3_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.42
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.36
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.85
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Name

Designation

Dr. Amartya Kumar Gupta, Dr.
Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Strachy Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000/22650001 Fax : 91 33 22650000
Email : info@mitrask.com Website : www.mitrask.com

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-69502300004314F

Report No. : MSKPL/FD/2023-24/UW401Y

Sample No. : MSKNB/FD/2023-24/06/FUQ3F3

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.14
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	14.2
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	7.22 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

The results pertain only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report

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-695023000004314F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/UW401Y

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/FUQ3F3

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Kishinda Down Stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/UW401Y

Sample No. : MSKNB/FD/2023-24/06/FUQ3F3

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	3.8
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	40
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58): 2006	16.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	64.33
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	508
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.97
15	Iron as Fe	mg/l	IS 3025 (Part 53): 2003	0.96
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 46) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Soamyadeep Mukhopadhyay

Designation : Lab In charge

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/TE4060_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/LVZ44D_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Pond of Sarpa Village
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/TE4060_1

Sample No. : MSKNB/FD/2023-24/06/LVZ44D_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.58
4	Particle Size of Suspended Solid	None	TPMMSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.28
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.89
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

END

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Devottam Banerjee
Designation : Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Souryadeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the item(s) tested.

The Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

Tel. : 91 33 49143000 / 22650007 Fax : 91 33 22650006

Email : info@mitrask.com Website : www.mitrask.com

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-69502300004315F

Report No. : MSKPL/FD/2023-24/TE4060

Sample No. : MSKNB/FD/2023-24/06/LVZ44D

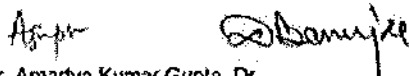
RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.14
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	4.6
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	6.97 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:
Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:
Signature
Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Basted Water, Basted food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji 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



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-695023000004315F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/TE4060

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/LVZ44D

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	Pond of Sarpa Village
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/TE4060

Sample No. : MSKNB/FD/2023-24/06/LVZ44D

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	40
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	6.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	59.38
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.1)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	440
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	1.12
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.39
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name : Dr. Sourmyadeep Mukhopadhyay

Designation : Lab In charge

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/MM40B8_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/VSF41E_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/08/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Lingara Nadi Upstream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/MM40B8_1

Sample No. : MSKNB/FD/2023-24/06/VSF41E_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	0.94
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.21
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.23
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature :

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature :

Name : Dr. Sournyadeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (AR) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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-695023000004316F

Report No. : MSKPL/FD/2023-24/MM40B8

Sample No. : MSKNB/FD/2023-24/06/VSF41E

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL:0.05)
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	6.2
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	6.72 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name

Designation

Dr. Amartya Kumar Gupta, Dr.
Devottam Banerjee
Technical In Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab in charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Strada 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

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-695023000004316F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/MM40B8

15/06/2023

MSKNB/FD/2023-24/06/VSF41E

08/06/2023

08/06/2023 - 15/06/2023

Permanent Facility

3000151489/A06, Date - 01/04/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Lingara Nadi Upstream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/MM40B8

Sample No. : MSKNB/FD/2023-24/06/VSF41E

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	20.0
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	8.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	24.74
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	258
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1988	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.69
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.24
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name: Dr. Amartya Kumar Gupta, Dr.

Designation: Devottam Banerjee
Technical in Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay

Lab in charge

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/3E40DW_1

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/W6U43Z_1

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Lingara Nadi Down stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/3E40DW_1

Sample No. : MSKNB/FD/2023-24/06/W6U43Z_1

RESULT

Sl No.	Parameter	UDM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2): 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34): 1988	1.44
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.36
6	Sulphide (as S)	mg/l	IS 3025 (Part 29): 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34): 1988	1.89
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

— END —

Reviewed By:

Signature : *Aspt* *Devottam Banerjee*
Name : Dr. Amartya Kumar Gupta, Dr. Devottam Banerjee
Designation : Technical in Charge

Authorized Signatory:

Signature : *Dr. Soumyadeep Mukhopadhyay*
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab in charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 12 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strachi Centre (6th Floor), 74B, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143009 / 22650007 Fax : 91 33 22650008
Email : info@mitrask.com Website : www.mitrask.com

Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695023000004317F

Report No. : MSKPL/FD/2023-24/3E40DW

Sample No. : MSKNB/FD/2023-24/06/W6U43Z

RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 38) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.08
24	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1988	BDL(DL:0.1)
25	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
26	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
27	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
28	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
29	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	6.2
30	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
31	pH	None	IS 3025 (Part 11) : 1984	7.5 AT 38 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Dr. Anantya Kumar Gupta, Dr.
Devoitam Banerjee
Designation : Technical in Charge

Authorized Signatory:

Signature

Name : Dr. Sourmyadeep Mukhopadhyay
Designation : Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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-695023000004317F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/3E40DW

Date :

15/06/2023

Sample No. :

MSKNB/FD/2023-24/06/W6U43Z

Date of receipt of sample:

08/06/2023

Date(s) of performance:

08/06/2023 - 15/06/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Lingara Nadi Down stream
4. Date of sampling	07/06/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17814 (P-23) :2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/3E40DW

Sample No. : MSKNB/FD/2023-24/06/W6U43Z

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	39.59
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	8.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	39.59
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	350
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2006	1.33
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.88
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Amartya Kumar Gupta, Dr.

Designation : Devottam Banerjee
Technical in Charge

Authorized Signatory:

Signature

Name

Designation

Dr. Soomyadeep Mukhopadhyay
Lab in charge

Mitra S. K. Private Limited**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695023000003734F

Report No. : MSKPL/FD/2023-24/2Z2ABV

Sample No. : MSKNB/FD/2023-24/05/A5AABH

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 38) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.22
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	AS PER COC
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	20
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	7.73 at 25 deg C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name : Ms. Paulami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature:

Name

Designation

Lab in-charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700019, West Bengal, India.
Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008
Email : info@mitrask.com Website : www.mitrask.com

Page 2 of 2

Mitra S. K. Private Limited

Doc No: MSKGEN/1907



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-695023000003734F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/2Z2ABV

Date :

17/05/2023

Sample No. :

MSKNB/FD/2023-24/05/A5AABH

Date of receipt of sample:

09/05/2023

Date(s) of performance:

09/05/2023 - 17/05/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	Kiahinda Up Stream
4. Date of sampling	08/05/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P - 23): 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/2Z2ABV

Sample No. : MSKNB/FD/2023-24/05/A5AABH

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	3.2
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	11.76
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	15.4
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	19.59
8	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	130
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	1.87
14	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.62
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE

Reviewed By:

Signature

Ms. Paulami Dutta

Name

Ms. Paulami Dutta

Designation

Sr. Executive QA

Authorized Signatory:

Signature

Dr. Soumyadeep Mukhopadhyay

Name

Dr. Soumyadeep Mukhopadhyay

Designation

Lab In-charge

Mitra S. K. Private Limited

Doc No. MSKGEN/1907



Address of Laboratory :

Building No. P- 49, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000003735F

Report No. : MSKPL/DF/2023-24/W82AB2

Sample No. : MSKNB/DF/2023-24/05/BMKA86

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL:0.05)
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.01)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	AS PER COC
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	8.0
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	7.6 at 25 deg C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature :
Name : Ms. Paulami Dutta
Designation : Sr. Executive QA

Authorized Signatory:

Signature :
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab in-charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Birachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel : 91 93 40143000 / 22650007 Fax: 91 33 22650000
Email: info@mitrask.com Website: www.mitrask.com

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-695023000003735F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/W82AB2

Date :

17/05/2023

Sample No. :

MSKNB/FD/2023-24/05/BMKA86

Date of receipt of sample:

09/05/2023

Date(s) of performance:

09/05/2023 - 17/05/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Kishinda Down Stream
4. Date of sampling	08/05/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P - 23): 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/W82AB2

Sample No. : MSKNB/FD/2023-24/05/BMKA86

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	23.52
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	7.7
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	73.48
8	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hezen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	458
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	1.03
14	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.08
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE

Reviewed By:

Signature

Name : Ms. Pautami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature

Name

Designation : Lab In-charge

Mitra S. K. Private Limited

Doc No. MSK/GEN/18/07



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-695023000003737F

Report No. : MSKPL/FD/2023-24/B42ABA

Sample No. : MSKNB/FD/2023-24/05/HYTAAN

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL:0.05)
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	AS PER COC
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	7.0
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	8.05 at 25 deg C

Opinion : NA

Statement of Conformity NA

-----END-----

Reviewed By:

Signature:
Name: Ms. Paulami Dutta
Designation: Sr. Executive QA

Authorized Signatory:

Signature:
Name: Dr. Soumyadeep Mukhopadhyay
Designation: Lab. In-charge

The results relate only to the sample tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), 74B, A.F.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143008 / 23650007 Fax : 91 33 23650008
Email : info@mitrask.com Website : www.mitrask.com

Page 2 of 2



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-695023000003737F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/B42ABA

Date :

17/05/2023

Sample No. :

MSKNB/FD/2023-24/05/HYTAAN

Date of receipt of sample:

09/05/2023

Date(s) of performance:

09/05/2023 - 17/05/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	Lingara Nadi Upstream
4. Date of sampling	08/05/2023
6. Place of sampling	NA
8. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17514 (P - 23) : 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/B42ABA

Sample No. : MSKNB/FD/2023-24/05/HYTAAN

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	15.68
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2005	11.50
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	44.09
8	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	310
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2068	0.92
14	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.12
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1954	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE

Reviewed By:

Signature

Name

Ms. Paulami Dutta

Designation

Sr. Executive QA

Authorized Signatory:

Signature

Name

Dr. Soumyadeep Mukhopadhyay

Designation

Lab in-charge

Head Office:

Branch Office (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.
Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008
Email : info@mitrask.com Website : www.mitrask.com

Page 1 of 2

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-695023000003215F

Report No. : MSKPL/FD/2023-24/CE120R

Sample No. : MSKNB/FD/2023-24/04/82DB61

RESULT

SI No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.31
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	28 deg C
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	25.4
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	7.4 AT 25 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Ms. Paulami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In-Charge

*The results relate only to the items tested.

*This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

*The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

*The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

*The retained part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree 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

Page 2 of 2

Mitra S. K. Private Limited

Doc No: MSKGEN/1907



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-695023000003215F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/CE120R

17/04/2023

MSKNB/FD/2023-24/04/8ZDB61

08/04/2023

08/04/2023 - 17/04/2023

Permanent Facility

3000151489/A08, Date - 01/04/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	Kishinda Up Stream
4. Date of sampling	07/04/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P - 23): 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/CE120R

Sample No. : MSKNB/FD/2023-24/04/8ZDB61

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	3.2
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	88
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	19.2
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	59.38
8	Chromium as Cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	616
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	10.1
14	Iron as Fe	mg/l	IS 3025 (Part 63) : 1988	0.54
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2016	AGREEABLE

Reviewed By:

Signature

Name : Ms. Paulami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab In-Charge

Head Office:

Shivachi Centre (1st Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22630001
Email : info@mitrask.com Website : www.mitrask.com

Page 1 of 2



Mitra S. K. Private Limited

Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695023000003216F

Report No. : MSKPL/FD/2023-24/W1203

Sample No. : MSKNB/FD/2023-24/04/9PKB9H

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.28
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	30 deg C
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	30.1
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	7.3 AT 25 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name:

Ms. Paulami Dutta

Designation:

Sr. Executive QA

Authorized Signatory:

Signature:

Name:

Dr. Soumyadeep Mukhopadhyay

Designation:

Lab In-Charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (5th Floor): 745, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650006
Email : info@mitrask.com Web:24: www.mitrask.com

Page 3 of 2



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-695023000003216F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/9W1203

Date :

17/04/2023

Sample No. :

MSKNB/FD/2023-24/04/9PKB9H

Date of receipt of sample:

08/04/2023

Date(s) of performance:

08/04/2023 - 17/04/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Kishinda Down Stream
4. Date of sampling	07/04/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P - 23) : 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/9W1203

Sample No. : MSKNB/FD/2023-24/04/9PKB9H

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	3.6
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	68.0
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2008	19.2
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	39.59
8	Chromium as Cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	492
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	4.21
14	Iron as Fe	mg/l	IS 3025 (Part 53) : 1988	0.88
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE

Reviewed By:

Signature

Name : Ms. Paulami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature

Name : Dr. Spurnyadeep 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-695023000003216F

Report No. : MSKPL/FD/2023-24/WH120B

Sample No. : MSKNB/FD/2023-24/04/FRYB8K

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
21	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
22	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL:0.05)
23	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
24	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
25	Temperature	Deg C	IS 3025 (Part 9) : 1984	29 deg C
26	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
27	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
28	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	4.7
29	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11) : 1984	7.93 at 25 deg C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name : Ms. Paulami Dutta

Designation : Sr. Executive QA

Authorized Signatory:

Signature:

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In-Charge

*The results relate only to the item(s) tested.

*This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

*The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

*The reserved part of sample(s) for chemical analysis (Sol, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

*The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700015, West Bengal, India
Tel. : 91 23 40143000 / 22656007 Fax : 91 23 22656008
Email : info@mitrask.com Website : www.mitrask.com

Page 2 of 2

Mitra S. K. Private Limited



Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695023000003218F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR, MERAMANDLI, DHENKANAL
ODISHA India Pin 758129

Report No. :

MSKPL/FD/2023-24/WH120B

Date :

17/04/2023

Sample No. :

MSKNB/FD/2023-24/04/FRYB8K

Date of receipt of sample:

08/04/2023

Date(s) of performance:

08/04/2023 - 17/04/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	Lingera Nadi Upstream
4. Date of sampling	07/04/2023
5. Place of sampling	NA
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P - 23), 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/WH120B

Sample No. : MSKNB/FD/2023-24/04/FRYB8K

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
2	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
3	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
5	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	32
6	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	7.66
7	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	34.64
8	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
9	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	294
11	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
13	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.86
14	Iron as Fe	mg/l	IS 3025 (Part 53) : 1988	0.07
15	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
16	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
17	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
18	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
19	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE

Reviewed By:

Signature:

Name :

Ms. Paulami Datta

Designation :

Sr. Executive QA

Authorized Signatory:

Signature:

Name :

Dr. Somnathdeep Mukhopadhyay

Designation :

Lab In-Charge

Head Office:

Service Centre (5th Floor) 74B, A. J. C. Bose Road, Kolkata - 700018, West Bengal, India.
Tel. : 91 33 40143000/22650007 Fax : 91 33 22650006
Email : info@mitrask.com Website : www.mitrask.com

Page 1 of 2

Mitra S. K. Private Limited

MSK/MSK/MSK/MSK

Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-6950230006051101

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.
NH-55 NARENDRAPUR, MERAMANDLI, DHENKANAL
ODISHA India Pin 759123

Report No. :

MSKPL/FD/2023-24/D2562J

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07AW59946

Date of receipt of sample:

06/07/2023

Date(s) of performance:

06/07/2023 - 14/07/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample (if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/D2562J

Sample No. : MSKNB/FD/2023-24/07AW59946

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL 0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL 2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	47.52
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2005	11.62
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	14.70
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(L 0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(L 1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	312
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL 0.02)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.67
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.38
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL 0.0002)
19	Nickel (as Ni)	mg/l	IS 3026 (Part 2) : 2004	BDL(DL 0.01)

Received By

Signature

Name

Designation

Atyayee Saha P. Ghosh

Ms. Atyayee Saha, Ms. Prati Ghosh

Sr. Exp. Chemist, Exp. Chemist

Authorized Signature

Signature

Name

Designation

[Signature]

Dr. Soumitra Ghosh

Lab. In-charge

Mitra S. K. Private Limited

Page No. MSKPL/01/007



Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-6950230600051:0F

Report No. : MSKPL/FD/2023-24/DZ562J

Sample No. : MSKNB/FD/2023-24/07AWS994G

RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL (DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL (DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL (DL:0.05)
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	3.8
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL (DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL (DL:0.005)
27	Temperature	DEG C	IS 3025 (Part 9) : 1984	25.6 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL (DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL (DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	4.6
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL (DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.52 AT 25.6 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Name

Designation

Aravind Kumar P. G.

Mr. Aravind Kumar P. G.

Senior Chemist / Env. Chemist

Authorized Signatory

Signature

Name

Designation

Aravind Kumar P. G.

Mr. Aravind Kumar P. G.

Lab In-charge

This report is valid only for the test specified.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The returned part of sample(s) for chemical analysis (Diss. - petroleum samples) Test: Water shall be retained for 15 days from the date of issue of the Test Report. Petroleum samples shall be retained 2 days from the date of issue of the Test Report.

The returned part of sample(s) for chemical analysis (Dist. Water & Liquid Samples) shall be retained for 15 days except for DPCO petroleum & 60 days for water from the date of issue of the Test Report.

The returned part of sample(s) for Microbiological analysis (Dist. - petroleum samples) Part: Dissolved Solids shall be retained for 15 days from the date of issue of the Test Report. Petroleum samples shall be retained 2 days from the date of issue of the Test Report.

Head Office: Street No. 20 (6th Floor) 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India
Tel: 01 23 40143000 / 230143007 Fax: 01 23 29650308
Email: info@mitrask.com Website: www.mitrask.com

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD

NH-55, NARENDRAPUR MERAMANDLI DHENKANAL
ODISHA India Pin 759129

Report No. :

MSKPLFD/2023-24/DZ562J_1

Date :

14/07/2023

Sample No. :

MSKNB/ID/2023-24/07/W59946_1

Date of receipt of sample :

06/07/2023

Date(s) of performance :

06/07/2023 - 14/07/2023

Reference No. & Date :

3005151459/A05 Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPLFD/2023-24/DZ562J_1

Sample No. : MSKNB/ID/2023-24/07/W59946_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) 1988	BDL(DL 0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) 1988	1.85
4	Particle Size of Suspended Solid	None	TPM/MSK/FOODW/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.20
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) 1991	BDL (DL 0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) 1988	2.01
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) 2004	BDL (DL 0.05)

Opinion : NA

----- END -----

Reviewed By

Signature

Name : Ms. Arayee Saha, Ms. Piali Ganguly

Designation : Sr. Exe. Chemist, Exe. Chemist

Authorized Signatory

Signature

Name : Dr. Soumyadip Mukherjee

Designation : Lab In charge

The reports relate only to the sample(s) tested

The Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited

The reserved part of sample(s) for physical analysis (Non-potable samples) (Solid Waste) shall be retained for 15 days from the date of issue of the Test Report. The residue sample(s) shall be retained 2 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Sol. Solid & Liquid Waste) shall be retained for 15 days as per CFCI Guidelines & (As 1) from the date of issue of the Test Report

The reserved part of sample(s) for Microbiological analysis (Non-potable samples) (Sol. Sealed Water/ Sealed Food) shall be retained for 15 days from the date of issue of the Test Report

Head Office: Service Centre (5th Floor) TATA, A J C Bose Road, Kolkata - 700016 West Bengal India
Tel : 91 33 40143000 / 22893007 Fax : 91 33 22656004
Email : info@mitrask.com, sales@mitrask.com, www.mitrask.com

Page 1 of 1

Mitra S. K. Private Limited

Doc No: MSK/PL/1507



Address of Laboratory :

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



TC-6950



Scan QR Portal

URL: TC-695023000005109F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/KV562F

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07/UT6917

Date of receipt of sample :

06/07/2023

Date(s) of performance :

06/07/2023 - 14/07/2023

Location of performance of

Permanaat Facility

Reference No. & Date :

3000151489/AC6, 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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Lingara Nadi Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C. Cold chain maintained
7. Sampling Plan & Method used	IS:17514 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/KV562F

Sample No. : MSKNB/FD/2023-24/07/UT6917

RESULT

Sl No.	Parameter	UCM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44): 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40): 1991	47.52
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58): 2006	15.36
8	Chloride as Cl	mg/l	IS 3025 (Part 32): 1988	14.70
9	Chromium as cr+6	mg/l	IS 3025 (Part 52): 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4): 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14): 2013	260
12	Copper as Cu	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27): 1986	BDL(DL:0.02)
14	Fluoride as F	mg/l	IS 3025 (Part 60): 2008	0.48
15	Iron as Fe	mg/l	IS 3025 (Part 53): 2003	10.75
16	Lead as Pb	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48): 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.01)

Requested By

Signature

Name

Designation

Mr. Abayjit Saha, Sr. Lab. Chemist

Sr. Lab. Chemist / Sr. Chemist

Authorized Signatory

Signature

Name

Designation

Lab. Manager

Mitra S. K. Private Limited

ISO No. 14001:2015



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-8850



Scan for Portal

ULR: TC-695023000005158F

Report No. : MSKPL/FD/2023-24/KV562F

Sample No. : MSKMB/FD/2023-24/07/UT6917

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL 1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL 0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.08
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	3.8
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL 0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.005)
27	Temperature	DEG C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL 0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	15.0
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.02)
32	pH	None	IS 3025 (Part 11) : 1984	6.74 AT 36 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By
 Signature: *Abhaya Saha*
 Name: Ms. Abhaya Saha, Ms. Pooi Ganguly
 Designation: Sr. Lab Chemist / Sr. Chemist

Authorized Signatory
 Signature: *[Signature]*
 Name: *[Name]*
 Designation: *[Designation]*

The results made may be liable to error if not without the participation of Mitra S.K. Private Limited. The Test Report shall not be reproduced or copied in full, without the permission of Mitra S.K. Private Limited. The returned part of samples for chemical analysis (Solid - particulate samples) of Soil, Water shall be retained for 15 days from the date of issue of the Test Report. The returned part of samples for chemical analysis (Solid - Total Kjeldahl Nitrogen) shall be retained for 15 days as per CPCB guideline & this 15 days from the date of issue of the Test Report. The returned part of samples for Microbiological analysis (Bacteriological) shall be retained for 15 days from the date of issue of the Test Report. The returned samples shall be retained for 2 days from the date of issue of the Test Report.

Mitra S. K. Private Limited



Address of Laboratory :
 Building No. P-48 Udayan Industrial Estate,
 J. Pagladanga Road, Kolkata 700015
 West Bengal
 Tel : +91 7044036129
 Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD

NH-55 NARENDRAPUR MERAMANDLI DHENKANAL
 ODISHA India Pin 759129

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Reference No. & Date :

MSKPL/FO/2023-24/KV562F_1

14/07/2023

MSKNB/FO/2023-24/07/UT6917_1

08/07/2023

06/07/2023 - 14/07/2023

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Lingara Nadi, Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Rangit Pradhan

Report No. : MSKPL/FO/2023-24/KV562F_1

Sample No. : MSKNB/FO/2023-24/07/UT6917_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 95 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) 1988	BDL (DL 0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) 1988	2.32
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.20
6	Sulphate (as S)	mg/l	IS 3025 (Part 29) 1991	BDL (DL 0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) 1988	2.60
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) 2004	BDL (DL 0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Name

Designation

Arayee Saha

Ms Arayee Saha, Ms. Prati Ganguly

Sr. Exe. Chemist, Exe. Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Gourpradeep Mukhopadhyay
 Lab In charge

The results relate only to the sample(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. The sample(s) shall be retained 2 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Solid, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & then 1 month from the date of issue of the Test Report

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Surface Water, Soiled Inert) shall be retained for 15 days from the date of issue of the Test Report

Head Office: Sreaha Centre (5th Floor) 248 A J C Bose Road, Kolkata - 700016, West Bengal, India
 Tel: 91 33 43143000 / 22650007 Fax: 91 33 22650009
 Email: info@mitrask.com Website: www.mitrask.com

Mitra S. K. Private Limited

Doc No: MSK/EN/1402



Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



TC-6960



Scan for Portal

ULR: TC-695023030005107F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FO/2023-24/VY562H

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07L9B95M

Date of sampling :

06/07/2023

Date(s) of performance :

06/07/2023 - 14/07/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000151489/A05, 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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/07/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FO/2023-24/VY562H

Sample No. : MSKNB/FD/2023-24/07L9B95M

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) 1988	BDL(DL 0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) 1993	BDL(DL 2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) 1991	43.56
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) 2006	16.36
8	Chloride as Cl	mg/l	IS 3025 (Part 32) 1988	46.98
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52) 2003	BDL(DL 0.01)
10	Colour	Hazen	IS 3025 (Part 4) 2021	BDL(DL 1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) 2013	468
12	Copper as Cu	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) 1986	BDL(DL 0.02)
14	Fluoride as F	mg/l	IS 3025 (Part 60) 2008	4.91
15	Iron as Fe	mg/l	IS 3025 (Part 53) 2003	0.95
16	Lead as Pb	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) 1994	BDL(DL 0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.01)

Reviewed by

Signature

Name

Designation

Abanipriya Saha
Ms. Abanipriya Saha, Ms. Pooja Ghosh
Sr. Env. Chemist / Env. Chemist

Authorized Signatory

Signature

Name

Designation

[Signature]
Mr. Ranjit Pradhan
Lab. Charge

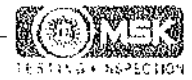
Head Office:

Siratra Centre (NH) Floor: 110, A.J.C. Bose Road, Kolkata - 700019, West Bengal, India
Tel: 91 33 40143000 / 23650091 Fax: 91 33 23670091
Email: info@mitrask.com Website: www.mitrask.com

Page 1 of 2

Mitra S. K. Private Limited

INC. N. MSKPL 00017



Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005107F

Report No. : MSKPL/FO/2023-24/VY562H

Sample No. : MSKNB/FO/2023-24/07L 9895M

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL 1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL 0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.11
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	4.5
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL 0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1989	BDL(DL 0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	9.0
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.2 AT 36 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Arunava Saha P. Ganguly

Name

Mr. Arunava Saha, Mr. Pankaj Ghosh

Designation

Sr. Lab. Chemist, Eco. Control

Authorized Signatory

Signature

Dr. Subhendu Mohapatra

Name

Dr. Subhendu Mohapatra

Designation

Lab. In-charge

The report is valid only to the extent stated.

The Test Report shall not be reproduced or used without the permission of Mitra S. K. Private Limited.

The returned part of sample(s) for chemical analysis of raw / processed sample(s) / End / Water shall be returned for 15 days from the date of issue of the Test Report. For stable sample(s) may be up to 30 days from the date of issue of the Test Report.

The returned part of sample(s) for chemical analysis of Soil / Sewer / Urinal / Wastewater shall be received for 15 days from the date of issue of the Test Report.

The returned part of sample(s) for Microbiology analysis of Air / potable / drinking / Tap / Ground Water / Rain / Soil shall be returned for 15 days from the date of issue of the Test Report. For stable sample(s) may be up to 30 days from the date of issue of the Test Report.

Head Office: Shree Centre, 55/5, Ebad, 74B, A J C Bose Road, Kolkata - 700016, West Bengal, India
Tel: 91 33 40143602 / 22050091 Fax: 91 33 22050091
Email: info@mitrask.com Website: www.mitrask.com

Mitra S. K. Private Limited



Address of Laboratory :

Building No. P-48 Udayan Industrial Estate,
3, Paglodanga Road, Kolkata 700015
West Bengal
Tel : +91 7044038120
Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR, MERAMANDLI DHENKANAL
ODISHA India Pin 758129

Report No. :

MSKPL/FD/2023-24/VY562H_1

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07L9B99M_1

Date of recpt of sample:

06/07/2023

Date(s) of performance:

08/07/2023 - 14/07/2023

Reference No. & Date :

3000151489/A06 Date : 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (If any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK.	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/VY562H_1

Sample No. : MSKNB/FD/2023-24/07L9B99M_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6562 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) - 1988	BDL (DL 0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) 1988	2.01
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro mesh IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.56
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) 1991	BDL (DL 0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) 1988	2.84
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) 2004	BDL (DL 0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Atrayee Saha - P Ganguly

Name

Ms. Atrayee Saha, Ms. Piali Ganguly

Designation

Sr. Exe. Chemist, Exe. Chemist

Authorized Signatory

Signature

Dr. Soumyadeep Mukhopadhyay

Name

Dr. Soumyadeep Mukhopadhyay

Designation

Lab In charge

The results relate only to the item(s) tested.
The Test Report shall not be reproduced or copy in full without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (In all - portable sample(s) of Food, Water) shall be retained for 15 days from the date of issue of the Test Report. For those sample(s) that be retained 7 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCRI guideline & (As per 1 month from the date of issue of the Test Report).
The reserved part of sample(s) for Microbiological analysis (In all - portable sample(s) of Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shyam Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India
Tel: 91 33 40143000 / 22600002 Fax: 91 33 22600006
Email: info@mitrask.com Website: www.mitrask.com

Page 1 of 1

Mitra S. K. Private Limited

MSKPL/MSKPL/MSKPL



Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel : 491 7044036120
Email: udayanlab@milsk.com



TC-6950



Scan for Portal

ULR: TC-695023020005106F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/GV5625

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07/EBN8FG

Date of receipt of sample:

06/07/2023

Date(s) of performance:

05/07/2023 - 14/07/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample (if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Kishinda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/GV5625

Sample No. : MSKNB/FD/2023-24/07/EBN8FG

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) 1988	BDL(DL 0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) 1993	BDL(DL 2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) 1991	43.56
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) 2006	11.52
8	Chloride as Cl	mg/l	IS 3025 (Part 32) 1988	48.88
9	Chromium as Cr+6	mg/l	IS 3025 (Part 62) 2003	BDL(DL 0.01)
10	Colour	Hazen	IS 3025 (Part 4) 2021	BDL(DL 1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) 2013	424
12	Copper as Cu	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) 1986	BDL(DL 0.02)
14	Fluoride as F	mg/l	IS 3025 (Part 60) 2008	8.18
15	Iron as Fe	mg/l	IS 3025 (Part 53) 2003	0.52
16	Lead as Pb	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) 1994	BDL(DL 0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) 2004	BDL(DL 0.01)

Received By

Signature

Name

Designation

Arayee Saha
Ms. Arayee Saha, Ms. Pral Ganguly

SI. Exe. Chemist, Lab. Chemist

Authorized Signatory

Signature

Name

Designation

[Signature]
Dr. Subhendu Kumar Pradhan

Lab. in charge

Head Office: 5th Floor (5th Floor) 246, A. J. C. Bose Road, Kolkata - 700016 West Bengal, India
Tel : 91 33 49143000 / 22950007 Fax : 91 33 22950036
Email: info@milsk.com Website: www.milsk.com

Page 1 of 2

Mitra S. K. Private Limited

DIR. NO. MSK/GEN/2017



Address of Laboratory :

Building No. P- 40, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

URL: TC-695023000005106F

Report No. : MSKPL/FD/2023-24/GV5625

Sample No. : MSKNB/FD/2023-24/07/EBN6F6

RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL 1.4)
22	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL 0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL 0.05)
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	3.3
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL 0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1964	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL 0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	4.0
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL 0.02)
32	pH	None	IS 3025 (Part 11) : 1984	6.91 AT 36 DEG C

Opinion : NA

Statement of Conformity : NA

----- END -----

Reviewed By

Signature

Name

Designation

Arayee Saha P. Ganguly

Ms. Arayee Saha, Ms. Pran Ganguly

Sr. Exe. Chemist, Exe. Chemist

Authorized Signatory

Signature

Name

Designation

[Signature]

Dr. Shobhit Kumar Mishra, Ph.D.

Lab. In-Charge

The report refers only to the items tested.
The Test Report shall not be reproduced or used in any way without the permission of Mitra S. K. Private Limited.
The returned part of sample(s) for chemical analysis from a specific sample(s) must be retained for 30 days from the date of issue of the Test Report.
The returned part of sample(s) for elemental analysis (Iron, Cadmium & Lead) must be retained for 15 days as per CPCB guidelines & after 15 days from the date of issue of the Test Report.
The returned part of sample(s) for Microbiological analysis (Total Coliform Count, Faecal Coliform, Streptococci) must be retained for 15 days from the date of issue of the Test Report. The returned sample(s) must be retained 2 weeks from the date of issue of the Test Report.

Head Office: Service Centre (Bk. Floor) 249, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India
Tel: 91 33 26143600 / 22650007 Fax: 91 33 22650033
Email: info@mitrask.com Website: www.mitrask.com

Mitra S. K. Private Limited



Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udnyanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NI-65, NARENDRAPUR, MERAMANDLI, DHENKANAL
ODISHA India Pin 759129

Report No. :

MSKPL/FD/2023-24/GV5625_1

Date :

14/07/2023

Sample No. :

MSKNB/FD/2023-24/07/E8N8F6_1

Date of receipt of sample :

06/07/2023

Date(s) of performance :

06/07/2023 - 14/07/2023

Reference No. & Date :

3090151499/A05, Date - 01/04/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/07/2023
5. Place of sampling	Krishnda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C. Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2022
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/GV5625_1

Sample No. : MSKNB/FD/2023-24/07/E8N8F6_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) 1988	1.60
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	1.42
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) 1988	1.87
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature

Name

Designation

Aranya Saha P. Ganguly
Ms Aranya Saha, Ms Pali Ganguly
Sr. Exe. Chemist, Exe. Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Dr. Soumyadeep Mukhopadhyay
Lab in charge

The results relate only to the sample(s) tested.
This Test Report shall not be reproduced or copied in full without the permission of Mitra S. K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non-separable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report. For strap-on samples, shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sol, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline A (Part 1) from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non-separable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Rivanta Centre (5th Floor) 74B, A.J.C. Bose Road Kolkata - 700016, West Bengal, India
Tel: 91 33 40143000 / 22650007 Fax: 91 33 22650009
Email: info@mitrask.com Website: www.mitrask.com

Page 1 of 1



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-695023000005936F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/M5692M

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/SXU62U

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/M5692M

Sample No. : MSKNB/FD/2023-24/08/SXU62U

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	31.04
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	7.7
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	14.85
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	240
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.27
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.97
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 46) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature:
Name: Dr. Devottam Banerjee, Dr. Ananya Gupta
Designation: Technical In charge

Authorized Signatory:

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



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-695023000005936F

Report No. : MSKPLFD/2023-24/M5692M

Sample No. : MSKNB/FD/2023-24/08/SXU62U

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 51) : 1988	BDL(DL:0.05)
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	3.0
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	7.0
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.60 AT 32-DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:
Name: Dr. Devotam Banerjee, Dr. Amartya Gupta
Designation: Technical in charge

Authorized Signatory

Signature:
Name: Dr. Saunjanee Mukhopadhyay
Designation: Lab in charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The retained part of sample(s) for chemical analysis (Cool, Cold & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Basted Water, Basted food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Mitra S. K. Private Limited



Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044038120
Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/M5692M_1

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/SXU62U_1

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS-17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/M5692M_1

Sample No. : MSKNB/FD/2023-24/08/SXU62U_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	0.89
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	3.61
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.14
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Dr. Debobrata Banerjee, Dr. Anurag Gupta

Designation : Technical In-charge

Authorized Signatory:

Signature :

Name : Dr. Subrata Kumar Mukherjee

Designation : Lab In-charge

The results relate only to the sample(s) tested.
The Test Report shall not be reproduced, stored in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Food - sediment sampling) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for physical analysis (Food - Liquid Water) shall be retained for 15 days for per CPCB guidelines & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Food - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695023000005935F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/SB692G

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/S6Y5D0

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000151469/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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Lingara Nadi Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/SB692G

Sample No. : MSKNB/FD/2023-24/08/S6Y5D0

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	19.40
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	11.5
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	19.79
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	230
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1988	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.22
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.88
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed by:

Signature:
Name: Dr. Devotion Banerjee, Dr. Anshu Gupta
Designation: Technical in charge

Authorized Signatory:

Signature:
Name: Dr. Soumyajit Mukherjee
Designation: Lab in charge



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-695023000005935F

Report No. : MSKPL/FD/2023-24/SB692G

Sample No. : MSKNB/FD/2023-24/08/S6Y5D0

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.09
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	3.2
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	16
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.04 AT 32 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:
Name: Dr. Devottam Banerjee, Dr. Aranya Gupta
Designation: Technical in charge

Authorized Signatory:

Signature:
Name: Dr. Soumyadeep Mukherjee
Designation: Lab in charge

The results relate only to the sample(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044038120
Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/SB692G_1

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/S6Y5D0_1

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Ungara Nadi Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/SB692G_1

Sample No. : MSKNB/FD/2023-24/08/S6Y5D0_1


RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.08
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	4.81
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1986	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.42
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature : 
Name : Dr. Devottam Banerjee, Dr. Ananya Gupta
Designation : Technical in charge

Authorized Signatory

Signature : 
Name : Dr. Ananya Gupta
Designation : Lab in charge

The reports issued only to the clients listed below. All other reports issued by Mitra S.K. Private Limited. This Test Report shall not be reproduced without the written permission of Mitra S.K. Private Limited. The retained part of sample(s) for chemical analysis (Solid & Liquid Media) shall be retained for 15 days as per CPCB guideline 6.4(A) 1 month from the date of issue of the Test Report. The retained part of sample(s) for microbiological analysis (Food, Drinking Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044038120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005933F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR, MERAMANDLI, DHENKANAL
ODISHA India Pin 759128

Report No. :

MSKPL/FD/2023-24/29692H

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/FND5ET

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000161489/A05, 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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/29692H

Sample No. : MSKNB/FD/2023-24/08/FND5ET

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44): 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40): 1991	38.60
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58): 2006	11.5
8	Chloride as Cl	mg/l	IS 3025 (Part 32): 1988	24.74
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52): 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4): 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14): 2013	315
12	Copper as Cu	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27): 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60): 2008	2.40
15	Iron as Fe	mg/l	IS 3025 (Part 53): 2003	1.18
16	Lead as Pb	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48): 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.01)

Reviewed By:

Signature:
Name: Dr. Devotam Banerjee, Dr. Anarjya Gupta
Designation: Technical in charge

Authorized Signatory:

Signature:
Name: Dr. Saurabh Kumar
Designation: Lab in charge

Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayaniab@mitrask.com



TC-8950



Scan for Portal

ULR: TC-695023000005933F

Report No. : MSKPL/FD/2023-24/29692H

Sample No. : MSKNB/FD/2023-24/08/FND5ET

RESULT


Chemical				
Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.11
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.7
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1988	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	9.0
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	6.91 AT 32 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature: 
Name: Dr. Devotam Banerjee, Dr. Amritya Gupta

Designation: Technical in charge

Authorized Signatory:

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

The results relate only to the sample tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Petroleum-soluble samples) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Oil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Petroleum-soluble samples) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 2 days from the date of issue of the Test Report.

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

NH-55, NARENDRAPUR, MERAMANDI, DHENKANAL
ODISHA India Pin 769129

Report No. :

MSKPL/FD/2023-24/29692H_1

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/FND5ET_1

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/29692H_1

Sample No. : MSKNB/FD/2023-24/08/FND5ET_1


RESULT

Chemical				
Sl No	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 8582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.02
4	Particle Size of Suspended Solid	None	TPMMSK/FOODW/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	4.8
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1988	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.58
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature : 
Name : Dr. Divyansu Barik, Dr. Ananya Gupta
Designation : Technical In charge

Authorized Signatory:

Signature : 
Name : Dr. Divyansu Barik
Designation : Lab In charge

The results relate only to the items tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days from the date of issue of the Test Report. Periodic analysis shall be retained 3 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days in per DPCO guideline & OAS 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Soil, perishable sample(s) Food, Sewage Water, Sewage Sludge) shall be retained for 15 days from the date of issue of the Test Report. Periodic analysis shall be retained 3 days from the date of issue of the Test Report.

Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695023000005932F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/XT692F

Date :

16/08/2023

Sample No. :

MSKNB/FD/2023-24/08/9SK5FD

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Kishinda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/XT692F

Sample No. : MSKNB/FD/2023-24/08/9SK5FD

RESULT

Sl No.	Parameter	UCM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44): 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40): 1991	34.92
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58): 2006	7.7
8	Chloride as Cl	mg/l	IS 3025 (Part 32): 1988	19.79
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52): 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4): 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14): 2013	284
12	Copper as Cu	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27): 1988	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60): 2008	2.69
15	Iron as Fe	mg/l	IS 3025 (Part 53): 2003	0.68
16	Lead as Pb	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48): 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.01)

Reviewed By:

Signature:
Name: Dr. Devottam Banerjee, Dr. Ananya Gupta
Designation: Technical In charge

Authorized Signatory:

Signature:
Name: Dr. Soumyajit Mukherjee
Designation: Lab in charge

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-695023000005932F

Report No. : MSKPL/FD/2023-24/XT692F

Sample No. : MSKNB/FD/2023-24/08/9SK5FD

RESULT

Sr No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.08
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.4
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	26 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.80
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	6.2
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.32 AT 32 DEGC

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature: 
Name: Dr. Davottam Banerjee, Dr. Anshika Gupta

Designation: Technical in charge

Authorized Signatory:

Signature: 
Name: Dr. Soumyajit Mukherjee

Designation: Lab in charge

The results relate only to the sample(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Mitra S. K. Private Limited

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.
NH-55, NARENDRAPUR, MERAMANDLI, DHENKANAL
ODISHA India Pin 759129

Report No. : MSKPL/FD/2023-24/XT692F_1
Date : 16/08/2023
Sample No. : MSKNB/FD/2023-24/08/9SK5FD_1
Date of receipt of sample: 07/08/2023
Date(s) of performance: 07/08/2023 - 16/08/2023
Reference No. & Date : 3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Kahinda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/XT692F_1

Sample No. : MSKNB/FD/2023-24/08/9SK5FD_1

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 8582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (T _F =1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	1.20
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	5.47
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1988	BDL(DL:0.02)
7	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By:

Signature :
Name : Dr. Devanand Banerjee, Dr. Ananta Gupta
Designation : Technical in charge

Authorized Signatory:

Signature :
Name : Dr. Soumitra Kumar Mukherjee
Designation : Lab in charge

The results relate only to the sample tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The retention period of samples for chemical analysis (Solid, Liquid & Gas) shall be retained for 15 days from the date of issue of the Test Report. (Perishable samples) shall be retained 2 days from the date of issue of the Test Report.
The retained part of samples for chemical analysis (Solid, Liquid & Gas) shall be retained for 15 days in per CPCB guideline & (MS) 1 month from the date of issue of the Test Report.
The retained part of samples for Microbiological Analysis (Bacteriological Examination) Food, Surface Water, Drinking Water shall be retained for 15 days from the date of issue of the Test Report. (Perishable samples) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,
3, Pagiadanga Road, Kolkata 700015
West Bengal
Tel : +91 7044035120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005554F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD

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

Report No. :

MSKPL/FO/2023-24/LW826F

Date :

14/09/2023

Sample No. :

MSKNB/FO/2023-24/09/PDL7FT

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FO/2023-24/LW826F

Sample No. : MSKNB/FO/2023-24/09/PDL7FT

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	31.68
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2008	7.7
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	19.59
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	270
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.55
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.22
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Devottam Banerjee, Dr. Anurag Kumar Gupta

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Devottam Banerjee, Dr. Anurag Kumar Gupta

Designation : Technical In charge



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-695023000006554F

Report No. : MSKPL/FD/2023-24/LW826F

Sample No. : MSKN8/FD/2023-24/09/PDL7FT

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.08
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.8
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	BDL(DL:2.5)
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.52 AT 25.2 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed by:

Signature:
Name: Dr. Devottam Banerjee, Dr. Amarya Kumar Gupta
Designation: Technical in charge

Authorized Signatory:

Signature:
Name: Dr. Devottam Banerjee, Dr. Amarya Kumar Gupta
Designation: Technical in charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Sol - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sol, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Aq) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Sol - perishable sample(s) Food, Sewed Water, Sewed load) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/LW826F_1

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/PDL7FT_1

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Lingara Nadi Down stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/LW826F_1

Sample No. : MSKNB/FD/2023-24/09/PDL7FT_1


RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	0.92
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	4.44
6	Sulphide (as S)	mg/l	IS 3025 (Part 26) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.45
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)


Opinion : NA

----- END -----

Reviewed By:

Signature : 
Name : Dr. Devotam Banerjee, Dr. Aranya Kumar Gupta
Designation : Technical In charge

Authorized Signatory:

Signature : 
Name : Dr. Devotam Banerjee, Dr. Aranya Kumar Gupta
Designation : Technical In charge

The results apply only to the sample tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The retained part of sample(s) for chemical analysis (Sol. Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (R) 1 month from the date of issue of the Test Report.
The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Baked Water, Baked food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.


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-695023000006553F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/LD826C

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/K5H81C

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Lingera Nadi Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/LD826C

Sample No. : MSKNB/FD/2023-24/09/K5H81C

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34): 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44): 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40): 1991	39.60
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58): 2006	15.4
8	Chloride as Cl	mg/l	IS 3025 (Part 32): 1988	24.48
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52): 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4): 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14): 2013	336
12	Copper as Cu	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27): 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60): 2008	0.63
15	Iron as Fe	mg/l	IS 3025 (Part 53): 2003	0.15
16	Lead as Pb	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48): 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2): 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Devotam Banerjee, Dr. Ananya Kumar Gupta

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Devotam Banerjee, Dr. Ananya Kumar Gupta

Designation : Technical In charge



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-695023000006553F

Report No. : MSKPL/FD/2023-24/LD826C

Sample No. : MSKNB/FD/2023-24/09/K5H81C

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	BDL(DL:0.05)
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.9
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	2.8
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	6.77 AT 25.2 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:
Name: Dr. Devottam Banerjee, Dr. Anartya Kumar Gupta
Designation: Technical In charge

Authorized Signatory:

Signature:
Name: Dr. Devottam Banerjee, Dr. Anartya Kumar Gupta
Designation: Technical In charge

The results refer only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The retained part of sample(s) for chemical analysis (from perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The retained part of sample(s) for Microbiological analysis (from perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/LD826C_1

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/K5H81C_1

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Lingera Nadi Upstream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/LD826C_1

Sample No. : MSKNB/FD/2023-24/09/K5H81C_1

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	0.81
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	6.02
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.02
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)

Opinion : NA

----- END -----

Reviewed By

Signature



Name : Dr. Devottam Banerjee, Dr. Ansharya Kumar Gupta

Designation : Technical in charge

Authorized Signatory

Signature



Name : Dr. Devottam Banerjee, Dr. Ansharya Kumar Gupta

Designation : Technical in charge

The results relate only to the sample tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Solid, Bivalve & Liquid Waste) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Solid, Bivalve & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Solid, Bivalve & Liquid Waste) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.


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-695023000006551F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/4M8265

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/9ZV86F

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/4M8265

Sample No. : MSKNB/FD/2023-24/09/9ZV86F

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	27.72
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	11.5
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	19.59
9	Chromium as cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	220
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2008	0.79
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	1.08
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Name : Dr. Devottari Banerjee, Dr. Anantya Kumar Gupta

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Devottari Banerjee, Dr. Anantya Kumar Gupta

Designation : Technical In charge



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-69502300006551F

Report No. : MSKPL/FD/2023-24/4M0205

Sample No. : MSKNB/FD/2023-24/09/9ZV86F

RESULT

Sl No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.08
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.4
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	16
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.31 AT 25.2 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature: *Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta*
Name: Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

Authorized Signatory

Signature: *Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta*
Name: Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

The results relate only to the body(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The retained part of sample(s) for chemical analysis (Sol, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (AW) 1 month from the date of issue of the Test Report.
The retained part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

Building No P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700016
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/4MB265_1

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/9ZV86F_1

Date of receipt of sample:

08/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Kishinda Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/4MB265_1

Sample No. : MSKNB/FD/2023-24/09/9ZV86F_1

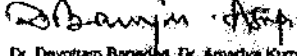
RESULT

Sl No.	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (TF=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34) : 1988	0.89
4	Particle Size of Suspended Solid	None	TPM/MSK/FOGD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	3.96
6	Sulphide (as S)	mg/l	IS 3025 (Part 29) : 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34) : 1988	1.05
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)


Opinion : NA

----- END -----

Reviewed By

Signature: 
Name: Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

Authorized Signatory:

Signature: 
Name: Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

The results relate only to the sample(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Soil, Bore & Liquid wastes) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Bore & Liquid wastes) shall be retained for 15 days as per CPCB guidelines & (As) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological (Water - potable & non-potable) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 2 days from the date of issue of the Test Report.

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-695023000006550F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/FT826C

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/9JC82G

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

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	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Kishinda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/FT826C

Sample No. : MSKNB/FD/2023-24/09/9JC82G

RESULT

Sl No.	Parameter	UOM	Method	Result
1	Ammonia (as total ammonia- N)	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
2	Arsenic as As	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44) : 1993	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40) : 1991	27.72
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58) : 2006	11.5
8	Chloride as Cl	mg/l	IS 3025 (Part 32) : 1988	24.49
9	Chromium as Cr+6	mg/l	IS 3025 (Part 52) : 2003	BDL(DL:0.01)
10	Colour	Hazen	IS 3025 (Part 4) : 2021	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14) : 2013	230
12	Copper as Cu	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) : 1986	BDL(DL:0.01)
14	Fluoride as F	mg/l	IS 3025 (Part 60) : 2006	0.98
15	Iron as Fe	mg/l	IS 3025 (Part 53) : 2003	0.18
16	Lead as Pb	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
17	Manganese as Mn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
18	Mercury as Hg	mg/l	IS 3025 (Part 48) : 1994	BDL(DL:0.0002)
19	Nickel (as Ni)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)

Reviewed By:

Signature

Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta

Name

Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta

Designation

Technical In charge

Authorized Signatory

Signature

Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta

Name

Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta

Designation

Technical In charge

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-695023000006550F

Report No. : MSKPL/FD/2023-24/FT026C

Sample No. : MSKNB/FD/2023-24/09/9JC82G

RESULT

SI No.	Parameter	UOM	Method	Result
20	Odour	None	IS 3025 (Part 5) : 2018	AGREEABLE
21	Oil & Grease	mg/l	IS 3025 (Part 39) : 1991	BDL(DL:1.4)
22	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) : 1992	BDL(DL:0.001)
23	Phosphate as P	mg/l	IS 3025 (Part 31) : 1988	0.11
24	Potassium as K	mg/l	IS 3025 (Part 2) : 2004	2.3
25	Residual Free Chlorine	mg/l	IS 3025 (Part 26) : 1986	BDL(DL:0.1)
26	Selenium as Se	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.005)
27	Temperature	Deg C	IS 3025 (Part 9) : 1984	25 DEG C
28	Total Chromium as Cr	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.01)
29	Total Kjeldahl Nitrogen	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.3)
30	Total Suspended Solids	mg/l	IS 3025 (Part 17) : 1984	15
31	Zinc as Zn	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.02)
32	pH	None	IS 3025 (Part 11) : 1984	7.42 AT 25.2 DEG C

Opinion : NA

Statement of Conformity NA

-----END-----

Reviewed By:

Signature:
Name: Dr. Devotam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

Authorized Signatory

Signature:
Name: Dr. Devotam Banerjee, Dr. Amartya Kumar Gupta
Designation: Technical in charge

The results relate only to the sample(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCRI Guidelines & (AS) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s)) Food, Sewage Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Address of Laboratory :

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



Scan for Portal

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/FD/2023-24/FT826C_1

Date :

14/09/2023

Sample No. :

MSKNB/FD/2023-24/09/9JC82G_1

Date of receipt of sample:

06/09/2023

Date(s) of performance:

06/09/2023 - 14/09/2023

Reference No. & Date :

3000151489/A06, Date - 01/04/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/09/2023
5. Place of sampling	Kishinda Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Ranjit Pradhan

Report No. : MSKPL/FD/2023-24/FT826C_1

Sample No. : MSKNB/FD/2023-24/09/9JC82G_1

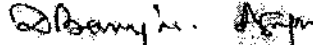
RESULT

Sl No	Parameter	UOM	Method	Result
1	Bio-Assay	None	IS 6582 (Part-2) 2001	All fishes survived in 100% surface water after 96 hrs (F=1)
2	Free Ammonia	mg/l	IS 3025 (Part 34) : 1988	BDL(DL:0.1)
3	Nitrate Nitrogen	mg/l	IS 3025 (Part 34): 1988	0.88
4	Particle Size of Suspended Solid	None	TPM/MSK/FOOD/W/10	Passes through 850 micro meter IS sieve
5	Sodium Absorption Ratio (SAR)	mg/l	By Calculation	3.96
6	Sulphide (as S)	mg/l	IS 3025 (Part 29): 1991	BDL(DL:0.02)
7	Total Nitrogen Content	mg/l	IS 3025 (Part 34): 1988	1.05
8	Vanadium (as V)	mg/l	IS 3025 (Part 2) : 2004	BDL(DL:0.05)


Opinion : NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation : Technical In charge

Authorized Signatory

Signature : 
Name : Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta
Designation : Technical In charge

The results relate only to the samples tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste(s)) shall be retained for 15 days from the date of issue of the Test Report. For suitable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable Sample(s) Food, Sealed Water, Baked food) shall be retained for 15 days from the date of issue of the Test Report. For suitable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Details of BF Slag Generation and Utilization
(Period: April 2023 – September 2023)

Month	Quantity Generated (MT)	Quantity Dispatched (MT)
Apr'23	163669	191106
May'23	174058	208292
Jun'23	127217	98014
Jul'23	125070	96411
Aug'23	170491	157607
Sep'23	175675	187713
Total	936180	939143

Details of LD Slag Generation and Utilization
(Period: April 2023 – September 2023)

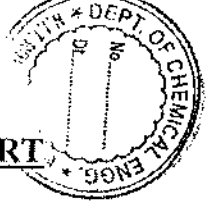
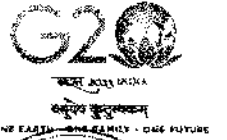
Month	Quantity Generated (MT)	Quantity Dispatched (MT)
Apr'23	73020	99128
May'23	101177	126891
Jun'23	62639	127511
Jul'23	68610	105232
Aug'23	90234	153872
Sep'23	83984	159434
Total	479664	772068



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

CH/0926 dt 22.11.2023

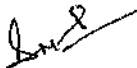
75
Azadi Ka
Amrit Mahotsav
FTS-92464



BLAST FURNACE SLAG COMBINED QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BF SLAG combined
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 20th 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	%	32.84±0.5
2	FeO	Photometric/XRF	%	0.92±0.1
3	Al ₂ O ₃	Photometric/XRF	%	22.54±0.5
4	CaO	Photometric/XRF	%	32.82±0.5
5	MgO	Photometric/XRF	%	8.30±0.5
6	MnO	Photometric/XRF	%	0.02±0.01
7	Sulphur	Photometric/XRF	%	0.40±0.01
8	TiO ₂	Photometric/XRF	%	0.85±0.01
9	K ₂ O	Photometric/XRF	%	0.81±0.01
10	Basicity	Photometric/XRF	-----	1.01


Tested BY

Abanti Sahoo
Authorized Signatory

HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India.

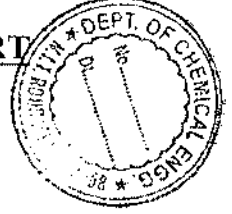
Soumya S. Mohapatra
Reviewed BY

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



BLAST FURNACE SLAG COMBINED QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BF SLAG combined
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 20th 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	0.965
2	As	US-EPA Method	mg/Kg	407
3	Se	US-EPA Method	mg/Kg	7.7
4	Sb	US-EPA Method	mg/Kg	201
5	Ba	US-EPA Method	mg/Kg	169
6	Cd	US-EPA Method	mg/Kg	53.4
7	Cr	US-EPA Method	mg/Kg	40.36
8	Cr(VI)	US-EPA Method	mg/Kg	.956
9	Pb	US-EPA Method	mg/Kg	1.02
10	Mn	US-EPA Method	mg/Kg	1.01
11	Ag	US-EPA Method	mg/Kg	3.09
12	Co	US-EPA Method	mg/Kg	179
13	Cu	US-EPA Method	mg/Kg	526
14	Mo	US-EPA Method	mg/Kg	BDL
15	Ni	US-EPA Method	mg/Kg	81.32
16	V	US-EPA Method	mg/Kg	BDL
17	Zn	US-EPA Method	mg/Kg	82

Tested BY

Abanti Sahoo
Authorized Signatory
HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India

Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
National Institute of Technology



SM2 LD SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : SM 2 LD SLAG
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
COMPOSITIONAL ANALYSIS REPORT				
1	SiO ₂	Photometric/XRF	%	14.09±0.5
2	FeO	Photometric/XRF	%	19.49±0.1
3	Al ₂ O ₃	Photometric/XRF	%	1.27±0.5
4	CaO	Photometric/XRF	%	44.12±0.5
5	MgO	Photometric/XRF	%	10.96±0.5
6	MnO	Photometric/XRF	%	1.10±0.01
7	Sulphur	Photometric/XRF	%	0.07±0.01
8	TiO ₂	Photometric/XRF	%	1.24±0.01
9	P2O5	Photometric/XRF	%	1.62±0.01
10	Basicity	Photometric/XRF	-----	3.58

Surp
Tested BY

Soumya S. Mohapatra
Reviewed BY

Abanti Sahoo
Authorized Signatory

HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India.

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



SM 2LD SLAG QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : SM 2 LD SLAG
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	0.965
2	As	US-EPA Method	mg/Kg	22.2
3	Se	US-EPA Method	mg/Kg	0.7
4	Sb	US-EPA Method	mg/Kg	1.1
5	Ba	US-EPA Method	mg/Kg	124.6
6	Cd	US-EPA Method	mg/Kg	7.2
7	Cr	US-EPA Method	mg/Kg	131.7
8	Cr(VI)	US-EPA Method	mg/Kg	.956
9	Pb	US-EPA Method	mg/Kg	1.02
10	Mn	US-EPA Method	mg/Kg	305.6
11	Ag	US-EPA Method	mg/Kg	2.09
12	Co	US-EPA Method	mg/Kg	34.2
13	Cu	US-EPA Method	mg/Kg	57.5
14	Mo	US-EPA Method	mg/Kg	6.9
15	Ni	US-EPA Method	mg/Kg	1053.32
16	V	US-EPA Method	mg/Kg	103.01
17	Zn	US-EPA Method	mg/Kg	82.13

Tested BY

Abanti Sahoo
HEAD OF THE
Authorized Signatory
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology

Reviewed BY

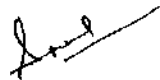
Prof. Saumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
Principal, IIT Rourkela



ETP 3 SLUDGE QUALITY ANALYSIS REPORT

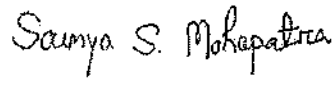
1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : ETP 3 SLUDGE
3. Date of Sampling : 10th JULY, 2023
4. Date of Analysis : 22nd JULY, 2023
5. Sample Collected By : Mr. P. SAHU, N.I.T, Rourkela

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
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


Authorized Signatory

HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India


Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
NIT Rourkela



ETP 3 SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : ETP 3 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	0.965
2	As	US-EPA Method	mg/Kg	22.2
3	Se	US-EPA Method	mg/Kg	0.7
4	Sb	US-EPA Method	mg/Kg	1.1
5	Ba	US-EPA Method	mg/Kg	124.6
6	Cd	US-EPA Method	mg/Kg	7.2
7	Cr	US-EPA Method	mg/Kg	131.7
8	Cr(VI)	US-EPA Method	mg/Kg	0.956
9	Pb	US-EPA Method	mg/Kg	1.02
10	B	US-EPA Method	mg/Kg	305.6
11	Ag	US-EPA Method	mg/Kg	2.09
12	Co	US-EPA Method	mg/Kg	34.2
13	Cu	US-EPA Method	mg/Kg	57.5
14	Mo	US-EPA Method	mg/Kg	6.9
15	Ni	US-EPA Method	mg/Kg	1053.32
16	V	US-EPA Method	mg/Kg	103.01
17	Zn	US-EPA Method	mg/Kg	82.13
18	F	US-EPA Method	mg/Kg	BDL
19	CN	US-EPA Method	mg/Kg	BDL



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

75
Azadi Ka
Amrit Mahotsav



20	Hydrazine	US-EPA Method	mg/Kg	BDL
21	Phenols	US-EPA Method	mg/Kg	BDL
22	Total N	US-EPA Method	mg/Kg	BDL
23	NH ₄ - N	US-EPA Method	mg/Kg	BDL
24	NO ₃ - N	US-EPA Method	mg/Kg	BDL
25	OIL	US-EPA Method	mg/Kg	103.4

Tested BY

Soumya S. Mohapatra

Reviewed BY

Abanti Sahoo
Authorized Signatory


Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
NIT Rourkela



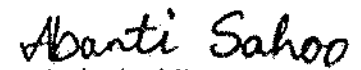
FLYASH BF-PP-1 QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : FLYASH BF- PP- 1
3. Date of Sampling : 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	%	56.22±0.5
2	Fe ₂ O ₃	Photometric/XRF	%	3.78±0.1
3	Al ₂ O ₃	Photometric/XRF	%	26.01±0.5
4	CaO	Photometric/XRF	%	3.51±0.5
5	MgO	Photometric/XRF	%	1.22±0.5
6	MnO	Photometric/XRF	%	0.03±0.01
7	Na ₂ O	Photometric/XRF	%	0.39±0.01
8	TiO ₂	Photometric/XRF	%	1.29±0.01
9	P ₂ O ₅	Photometric/XRF	%	0.21±0.01
10	K ₂ O	Photometric/XRF	%	0.77
10	LOI	-----	%	6.58


Tested BY


Reviewed BY


Authorized Signatory
HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India.

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
National Institute of Technology



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 : 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	0.11
2	As	US-EPA Method	mg/Kg	32.4
3	Se	US-EPA Method	mg/Kg	3.54
4	Sb	US-EPA Method	mg/Kg	2.19
5	Ba	US-EPA Method	mg/Kg	198.6
6	Cd	US-EPA Method	mg/Kg	0.85
7	Cr	US-EPA Method	mg/Kg	82.46
8	Cr(VI)	US-EPA Method	mg/Kg	.956
9	Pb	US-EPA Method	mg/Kg	57.6
10	Mn	US-EPA Method	mg/Kg	66.6
11	Ag	US-EPA Method	mg/Kg	2.09
12	Co	US-EPA Method	mg/Kg	12.5
13	Cu	US-EPA Method	mg/Kg	29.1
14	Mo	US-EPA Method	mg/Kg	4.56
15	Ni	US-EPA Method	mg/Kg	34.21
16	V	US-EPA Method	mg/Kg	164.5
17	Zn	US-EPA Method	mg/Kg	121.13

Tested BY

Abanti Sahoo
Authorized Signatory
HEAD OF THE

Soumya S. Mohapatra
Reviewed BY

DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology

Prof. Soumya S. Mohapatra
Asst. Professor

दूरभाष, Phone - (0661) 2476773, 2462021 वेबसाइट Website: www.nitrrourkela.org

शिक्षा मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्व का संस्थान

An Institute of national importance under Ministry of Education (Shiksha Mantralaya), Govt. of India



BED ASH BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BED ASH 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	%	59.22±0.5
2	Fe ₂ O ₃	Photometric/XRF	%	3.68±0.1
3	Al ₂ O ₃	Photometric/XRF	%	24.09±0.5
4	CaO	Photometric/XRF	%	2.81±0.5
5	MgO	Photometric/XRF	%	1.21±0.5
6	MnO	Photometric/XRF	%	0.02±0.01
7	Na ₂ O	Photometric/XRF	%	0.33±0.01
8	TiO ₂	Photometric/XRF	%	1.24±0.01
9	P ₂ O ₅	Photometric/XRF	%	0.20±0.01
10	K ₂ O	Photometric/XRF	%	0.75
10	LOI	-----	%	5.47

Tested BY

Abanti Sahoo

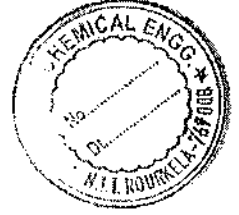
Authorized Signatory
HEAD OF C/E

DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769008, Odisha, India.

Soumya S. Mohapatra

Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
NITRR, Bhubaneswar, India



BED ASH BF-PP-2 QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BED ASH 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	0.09
2	As	US-EPA Method	mg/Kg	29.4
3	Se	US-EPA Method	mg/Kg	2.54
4	Sb	US-EPA Method	mg/Kg	2.23
5	Ba	US-EPA Method	mg/Kg	158.6
6	Cd	US-EPA Method	mg/Kg	0.82
7	Cr	US-EPA Method	mg/Kg	78.46
8	Cr(VI)	US-EPA Method	mg/Kg	0.866
9	Pb	US-EPA Method	mg/Kg	54.6
10	Mn	US-EPA Method	mg/Kg	63.6
11	Ag	US-EPA Method	mg/Kg	1.89
12	Co	US-EPA Method	mg/Kg	11.56
13	Cu	US-EPA Method	mg/Kg	26.18
14	Mo	US-EPA Method	mg/Kg	4.36
15	Ni	US-EPA Method	mg/Kg	31.29
16	V	US-EPA Method	mg/Kg	157.5
17	Zn	US-EPA Method	mg/Kg	119.13

Tested BY

Abanti Sahoo
Authorized Signatory

Soumya S. Mohapatra
Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

75
Azadi Ka
Amrit Mahotsav

G20
भारत 2023 INDIA
समेकित परिवर्तन
UNITED NATIONS
SUSTAINABLE DEVELOPMENT
GOALS
FAMILY - ONE FUTURE



BED ASH BF-PP-1 QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BED ASH BF- PP- 1
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	%	58.45±0.5
2	Fe ₂ O ₃	Photometric/XRF	%	3.36±0.1
3	Al ₂ O ₃	Photometric/XRF	%	21.89±0.5
4	CaO	Photometric/XRF	%	2.64±0.5
5	MgO	Photometric/XRF	%	1.19±0.5
6	MnO	Photometric/XRF	%	0.18±0.01
7	Na ₂ O	Photometric/XRF	%	0.31±0.01
8	TiO ₂	Photometric/XRF	%	1.211±0.01
9	P ₂ O ₅	Photometric/XRF	%	0.23±0.01
10	K ₂ O	Photometric/XRF	%	0.71±0.01
10	LOI	-----	%	4.65±0.1


Tested BY

Abanti Sahoo
Authorized Signatory
HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India.

Soumya S. Mohapatra
Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
NIT Rourkela

दूरभाष, Phone - (0661) 2476773, 2462021 वेबसाईट Website : www.nitrkl.ac.in

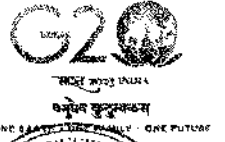
शिक्षा मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्व का संस्थान

An Institute of national importance under Ministry of Education (Shiksha Mantralaya), Govt. of India



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

75
Azadi Ka
Amrit Mahotsav



BED ASH BF-PP-1 QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : BED ASH BF-PP-1
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	0.09
2	As	US-EPA Method	mg/Kg	29.4
3	Se	US-EPA Method	mg/Kg	2.54
4	Sb	US-EPA Method	mg/Kg	2.23
5	Ba	US-EPA Method	mg/Kg	158.6
6	Cd	US-EPA Method	mg/Kg	0.82
7	Cr	US-EPA Method	mg/Kg	78.46
8	Cr(VI)	US-EPA Method	mg/Kg	0.866
9	Pb	US-EPA Method	mg/Kg	54.6
10	Mn	US-EPA Method	mg/Kg	63.6
11	Ag	US-EPA Method	mg/Kg	1.89
12	Co	US-EPA Method	mg/Kg	11.56
13	Cu	US-EPA Method	mg/Kg	26.18
14	Mo	US-EPA Method	mg/Kg	4.36
15	Ni	US-EPA Method	mg/Kg	31.29
16	V	US-EPA Method	mg/Kg	157.5
17	Zn	US-EPA Method	mg/Kg	119.13

[Signature]
Tested BY

Abanti Sahoo

Authorized Signatory
HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology

Soumya S. Mohapatra
Reviewed BY

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

दूरभाष, Phone - (0661) 2476773, 2462021 वेबसाइट Website : www.nitrkl.ac.in

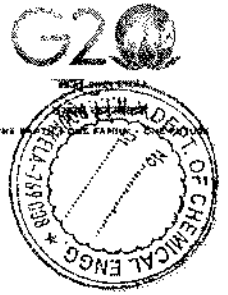
शिक्षा मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्व का संस्थान

An Institute of national importance under Ministry of Education (Shiksha Mantralaya), Govt. of India



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

75
Azadi Ka
Amrit Mahotsav




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


Reviewed BY


Authorized Signatory

Prof. Suomya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
Rourkela - 769 008 (Odisha) India

DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India

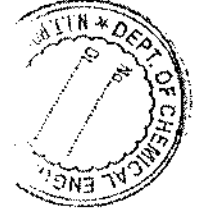
दूरभाष, Phone - (0661) 2476773, 2462021 वेबसाईट Website : www.nitrkl.ac.in

शिक्षा मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्व का संस्थान
An Institute of national importance under Ministry of Education (Shiksha Mantralaya), Govt. of India



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 : 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
20	Hydrazine	US-EPA Method	mg/Kg	0.0102

Tested BY

Abanti Sahoo
Authorized Signatory

Soumya S. Mohapatra
Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor

Department of Chemical Engineering

दूरभाष, Phone - (0661) 2476773, 2462021

वेबसाइट Website : www.nitrkl.ac.in



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	Fe ₂ O ₃	Photometric/XRF	%	3.32±0.1
3	Al ₂ O 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	Na ₂ O	Photometric/XRF	%	0.34±0.01
8	TiO ₂	Photometric/XRF	%	1.25±0.01
9	P ₂ O ₅	Photometric/XRF	%	0.22±0.01
10	K ₂ O	Photometric/XRF	%	0.76
10	LOI	-----	%	3.58

Sant
Tested BY

Saumya S Mahapatra

Reviewed BY

Santi Sahoo
Authorized Signatory

Prof. Saumya S. Mahapatra
Asst. Professor
Department of Chemical Engineering
NIT Rourkela



राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA- 769008, ओडिशा ODISHA

75
Azadi Ka
Amrit Mahotsav



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

Tested BY

Abanti Sahoo
Authorized Signatory

Soumya S. Mohapatra
Reviewed BY

HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India.

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

दूरभाष, Phone - (0661) 2476773, 2462021 वेबसाइट Website : www.nitrkl.ac.in

शिक्षा मंत्रालय, भारत सरकार के अधीन एक राष्ट्रीय महत्व का संस्थान


An Institute of national importance under Ministry of Education (Shiksha Mantralaya), Govt. of India

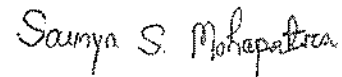


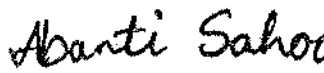
BF-2 LD GCP SLUDGE QUALITY ANALYSIS REPORT

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
COMPOSITIONAL ANALYSIS REPORT				
1	pH	-----	-----	6.2
2	MOISTURE	-----	%	71
3	CaO	Photometric/XRF	%	16 ± 0.5
4	Fe	Photometric/XRF	%	51 ± 0.5
5	MgO	Photometric/XRF	%	4.63 ± 0.1
6	Al ₂ O ₃	Photometric/XRF	%	1.26 ± 0.01
7	ZnO	Photometric/XRF	PPM	0.92 ± 0.01


Tested BY


Reviewed BY


Authorized Signatory
HEAD OF THE
DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008 (Odisha) India

Prof. Saumya S. Mohapatra
Asst. Professor
Department of Chemical Engineering
Rourkela, Odisha, India



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	BDL
3	Se	US-EPA Method	mg/Kg	0.41
4	Sb	US-EPA Method	mg/Kg	0.08
5	Ba	US-EPA Method	mg/Kg	58
6	Cd	US-EPA Method	mg/Kg	5.2
7	Cr	US-EPA Method	mg/Kg	89.7
8	Cr(VI)	US-EPA Method	mg/Kg	BDL
9	Pb	US-EPA Method	mg/Kg	0.92
10	B	US-EPA Method	mg/Kg	BDL
11	Ag	US-EPA Method	mg/Kg	BDL
12	Co	US-EPA Method	mg/Kg	BDL
13	Cu	US-EPA Method	mg/Kg	BDL
14	Mo	US-EPA Method	mg/Kg	BDL
15	Ni	US-EPA Method	mg/Kg	BDL
16	V	US-EPA Method	mg/Kg	BDL
17	Zn	US-EPA Method	mg/Kg	BDL
18	F ⁻	US-EPA Method	mg/Kg	BDL
19	CN ⁻	US-EPA Method	mg/Kg	BDL
20	Hydrazine	US-EPA Method	mg/Kg	BDL

[Signature]
Tested BY

[Signature]
Authorized Signatory

[Signature]
Reviewed BY

DEPARTMENT OF CHEMICAL ENGINEERING
National Institute of Technology
Rourkela - 769 008, Odisha

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

Prof. Soumya S. Mohapatra
 Asst. Professor
 Department of Chemical Engineering
 NIT Kharagpur

Authorized Signatory
 Abanti Sahoo

Reviewed BY
 Soumya S Mohapatra

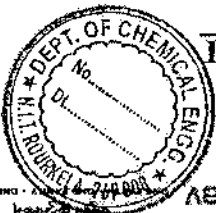
Tested BY

Sl. No.	Parameter	Testing Methods	Unit	Analysis Results
1	pH	-----	-----	8.5
2	MOISTURE	-----	%	38
3	Cr	Photometric/XRF	%	2.29±0.5
4	Fe	Photometric/XRF	%	28.23±0.5
5	Ni	Photometric/XRF	%	0.47±0.1
6	Mn	Photometric/XRF	%	0.39±0.01
7	P	Photometric/XRF	PPM	32±0.01

COMPOSITIONAL ANALYSIS REPORT

- Name of the Industry : M/s. FATA Steel, Meraramandali, Odisha
- Sampling Location : COKE OVEN BOD-2 SLUDGE
- Date of Sampling : 10th JULY, 2023
- Date of Analysis : 22th JULY, 2023
- Sample Collected By : Mr. P. SAHU, N.I.T., Rourkela

COKE OVEN BOD-2 SLUDGE QUALITY ANALYSIS REPORT



राष्ट्रीय प्रौद्योगिकी संस्थान
 NATIONAL INSTITUTE OF TECHNOLOGY
 राउरकेला ROURKELA-769008, ओडिशा ODISHA





COKE OVEN BOD-2 SLUDGE QUALITY ANALYSIS REPORT

1. Name of the Industry : M/s. TATA Steel, Meramandali, Odisha
2. Sampling Location : COKE OVEN BOD-2 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	0.776
2	As	US-EPA Method	mg/Kg	12.2
3	Se	US-EPA Method	mg/Kg	0.58
4	Sb	US-EPA Method	mg/Kg	1.21
5	Ba	US-EPA Method	mg/Kg	119.34
6	Cd	US-EPA Method	mg/Kg	5.69
7	Cr	US-EPA Method	mg/Kg	128.5
8	Cr(VI)	US-EPA Method	mg/Kg	0.893
9	Pb	US-EPA Method	mg/Kg	0.95
10	B	US-EPA Method	mg/Kg	311.6
11	Ag	US-EPA Method	mg/Kg	1.19
12	Co	US-EPA Method	mg/Kg	31.09
13	Cu	US-EPA Method	mg/Kg	52.6
14	Mo	US-EPA Method	mg/Kg	5.54
15	Ni	US-EPA Method	mg/Kg	351.91
16	V	US-EPA Method	mg/Kg	89.01
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	0.0101

Tested BY

Abanti Sahoo
Authorized Signatory

Soumya S. Mohapatra
Reviewed BY

Prof. Soumya S. Mohapatra
Asst. Professor



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

Annexure-VII

75
Azadi Ka
Amrit Mahotsav

TEST REPORT

Ref. No. IMMT/CCD/05/2023

Date: 30.05.2023

Name & Address of the Party:

Tata Steel BSL Ltd.
At-Narendrapur, P.O.-Kusupanga
Via-Meramandali, Dist-Dhenkanal
Pin-759121, Odisha.

Your Ref. No.:

Work Order No.: 3000145884/A06, Date: 30.06.2022

Sample Details:

1. Indian Coal (01 No.) 2. Imported Coal (01 No.)
3. Iron Ore (01 No.) 4. Lime stone (01 No.)
5. Dolomite (01 No.)

Date of Receiving:

17.03.2023

Date(s) of Conducting Test:

28.03.2023

Date of Completion of Test:

29.04.2023

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, nephelometric, AAS and ICP-OES techniques.
3. Coal samples were leached with distilled water at a solid:liquid ratio of 1:20 for fluoride analysis.

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.

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

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

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.



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



TEST REPORT

Ref. No. IMMT/CCD/05/2023

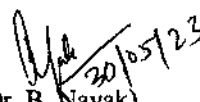
Date: 30.05.2023

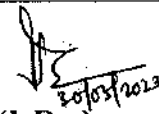
Table-1. Proximate analysis of coal samples.

Sample ID	Moisture (%)	Volatile Matter (%)	Ash (%)	Fixed Carbon (%)
Indian coal	2.10	32.12	31.71	34.07
Imported coal	1.87	23.96	20.48	53.69

Table-2. Chemical composition analysis of coal samples.

Sl. No.	Component	Concentration in Test Samples, %	
		Indian Coal	Imported Coal
1	SiO ₂	20.06	11.95
2	Al ₂ O ₃	7.88	7.53
3	Fe ₂ O ₃	0.91	0.246
4	TiO ₂	0.57	0.27
5	MnO	0.006	0.007
6	CaO	0.49	0.14
7	MgO	0.08	0.11
8	Na ₂ O	0.25	0.085
9	K ₂ O	0.29	0.16
10	P ₂ O ₅	0.27	0.09
11	S/SO ₃	0.31/0.78	0.56/1.40
12	LOI	66.87	77.24


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


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



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



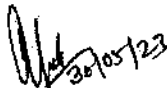
TEST REPORT


Ref. No. IMMT/CCD/05/2023

Date: 30.05.2023

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	24.22	1.71
2	Cd	mg/kg	0.32	0.037
3	Cu	mg/kg	43.86	8.28
4	Ni	mg/kg	23.54	15.17
5	Co	mg/kg	24.02	7.16
6	Cr	mg/kg	48.32	25.66
7	Zn	mg/kg	32.73	13.54
8	Ag	mg/kg	0.85	0.19
9	Sb	mg/kg	5.53	1.26
10	Mo	mg/kg	3.41	0.37
11	V	mg/kg	45.79	8.07
12	Se	mg/kg	0.75	0.19
13	Ba	mg/kg	145.1	18.9
14	As	mg/kg	26.91	5.55
15	Hg	mg/kg	1.11	0.44
16	B	%	0.12	0.09
17	F ⁻ in water leaching (1:20) solutions.	mg/L	0.10	0.03


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


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



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




TEST REPORT

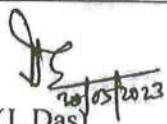
Ref. No. IMMT/CCD/05/2023

Date: 30.05.2023

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

Sl. No.	Component	Concentration in Test Samples, %		
		Iron Ore	Lime Stone	Dolomite
1	SiO ₂	1.26	0.98	15.31
2	Al ₂ O ₃	2.45	0.81	1.23
3	Fe ₂ O ₃	92.56	0.09	1.12
4	TiO ₂	0.09	0.005	0.042
5	MnO	0.008	0.002	0.004
6	CaO	0.09	49.20	32.35
7	MgO	0.005	6.42	7.18
8	Na ₂ O	0.31	0.87	0.73
9	K ₂ O	0.09	0.18	0.12
10	P ₂ O ₅	0.04	0.026	0.032
11	S/SO ₃	0.14/0.35	0.09/0.21	0.11/0.27
12	LOI	2.09	38.54	39.72


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


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



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



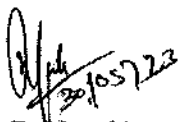
TEST REPORT

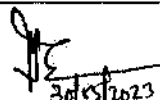
Ref. No. IMMT/CCD/05/2023

Date: 30.05.2023

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

Sl. No.	Parameters	Trace element concentrations in test samples			
		Unit	Iron Ore	Lime Stone	Dolomite
1	Pb	mg/kg	1.96	0.24	0.45
2	Cd	mg/kg	0.04	0.03	0.08
3	Cu	mg/kg	4.12	1.53	6.15
4	Ni	mg/kg	0.97	9.11	18.56
5	Co	mg/kg	15.67	17.95	11.27
6	Cr	mg/kg	43.10	24.06	35.26
7	Zn	mg/kg	17.56	7.92	18.86
8	Ag	mg/kg	0.09	0.26	0.23
9	Sb	mg/kg	0.33	0.15	0.11
10	Mo	mg/kg	0.03	0.19	0.14
11	V	mg/kg	21.83	3.16	10.77
12	Se	mg/kg	0.06	0.02	0.03
13	Ba	mg/kg	48.7	6.30	8.92
14	As	mg/kg	8.09	8.75	10.16
15	Hg	mg/kg	0.31	0.35	0.47
16	B	%	0.37	0.58	0.50


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


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



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, H₂SO₄ & 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 place 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.

F.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,

Memo No. 3144 / Dated, the 19/10/2022 
Director of Factories and Boilers, Odisha
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

**CSR EXPENDITURE AND ACTIVITY HIGHLIGHTS
(Around Tata Steel Ltd. Meramandali)**

Period: From April'23 to September'23

PROGRAM HEAD	Expenditure in Lakh	MAJOR INTERVENTIONS/REMARKS
HEALTH	55.61	Public Health Unit; Rishta; Dengue/Malaria control, Cataract, Non communicable disease control
Agriculture	51.16	PISCI culture, Lemon grass, SRI farming
Water harvesting Structure	52.50	Odapada pond renovation work. 9 acre
DRINKING WATER	48.56	Installation of tubewells; deep bore wells, pipeline system and water supply through tanker
EDUCATION	331.57	School infrastructure; Education project: QUEST
WEE project	61.32	WEE Project
COMMUNITY INFRASTRUCTURE	43.32	Construction & Maintainance of Drain and Road; Installation of solar lights
SPORTS	1.59	Volleyball coaching
ETHNICITY	1.43	Odia New year celebration (Maha Bisuva Sankranti)
TOTAL	647.06	

**SUMMARY OF AMBIENT AIR QUALITY
MONTHLY AVERAGE VALUES**

Month	Locations of Monitoring	Monthly Average				
		Unit in $\mu\text{g}/\text{m}^3$				Unit in mg/m^3
	Pollutant	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
	Standard	100	60	80	80	2
Apr'23	CAAQMS-1	47.35	36.10	15.01	11.81	0.70
	CAAQMS-2	105.00	36.26	15.86	9.28	0.78
	CAAQMS-3	69.52	38.71	13.63	12.60	0.51
	CAAQMS-4	114.59	65.95	7.13	UM	0.34
	CAAQMS-5	132.68	68.19	17.49	9.76	0.52
	CAAQMS-6	131.20	57.88	9.72	25.71	0.61
	CAAQMS-7	159.82	52.26	31.44	25.61	1.05
May'23	CAAQMS-1	40.1	23.1	21.3	21.1	0.7
	CAAQMS-2	103.4	28.5	24.7	8.9	0.7
	CAAQMS-3	53.3	35.1	12.1	13.2	0.8
	CAAQMS-4	110.5	54.2	6.5	UM	0.2
	CAAQMS-5	87.0	37.4	14.9	8.0	0.5
	CAAQMS-6	87.9	31.4	9.4	21.5	UM
	CAAQMS-7	84.3	29.6	36.7	17.8	0.8
Jun'23	CAAQMS-1	40.5	26.1	17.7	26.3	0.7
	CAAQMS-2	95.2	29.3	17.0	9.3	0.8
	CAAQMS-3	45.4	25.8	12.7	9.8	0.9
	CAAQMS-4	104.1	41.2	6.3	UM	0.3
	CAAQMS-5	89.0	40.9	13.8	7.9	0.5
	CAAQMS-6	82.1	27.4	10.0	23.1	UM
	CAAQMS-7	113.9	42.4	16.7	8.7	0.7
Jul'23	CAAQMS-1	30.82	19.40	12.00	20.57	0.66
	CAAQMS-2	85.84	29.32	15.85	9.59	0.72
	CAAQMS-3	59.76	19.95	27.91	33.53	0.80
	CAAQMS-4	32.70	17.14	5.52	UM	0.22
	CAAQMS-5	49.13	19.45	12.00	7.55	0.51
	CAAQMS-6	49.52	17.04	9.04	20.50	0.62
	CAAQMS-7	54.24	22.38	11.61	8.60	0.76

Aug'23	CAAQMS-1	61.13	25.86	15.74	25.06	0.66
	CAAQMS-2	87.72	35.52	16.57	9.66	0.66
	CAAQMS-3	61.34	23.12	2.05	18.67	0.66
	CAAQMS-4	58.73	28.98	5.61	12.01	0.66
	CAAQMS-5	92.18	22.85	17.17	8.02	0.66
	CAAQMS-6	91.12	23.70	9.72	21.87	0.66
	CAAQMS-7	115.44	43.94	16.98	21.87	0.66
Sep'23	CAAQMS-1	63.87	22.77	13.61	18.46	0.66
	CAAQMS-2	72.80	32.50	24.91	9.46	0.72
	CAAQMS-3	58.98	20.24	2.63	18.80	0.80
	CAAQMS-4	64.04	18.99	5.63	13.18	0.22
	CAAQMS-5	55.79	16.32	13.20	8.79	0.52
	CAAQMS-6	67.16	16.64	8.18	27.42	1.08
	CAAQMS-7	73.64	40.29	25.48	22.82	0.76

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

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/81
Dt.04.11.2022

AMBIENT NOISE MONITORING
TATA STEEL Ltd. (Oct '22)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq (Day Time)	Noise Level dB(A) Leq (Night time)	Standard dB(A) Leq (Night Time)
1	Colony	27.09.2022	54.1	55.0	44.6	44.5
2	AEL	28.10.2022	56.7	75.0	69.0	70.0
3	Coke Oven-2	25.10.2022	62.2		69.3	

TUCORS KUNDI Comal.
Section (I/C)

[Signature]
Manager (Lab)

[Signature]
Sr.Manager (Lab I/C)

...End Report...

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/88
Dt.07.12.2022

AMBIENT NOISE MONITORING
TATA STEEL Ltd. (NOV'22)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq(Day Time)	Noise Level dB(A) Leq (Night time)	Standard dB(A) Leq(Night Time)
1	Colony	10.11.2022	52.5	55.0	43.6	45.0
2	Coke Oven-2	14.11.2022	57.1	75.0	50.0	70.0
3	AEL	16.11.2022	61.4	75.0	59.4	70.0

A.K. Pradhan
Section I/C

[Signature]
Manager (Lab)

Maitrayee Deb
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/95
Dt.04.01.2023

AMBIENT NOISE MONITORING
TATA STEEL Ltd. (DEC'22)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq(Day Time)	Noise Level dB(A) Leq (Night time)	Standard dB(A) Leq(Night Time)
1	Colony	22.12.2022	53.5	55.0	44.2	45.0
2	Coke Oven-2	12.12.2022	66.9	75.0	60.2	70.0
3	AEL	07.12.2022	57.8	75.0	63.9	70.0

A.K. Pradhan
Section (I/C)

A. M.
Manager (Lab)

Mai Sanyal
Sr. Manager (Lab /C)

...End Report...

page 1 of 1

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/102
Dt.06.02.2023

AMBIENT NOISE MONITORING (Day)
TATA STEEL Ltd. (JAN'23)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq (day Time)
1	Colony	24.01.2023	53.7	55.0
2	Coke Oven-2	03.01.2023	70.6	75.0
3	AEL	10.01.2023	71.4	75.0

TUSAR KANT SINGH
Section (I/C)

Datta
Manager (Lab)

Maitrayee Das
Sr.Manager (Lab I/C)

...End Report...

page 1 of 1

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/108
Dt.02.03.2023

AMBIENT NOISE MONITORING
TATA STEEL Ltd. (FEB' 23)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq(Day Time)	Noise Level dB(A) Leq (Night time)	Standard dB(A) Leq(Night Time)
1	Colony	21.02.2023	53.5	55.0	44.8	45.0
2	Coke Oven-2	07.02.2023	60.8	75.0	58.5	70.0
3	AEL	02.02.2023	72.4	75.0	68.8	70.0

A.K. Pradhan.
Section (I/C)

[Signature]
Manager (Lab)

[Signature]
Sr.Manager (Lab I/C)

...End Report...

Environment Laboratory
TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/116
Dt.05.04.2023

AMBIENT NOISE MONITORING
TATA STEEL Ltd. (MARCH' 23)

S.N	Location	Monitoring Date	Noise Level dB(A) Leq (day time)	Standard dB(A) Leq(Day Time)	Noise Level dB(A) Leq (Night time)	Standard dB(A) Leq(Night Time)
1	Colony	21.03.2023	53.2	55.0	44.5	45.0
2	Coke Oven-2	14.03.2023	60.3	75.0	57.3	70.0
3	AEL	30.03.2023	62.9	75.0	69.5	70.0

A.K. Pradhan
Section (I/C)

D. K. Mishra
Manager (Lab)

M. J. S. S. S.
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/88
Dt.07.12.2022

NOISE MONITORING REPORT TATA STEEL Ltd. (NOV'2022)

Work Zone Noise Monitoring Report Nov 2022					
S.N	Name of the unit	Location	Noise level in dB(A) at 1.mtr		
			Min	Max	Leg
1	BF-2 cast House	Control room	60.3	77.3	66.1
2	BF-2 cast House	Near B F-2 Furnace area	74.3	76.4	75.5
3	BF-2 Stock House	Control room office	55.1	75.4	66.6
4	Lime Plant	Inside office building	56.1	781.9	65.3
5	BFPP 01- Boiler 3	Near Control room office	53.9	75.0	67.2
6	Gas fired boiler 250 TPH Area	Office and Control Room	53.3	57.7	54.5
7	DRI-KILN NO-1	Near 1& 2 control room office	57.1	75.8	63.4
8	DRI-KILN NO-3	Near 3& 4control room office	60.5	74.2	65.3
9	DRI-KILN NO-5	Near 5& 6 control room office	64.6	66.7	65.5
10	DRI-KILN NO-7	Near 7& 8 control room office	59	67.7	63.8
11	DRI-KILN NO-9	Near 9&10 control room office	57.6	60.8	58.3
12	110 MW- Boiler-01	Near Boiler area	82.1	87.8	83.6
13	110 MW- Boiler-03	Near Boiler area	82.2	86.2	81
14	110 MW- Boiler-06	Near Boiler area	80.4	80.5	80.2
15	110 MW- Boiler-07	Near Boiler area	83.6	84.3	84.0
16	110 MW- Boiler-08	Near Boiler area	77.7	78.2	78.0
17	110 MW- Boiler-09	Near Boiler area	77.6	86.5	79.6
18	110 MW- Boiler-10	Near Boiler area	76.2	77.6	77.0
19	BF-1 Cast House	Near B F-1 Furnace	74.1	76.2	74.7
20	BF-1 Stock House	BF-1 Office	59	72.6	63.6
21	CRM	Near CRM Mill Complex Area	66.4	79.2	71.8
22	CRM	Near ETP area	84.4	86.4	84.9
23	CRM	Near GP-1 Zinc Pot	83.6	91.9	86.9
24	CRM	Near GP-2 Zinc Pot	83.5	94.5	89.3
25	CRM	Near GP-3 Zinc Pot	92.4	93.4	92.9
26	CRM	Mill-1	86.9	92.2	88.8
27	CRM	Mill-2	91.2	101.7	94.5
28	CRM	Mill-3	86.3	94.7	90.8
29	CRM	CRM Plant Office	47.8	60.2	54.4
30	CRM	ECL	91.0	92.3	91.9
31	CRM	CRCA	88.4	90.5	89.1
32	CRM	RGM	85.7	89.1	86.5
33	SP-1	9 m office room	63	75.5	65.9
34	SP-1	15 m office	63.1	64.9	64.2
35	SP-1	19 m office	63.6	66.6	64.1
36	SP-1	Store area	56.4	68.7	61.8
37	SP-1	Electrical office	56.3	66.3	60.5
38	CO-1	Control room office	66.8	81	75.2
39	CO-1	Laboratory	60.0	66.5	61.1
40	SP-02	Control Room Area	52.7	59.3	55.7
41	BOF	BOF office area	59.2	75.5	63.8

Environment Laboratory TATA Steel Meramandali, Odisha

Work Zone Noise Monitoring Report Nov 2022					
S.N	Name of the unit	Location	Noise level in dB(A) at 1 mtr		
			Min	Max	Leq
42	BOF	Near Wage bridge area	65.4	78.2	70.7
43	SMS-2, FES-1 & 2	Booster House	79.5	84	80.9
44	SMS-2, FES-1 & 2	Near Control room Area	70.1	84.2	81.2
45	SMS-2, FES-1 & 2	Near RHF Office area (Pulpit)	67.1	79.8	73.7
46	HSM	Near Roll Shop area	74.6	89.5	82.1
47	HSM	Near HSM Quality Lab area	68.7	73.2	69.7
48	HSM	DC pulpit office area	66.5	78.7	71.1
49	HSM	FM area	86.1	95.3	88.7
50	HSM	Near DC sampling Station	82.2	92.4	84.3
51	CO-2	Control Room Office	54.8	62.6	57.3
52	BFPP 2 Boiler-3	Control room office	69.1	71.6	69.7
53	Oxygen Plant	Control Room Office	65.9	72.5	69.1
54	BB Plant	BB Plant Office	57.3	70.4	62.8
55	RMPP	Control Room Office	56.2	86.7	70.8
56	Coal Washary	Lab & Office Area	53.1	75.4	66.4
57	RMHS	RMHS Office	54.8	75.4	63.9

Employees have been provided with ear plugs so that they use these when they go to noisy area for Work. It can be noted that in noisy area employees are not at all deployed for continuously 8 hrs.

A.K. Pradhan
Section (I/C)

A.K.
Manager (Lab)

Maitrayee Deb
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/93
Dt.04.01.2023

NOISE MONITORING REPORT
TATA STEEL (I.L.) (P) LTD.

Work Zone Noise Monitoring Report Dec. 2022

S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leg
1	BF-2 Cast House	Control room	49.5	61.9	53.7
	BF-2 Cast House	Near B F-2 Furnance area	72.6	79.4	76.4
2	BF-2 Stock House	Control room office	49.5	70	55.4
3	Lime Plant	Inside office building	53.7	79.2	62.2
4	BF PP-1 Boiler-03	Near Control room office	60.7	69.8	64.9
5	Gas fired boiler 250 TPH Area	Office and Control Room	57.9	83.6	64.6
6	DRI	KILN NO-1			
	DRI	Near 1& 2 control room office	54.2	66.3	59.2
	DRI	KILN NO-3			
	DRI	Near 3& 4control room office	55.2	92.5	69.5
	DRI	KILN NO-5			
	DRI	Near 5& 6 control room office	56.2	76.1	60
	DRI	KILN NO-7			
	DRI	Near 7& 8 control room office	58.2	75.8	61.3
	DRI	KILN NO-9			
7	110 MW Power Plant	Boiler-01			
	110 MW Power Plant	Near Boiler area	79.7	96.7	82.4
	110 MW Power Plant	Boiler-03			
	110 MW Power Plant	Near Boiler area	82.3	84.1	82.8
	110 MW Power Plant	Boiler-04			
	110 MW Power Plant	Near Boiler area	79.4	83.1	81.6
	110 MW Power Plant	Boiler-6			
	110 MW Power Plant	Near Boiler area	80.6	85.5	83.6
	110 MW Power Plant	Boiler-7			
	110 MW Power Plant	Near Boiler area	80	84.2	82.9
	110 MW Power Plant	Boiler-8			
	110 MW Power Plant	Near Boiler area	79.5	86.1	81.9
	110 MW Power Plant	Boiler-9			
	110 MW Power Plant	Near Boiler area	80.8	86.7	82.2
	110 MW Power Plant	Boiler-10			
	110 MW Power Plant	Near Boiler area	78.8	86.6	80.6
	110 MW Power Plant	AFBC Boiler Area			
110 MW Power Plant	Near 33 TG MW	88.3	91	90.3	
110 MW Power Plant	Near 77 TG MW	93.5	95.1	94.6	
8	BF-1 Cast House	Near B F-1 Furnance	72.5	81.6	80.1
9	BF-1 Stock House	BF-1 Office	60.1	83.3	69

Environment Laboratory TATA Steel Meramandali, Odisha

Work Zone Noise Monitoring Report Dec 2022

S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leq
10	CRM	Near CRM Mill Complex Area	79.3	82.4	80.5
	CRM	Near T.L.L	84.3	87.3	86
	CRM	Near ETP area	83.7	85.8	84.4
	CRM	Near GP-1 Zinc Pot	86.4	90.2	87.8
	CRM	Near GP-2 Zinc Pot	85.9	91.2	88.4
	CRM	Colour Coating Line	81.7	83.8	82.4
	CRM	Mill-1	84.8	87.5	86.2
	CRM	Mill-2	85.4	90.1	88.4
	CRM	Mill-3	88.9	91.2	90.1
	CRM	CRM Plant Office	52.1	59.2	55.4
	CRM	ECL	89.2	91.5	90.3
	CRM	CRCA	85.6	89.2	88.7
	CRM	SPM	82.4	85.4	84.1
	CRM	RGM	84.7	87.5	85.5
11	Sinter Plant-1	9 m office room	53.8	60.1	57.1
	Sinter Plant-1	15 m office	66.6	78.2	70.5
	Sinter Plant-1	19 m office	63.7	69.1	65
	Sinter Plant-1	Store area	71.1	85.3	74.1
	Sinter Plant-1	Electrical office	55.6	61.1	59.9
12	Coke Oven-1	Control room office	59.3	76.4	66.3
	Coke Oven-1	Laboratory	65.6	80.3	69.5
13	Sinter Plant-02	Control Room Area	57.7	86.7	63.5
14	Sinter Plant-03	Control Room Area	57.7	81.6	65
15	BOF Shop	BOF office area	59	75.3	61
	BOF Shop	Near Wage bridge area	67.5	84.2	74
16	SMS-2-FES-1&2	Booster House (ID Fan)	80.8	91.7	85.4
	SMS-2-FES-1&2	Near Control room Area	56.3	80.4	69.5
17	HSM	Near RHF Office area (Pulpit)	63.7	81.6	69.8
	HSM	Near Roll Shop area	75.4	88.8	81.2
	HSM	Near HSM Quality Lab area	67.4	75.9	69.1
	HSM	DC pulpit office area	63.4	78.2	67.5
	HSM	FM area	79.2	98.2	88.2
	HSM	Near DC sampling Station	80.4	92.2	81.6
18	Coke Oven-2	Control Room Office	49.7	76.9	61
19	BFPP-2 Boiler-3	Control room office	56.7	59.3	57.1
20	Oxygen Plant-02	Control Room Office	56.6	60.9	57.4
21	BB Plant	BB-Plant Office	49	90.6	69.7
22	RMPP	Control Room Office	53.6	84.5	70.7
23	Coal Washery	Lab & Office Area	54.9	59	52.3
24	RMHS	RMHS Office	49.6	54.9	53.4

N: B- All employees are provided ear plug / earmuff in noise prone areas. Rotation of employees are being done to ensure less than 8 hrs. exposure in high noise area.

Tugorant Banal
Section (I/C)

Billi
Manager (Lab)

Maitrayee Das
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory TATA Steel Meramandali, Odisha

Annexure-II

Ref.No. EMD/LAB/2022-23/99
Dt.06.02.2023

NOISE MONITORING REPORT
TATA STEEL LTD. JAN 2023

Work Zone Noise Monitoring Report for the month of Jan 2023

S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leq
1	BF-2 Cast House	Control room	60.9	75	63.8
		Near B F-2 Furnance area	72.6	82.4	76.5
2	BF-2 Stock House	Control room office	62.4	72.7	67.4
3	Lime Plant	Inside office building	50.3	58.7	54.2
4	BF PP-1 Boiler-03	Near Control room office	53.7	64.5	56.6
5	Gas fired boiler 250 TPH Area	Office and Control Room	58.4	66.4	62.2
6	DRI	KILN NO-1 (Near 1& 2 control room office)	81.7	67.7	61.1
		KILN NO-3 (Near 3& 4control room office)	51.9	79.1	62.2
		KILN NO-5 (Near 5& 6 control room office)	53.9	73.6	63.6
		KILN NO-7 (Near 7& 8 control room office)	81	76.7	62.3
		KILN NO-9 (Near 9&10 control room office)	49.7	62.1	53.8
7	110 MW Power Plant	Boiler-02 (Near Boiler area)	82.9	85.9	84.6
		Boiler-03 (Near Boiler area)	83.4	85.3	84.2
		Boiler-04 (Near Boiler area)	81.7	83.1	82.3
		Boiler-5 (Near Boiler area)	82.6	85.4	84.1
		Boiler-6 (Near Boiler area)	82.3	85.7	83.5
		Boiler-7 (Near Boiler area)	80.9	86	82.9
		Boiler-8 (Near Boiler area)	78.7	81.8	80.6
		Boiler-9 (Near Boiler area)	77.7	79.1	78
8	BF-1 Cast House	Near B F-1 Furnance	85.3	91.1	88.7
9	BF-1 Stock House	BF-1 Office	61	80.5	67
10	CRM	Near CRM Mill Complex Area	69.7	83.2	73.7
		Near ETP area	82.1	85.8	84
		Near GP-2 Zinc Pot	87.1	91.6	86.6
		Near GP-3 Zinc Pot	78.7	87.7	85.7
		Colour Coating Line	80.6	86.7	83.9
		Mill-1	76.9	90.9	84.9
		Mill-2	82.2	88.7	84.1
		Mill-3	79.4	86.6	83.6
		CRM Plant Office	50.1	71	56.5
		ECL	86.1	91.7	88.2
		CRCA	82	95.1	86.9
RGM	83.7	90	86.4		

Page 1 of 2

Environment Laboratory TATA Steel Meramandali, Odisha

Work Zone Noise Monitoring Report for the month of Jan 2023					
S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leq
11	Sinter Plant-1	9 m office room	60.3	75.3	72.4
		15 m office	59.7	79.7	65.4
		19 m office	59.9	66.4	61.6
		Store area	59.8	73	62.7
		Electrical office	59.8	80.3	68.4
12	Coke Oven-1	Control room office	54.2	69.6	59.5
		Laboratory	52.1	75.3	70.1
13	Sinter Plant-02	Control Room Area	51	67.4	64.1
14	Sinter Plant-03	Control Room Area	60.8	73.1	63.4
15	BOF Shop	BOF office area	48.9	64.4	66.9
		Near Wage bridge area	69.1	80.1	73.4
16	SMS-2-FES-1&2	Booster House (ID Fan)	81.6	90.3	87.5
		Near Control room Area	58.3	62.4	59.1
17	HSM	Near RHF Office area (Pulpit)	68.6	72.2	69.9
		Near Roll Shop area	74.8	84.6	78.3
		Near HSM Quality Lab area	68.6	78.3	64.3
		DC pulpit office area	61.2	81.9	71
		FM area	79.9	84.1	83
18	Coke Oven-2	Near DC sampling Station	76	87.1	80.2
		Control Room Office	66.1	80.2	67.8
19	BFPP-2 Boiler-3	Control room office	64.5	80.6	72.1
20	Oxygen Plant-02	Control Room Office	56.5	82.6	80.4
21	BB Plant	BB Plant Office	60.5	75.4	66.7
22	RMPP	Control Room Office	58.5	77.5	70.1
23	Coal Washary	Lab & Office Area	55.6	60.1	57.3
24	RMHS	RMHS Office	53.9	73.6	59.8
25	IBMD	New Sarpa MRP-II (Operator Cabin)	82.8	76.1	63.9

N: B- All employees are provided ear plug / earmuff in noise prone areas. Rotation of employees are being done to ensure less than 8 hrs. exposure in high noise area.

Tusarokanti Soman
Section (I/C)

for Tusarokanti Soman
Manager (Lab)

Maipen Saha
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/106
Dt.02.03.2023

NOISE MONITORING REPORT
TATA STEEL Ltd. (FEB' 2023)

Work Zone Noise Monitoring Report for the month of Feb 2023					
S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leq
1	BF-2 Cast House	Control room	50	82	61.5
	BF-2 Cast House	Near B F-2 Furnance area	79.7	82.6	81.1
2	BF-2 Stock House	Control room office	53.7	81.4	61.2
3	Lime Plant	Inside office building	56.4	68.8	59.7
4	BF PP-1 Boiler-03	Near Control room office	60.7	68.8	64.5
5	Gas fired boiler 250 TPH Area	Office and Control Room	58.4	66.3	62.6
6	DRI	KILN NO-1(Near 1& 2 control room office)	55.8	65.5	63.3
	DRI	KILN NO-3(Near 3& 4control room office)	58.3	65.4	62.4
	DRI	KILN NO-5(Near 5& 6 control room office)	55.4	62.5	59.5
	DRI	KILN NO-7(Near 7& 8 control room office)	53.6	68.4	60.4
	DRI	KILN NO-9 (Near 9&10 control room office)	52.9	70.4	56.1
7	110 MW Power Plant	Boiler-01 (Near Boiler area)	82.7	85.5	84.3
	110 MW Power Plant	Boiler-02 (Near Boiler area)	83.7	86	84.4
	110 MW Power Plant	Boiler-03 (Near Boiler area)	81	83.1	82
	110 MW Power Plant	Boiler-04(Near Boiler area)	94.3	80.6	77.3
	110 MW Power Plant	Boiler-5 (Near Boiler area)	78.8	86.3	81.3
	110 MW Power Plant	Boiler-6 (Near Boiler area)	79.5	86.8	81.8
	110 MW Power Plant	Boiler-7(Near Boiler area)	78.1	81.2	80.8
	110 MW Power Plant	Boiler-8 (Near Boiler area)	74.5	88.2	81.4
8	BF-1 Cast House	Near B F-1 Furnance	75.4	79.2	77.2
9	BF-1 Stock House	BF-1 Office	62.4	71.9	65.8
10	Coal Washary	Lab & Office Area	62.4	74.4	65.3
11	RMHS	RMHS Office	53.2	63	61.2
12	IBMD	New Sarpa MRP-II (Operator Cabin)	50.8	71.4	57.7
		Office & Operator Cabin (Old MRP)	52.3	71.7	59.9
13	CRM	Near CRM Mill Complex Area	70.5	80.1	74.5
	CRM	Near ETP area	68.7	92	80.4
	CRM	Near GP-3 Zinc Pot	82.5	87	84.3
	CRM	Colour Coating Line	80.9	88.3	83.4

Environment Laboratory TATA Steel Meramandali, Odisha

Work Zone Noise Monitoring Report for the month of Feb 2023					
S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leg
	CRM	Mill-1	81.2	87.4	82.6
	CRM	Mill-2	86.3	97.1	89
	CRM	Mill-3	83	97.5	88.3
	CRM	CRM Plant Office	59	61.2	61
	CRM	ECL	84.3	85.8	85
	CRM	CRCA	84.3	86.7	85.2
	CRM	SPM	80	87	83.5
	CRM	RGM	76.6	84.5	81.7
14	Sinter Plant-1	9 m office room	56.2	75	62.9
	Sinter Plant-1	15 m office	67.4	76.4	69.2
	Sinter Plant-1	19 m office	58.2	66.4	63.9
	Sinter Plant-1	Store area	58.5	80.2	79.2
	Sinter Plant-1	Electrical office	57.6	80	66.4
15	Coke Oven-1	Control room office	60.8	70.8	65.7
	Coke Oven-1	Laboratory	60.4	67.2	63.1
16	Sinter Plant-02	Control Room Area	80	75.2	61.2
17	Sinter Plant-03	Control Room Area	63.6	76.2	65.4
18	BOF Shop	BOF office area	52.8	67.3	58.7
	BOF Shop	Near Wage bridge area	64.4	81.9	72.5
19	SMS-2-FES-1&2	Booster House (ID Fan)	78.3	86.7	83.3
	SMS-2-FES-1&2	Near Controlroom Area	59.3	68.7	61.4
20	HSM	Near RHF Office area (Pulpit)	68.2	81.3	72.4
	HSM	Near Roll Shop area	71.5	86.2	77.8
	HSM	Near HSM Quality Lab area	67.2	77.3	69
	HSM	DC pulpit office area	65.6	77.6	69.3
	HSM	FM area	81.1	91.3	84.3
	HSM	Near DC sampling Station	82	84.7	83.1
21	Coke Oven-2	Control Room Office	59.9	62	61.3
22	BFPP-2 Boiler-3	Control room office	86	78.6	69.9
23	Oxygen Plant-02	Control Room Office	62.1	72.3	63.6
24	BB Plant	BB Plant Office	51.6	79.3	63.6
25	RMPP	Control Room Office	52.7	83.6	64.4

N: B- All employees are provided ear plug / earmuff in noise prone areas. Rotation of employees are being done to ensure less than 8 hrs. exposure in high noise area.

A.K. Pradhan
Section (I/C)

A.K. Pradhan
Manager (Lab)

Maitrayee Das
Sr. Manager (Lab I/C)

...End Report...

Environment Laboratory TATA Steel Meramandali, Odisha

Ref.No. EMD/LAB/2022-23/114
Dt.05.04.2023

NOISE MONITORING REPORT TATA STEEL Ltd. (MARCH' 2023)

Work Zone Noise Monitoring Report for the month of MARCH 2023					
S.N	Name of the unit	Location	Noise level in dB(A)		
			May	Leg	
1	BF-2 Cast House	Control room	61.2	73.3	64.5
		Near B F-2 Furnace area	70.7	78.6	75.3
2	BF-2 Stock House	Control room office	60.3	66.4	63.7
3	Lime Plant	Inside office building	58.1	72.9	63.4
4	BF PP-1 Boiler-03	Near Control room office	63.8	80.8	68.3
5	Gas fired boiler 250 TPH Area	Office and Control Room	65.5	75.1	66.9
6	DRI	KILN NO-1(Near 1& 2 control room office)	55.9	67.7	64.5
		KILN NO-3(Near 3& 4control room office)	57.9	66.9	61.4
		KILN NO-5(Near 5& 6 control room office)	60.0	71.6	62.8
		KILN NO-7(Near 7& 8 control room office)	62.4	67.8	64.8
		KILN NO-9 (Near 9&10 control room office)	59.8	81.4	68.5
7	110 MW Power Plant	Boiler-03 (Near Boiler area)	81.8	83.7	82.7
		Boiler-6 (Near Boiler area)	84.0	86.0	84.9
		Boiler-7(Near Boiler area)	82.2	85.0	83.3
		Boiler-8 (Near Boiler area)	83.4	86.3	84.8
		Boiler-9 (Near Boiler area)	84.2	84.1	83.0
8	BF-1 Cast House	Near B F-1 Furnance	70.9	85.6	77.5
9	BF-1 Stock House	BF-1 Office	58.9	76.5	65
10	Coal Washary	Lab & Office Area	61.0	80.0	70.8
11	RMHS	RMHS Office	52.4	52.7	79.9
12	IBMD	New Sarpa MRP-II (Operator Cabin)	55.7	84.5	67.9
		Office & Operator Cabin (Old MRP)	58.3	69.6	61.7
13	CRM	Near CRM Mill Complex Area	71.9	82.8	74.3
		Near T.L.L	82.2	86.2	82.9
		Near ETP area	85.6	86.5	85.7
		Near GP-1 Zinc Pot	82.2	89.6	86.4
		Near GP-2 Zinc Pot	83.2	93.6	86.8

Environment Laboratory TATA Steel Meramandali, Odisha

Work Zone Noise Monitoring Report for the month of MARCH 2023					
S.N	Name of the unit	Location	Noise level in dB(A)		
			Min	Max	Leq
	CRM	Near GP-3 Zinc Pot	84.7	87.4	85.5
		Colour Coating Line	80.8	88.8	83.0
		CRM Plant Office	60.4	63.9	62.3
		CRCA	84.3	86.2	85.0
		SPM	83.9	92.4	85.8
		RGM	81.2	85.3	82.4
14	Sinter Plant-1	9 m office room	67.4	70.4	68.7
		15 m office	67.6	70.5	68.3
		19 m office	67.7	72.1	70.1
		Store area	64.1	78.4	69.2
		Electrical office	61.0	67.3	63.6
15	Coke Oven-1	Control room office	57.7	80.9	70.4
		Laboratory	66.5	78.7	69.6
16	Sinter Plant-02	Control Room Area	66.9	73.0	69.3
17	Sinter Plant-03	Control Room Area	66.7	69.5	67.4
18	BOF Shop	BOF office area	61.2	69.0	67.3
		Near Weigh bridge area	69.9	86.7	75.8
19	SMS-2-FES-1&2	Booster House (ID Fan)	79.4	87.9	82.3
		Near Control room Area	68.4	73.8	70.0
20	HSM	Near RHF Office area (Pulpit)	81.8	84.5	82.9
		Near Roll Shop area	79.8	85.0	81.7
		Near HSM Quality Lab area	51.7	57.2	54.6
		DC pulpit office area	60.9	79.1	67.4
		FM area	85.6	97.5	89.6
		Near DC sampling Station	83.8	88.4	84.1
21	Coke Oven-2	Control Room Office	51.5	69.0	58.4
22	BFPP-2 Boiler-3	Control room office	59.2	61.4	60.7
23	Oxygen Plant-02	Control Room Office	63.8	84.9	73.7
24	BB Plant	BB Plant Office	80.6	82.6	81.6
25	RMPP	Control Room Office	61.9	87.8	72.3

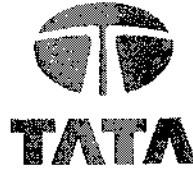
N: B- All employees are provided ear plug / earmuff in noise prone areas. Rotation of employees are being done to ensure less than 8 hrs. exposure in high noise area.

A.K. Pradhan
Section (I/C)

Datta
Manager (Lab)

Maitrayee Das
Sr. Manager (Lab/I/C)

...End Report...



TSM/SPCB/BS-07/2023-07/351

June 19, 2023

The Member Secretary
State Pollution Control Board, Odisha
A/118, Paribesh Bhawan
Nilakanthanagar, Unit-VIII
Bhubaneswar - 751012

Sub: Submission of hazardous waste annual return (Form-4) for the period April 2022 to March 2023.

Ref: Authorization no. IND-IV-HW-622/4619 dated 24.03.2023

Dear Sir,

In reference to the captioned subject and letter cited above. As per the provision of Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016; we are submitting hereby annual returns (Form-4) of said rules for the period April 1, 2022 to March 31, 2023 for our TATA Steel Ltd. Meramandali integrated steel plant attached as **Annexure-I**.

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

Thanking you,

Yours faithfully,
For Tata Steel Limited

A handwritten signature in black ink, appearing to read 'Anoop Srivastava'.

Anoop Srivastava
Chief Environment, Tata Steel Meramandali

Enclosure: As above

Copy to: 1. The PCCF (C) MoEF&CC, Eastern Zone, Bhubaneswar
2. The Divisional Head, CPCB, Eastern Region, Kolkata
3. The Regional Officer, State Pollution Control Board, Odisha, Angul

TATA STEEL LIMITED

Narendrapur Kusupanga Meramandali Dhenkanal 759 121 Odisha India Tel 91 6762 352000
Registered Office: Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 66658282 Fax 91 22 66657724
Corporate Identity Number: L27100MH1907PLC000260 Website www.tatasteel.com

12
FORM 4
[See rules 6(5), 13(8), 16(6) and 20 (2)]
FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

1. Name and address of facility:

Tata Steel Limited Meramandali
At-Narendrapur, PO- Kusupanga
Via- Meramandali, Dist-Dhenkanal
PIN-759121, Odisha (India)
Tel: 91-6762-300000

2. Authorisation no. and date of issue: Authorization no. IND-IV-HW-622/4619 dated 24.03.2023

3. Name of the authorised person and full address with telephone, fax and e-mail:

Anoop Srivastava
Chief-Environment
At-Narendrapur, Po- Kusupanga
Via- Meramandali, Dist-Dhenkanal
PIN-759121, Odisha (India)
Tel: 91-6762-300000
e-mail- officeofchiefemd.tsm@tatasteel.com

4. Production during the year:

Total Production (Crude Steel) during 2022-23: 4.95 MTPA

Part A. To be filled by hazardous waste generators

1. Total quantity of waste generated category wise:

SL	Waste Description	Schedule and Waste Stream/Class	Quantity (in Tonnes/KL)
1	Used /Spent Oil	Schedule -I Stream -5.1	256.0 T
2	Waste/Residue Containing Oil	Schedule -I Stream -5.2	36.7 T
3	Oil and grease skimming (Oily Sludge)	Schedule -II Class-C	122.0 T
4	Residue from Coke Oven by-product plant (BOD Plant Sludge)	Schedule- I Stream-13.6	2457.0 T

5	Decanter tank sludge and tar sludge tank residue	Schedule- I Stream-13.4 & 13.5	1498.9 T
6	Acidic & Alkali Residues/Spent Acid and Alkali	Schedule- I Stream-12.1 & 12.2	12.1 T
7	ETP Sludge of CRM/Chemical Sludge from wastewater Treatment Plant	Schedule- I Stream-35.3	780.0 T
8	Spent Ion Exchange Resin containing toxic metals.	Schedule- I Stream-35.2	-
9	Process wastes, Residues and sludges/ Spent Solvent (Waste Thinner-Oily Waste)	Schedule -I Stream -21.1 &21.2	3.95 T
10	Insulation Materials generated from various units	Schedule -II Class-C	85.0 T
11	Empty Barrels/Containers/Liners contaminated with Hazardous chemicals/wastes	Schedule -I Stream -33.1	5957 Nos & 20.18 T
12	Exhaust Air or Gas Cleaning Residue /LD Sludge (BF, SMS and APC Dust)	Schedule -I Stream -35.1 & Schedule -II Stream -C2	188566 T
13	Zinc Dross/Ash/Skimmings/Residues	Schedule -IV Stream – (11 to 15)	510.0 T

2. Quantity dispatched

(i) to disposal facility:

SL	Waste Description	Quantity (in Tonnes/KL)	Name of the Disposal Facilities
1	Oil and grease skimming (Oily Sludge)	84.46 T	M/s Re-Sustainability Ltd. Jajpur, Odisha
2	Insulation material (Glass wool)	120.9 T	
3	Acidic & Alkali Residues/Spent Acid and Alkali	5.36 T	
4	ETP Sludge of CRM/Chemical Sludge from wastewater Treatment Plant	607.92 T	

(i) to recycler or co-processors or pre-processor:

SL	Waste Description	Quantity (in Tonnes/KL)	Name of the Reprocessing Facilities
1	Used /Spent Oil	267.9 T	M/s Bristol Petroleum Pvt. Ltd. At-26/5/D E, A.M. Ghosh Road, Budge,24 Parganas (S), WB
2	Empty Barrels/Containers/Liners contaminated with Hazardous chemicals/wastes	5957 Nos. & 20.1 T	M/s A.K. Enterprises M/s TAJ Traders M/s VISHAKHA STEEL TRADERS M/s Hindustan Tin Supply M/s ARNAV TRADERS M/s BHOLANATH WORKSHOP M/s AMMA BHAGWAN STEEL TRADERS
3	Zinc Dross/Ash/Skimmings/Residues	436 T	M/s Neelam Metal Products M/s Cosmo Agromet Industries M/s East Coast Bio-Tech Project M/s M/s Alfa Pigment & Chemicals (P) Ltd.
4	LD Sludge (BOF)	61017 T	M/s Ardent Steel Limited, Phulljhar, Kendujhar, Odisha

(ii) Others: Not Applicable

3. Quantity utilised in-house, if any:

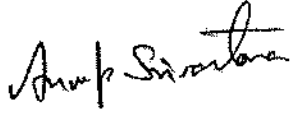
SL	Waste Description	Quantity (in Tonnes/KL)	Mode of utilization
1	Residue from Coke Oven by-product plant (BOD Plant Sludge)	2457 T	Internally reused in coke oven
2	Decanter tank sludge and tar sludge tank residue	1498.9 T	Internally reused in coke oven
3	Exhaust Air or Gas Cleaning Residue (BF-I & 2) /APC Dust (FES Dust from SMS-II & Bag filter from SMS-III)	94009 T	Reused in sinter plant

4. Quantity in storage at the end of the year –

SL	Waste Description	Quantity (in Tonnes/KL)
1	Spent Ion Exchange Resin containing toxic metals.	3 T
2	Process wastes, Residues and sludges/ Spent Solvent (Waste Thinner-Oily Waste)	3.95 T
3	Waste/Residue Containing Oil	36.72 T

Date: 19.06.2023

Place: TSL Meramandali


Signature of the Occupier or
Operator of the disposal facility



Annexure-XIII

Summary of Plantation

(Both for TSM & AEL)

Period : From April 2023 to September 2023

S.N.	Month	Plantation in number		Cumulative FY24
		Inside	Outside	
1	April 2023	30	0	30
2	May 2023	119	0	149
3	June 2023	4737	49	4935
4	July 2023	14462	160	19557
5	August 2023	6486	0	26043
6	September 2023	9770	0	35813

TATA STEEL LIMITED

Narendrapur Kuspanga Meramandali Dhenkanal 759 121 Odisha India Tel 91 6762 352000
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 66654282 Fax 91 22 66657724
Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

CORPORATE RESPONSIBILITY 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.

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.

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.

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 utilised 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
 - 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 percentage is given below.

Fly ash : 100%

BF slag : 100%

SMS Slag: 98%

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.

Action Points (II): Inventorisation 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: Inventorisation 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 31.03.2023.

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 20 : 4.14 m³/tcs.

FY 21 : 4.02 m³/tcs.

FY 22 : 3.42 m³/tcs.

FY 23 : 3.55 m³/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. Further, to treat the treated effluent UV Oxidation Plant of capacity 80m³/hr has been commissioned to treat Cyanide. 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 & NO_x) (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 equipments 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 equipments 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, 3 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 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 (55 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 BFPPI , BFPPII, 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 PM₁₀ Analyzer have been installed at strategic location of different unit to assess Ground Level Concentration of PM₁₀.
- IVC (Industrial Vacuum Cleaner) has been installed for mechanical cleaning of dust to reduce fugitive emission during manual cleaning.
- Lechler dust suppression system has been installed in Wagon Tippler to reduce fugitive dust emission during Wagon tipping
- Successful commissioning of Portable dedusting machine at the coveyor junction house to reduce fugitive emission.

- 9 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 waste water/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 primary treatment plants (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 Apr'23 to Sep'23, 2975753 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 by March 2024.

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 brick and paver block manufacturing units have been installed inside the plant for use in construction activities including road construction etc. inside the plant. This is also helping in maximum utilization of fly ash.
- 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 for 5.6 MTPA integrated steel plant was 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 the 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 Sept'23, 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.

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

(9)

Stage - II

Annexure-XVI

F. No. 8-84/2005-FC
Government of India
Ministry of Environment & Forests
(FC Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi-110 003

Dated : 13th November 2006

To

The Secretary (Forests),
Government of Orissa,
Bhubaneswar.

Sub: Diversion of 61.48 ha of Revenue Forest/DPF in Dhenkanal and Angul Districts of Orissa for setting up of an Integrated Steel Plant by M/s Bhusan Steel and Strips Limited.

Sir,

I am directed to refer to your letter No. 10F(Cons)52/2005/6686/F&E, Bhubaneswar dated 22.09.2005 whereunder the above mentioned proposal was submitted seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980 and to say that the above proposal was examined by the Forest Advisory Committee (FAC) constituted under Section-3 of the Act.

2. After careful consideration of the proposal of the State Government and on the basis of recommendations of the above mentioned Advisory Committee, the Central Government granted in-principle approval vide letter dated 25.11.2005 subject to certain conditions. The compliance of these conditions was submitted vide your letter No. 10F(Cons)52/2005/17702/F&E dated 28.10.2006. After consideration of the proposal and compliance of various conditions by the State Government, the Central Government hereby conveys its approval under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 61.48 ha of Revenue Forest/DPF in Dhenkanal and Angul Districts of Orissa for setting up of an Integrated Steel Plant by M/s Bhusan Steel and Strips Limited, subject to the fulfilment of following conditions :-

- (i) Legal status of the forest shall remain unchanged.
- (ii) Compensatory Afforestation shall be raised and maintained over non-forest land equal in extent to the forest land being diverted, at the project cost.
- (iii) The non-forest land identified for Compensatory Afforestation shall be declared as Reserved/Protected Forests. The Nodal Officer shall report compliance within three months.
- (iv) RCC pillars of 4 feet height shall be erected and maintained to demarcate the area by the user agency at the project cost and will be marked with forward and back bearings.
- (v) An undertaking from the user agency may also be obtained stating that in case the rates of Net Present Value (NPV) are revised upwards, the additional/differential amount shall be paid by the user agency.
- (vi) The State Government shall deposit Net Present Value and all other funds with the Ad-hoc Body of Compensatory Afforestation Fund Management and Planning Authority (CAMPA), in Account No. CA 1585 of Corporation Bank (A Government of India Enterprises), Block-11, Ground Floor, C.G.O. Complex, Phase-1, Lodhi Road, New Delhi-

110003, as per the instructions communicated vide letter No. 5-2/2006-FC dated 20.05.2006.

- (vii) The Conservation Plan, as submitted by the State Government shall be implemented at the project cost under supervision of Chief Wild Life Warden of the State.
- (viii) All efforts should be made for improvement of wildlife habitat around leasehold area in consultation with the Chief Wild Life Warden of the State Forest Department, as per the Wildlife Management Plan and at the project cost.
- (ix) The rehabilitation of displaced persons should not be done on forest land. The Rehabilitation and Resettlement Plan shall be implemented for settlement of displaced persons, at the project cost.
- (x) Trees shall be felled only when it becomes necessary and that too under strict supervision of State Forest Department, and at the cost of the project.
- (xi) No labour camps shall be established on the forest land.
- (xii) All necessary measures should be taken by the user agency to protect the environment.
- (xiii) Sufficient firewood shall be provided by the user agency to the labourers at the project cost after purchase from the State Forest Department/Forest Development Corporation.
- (xiv) The user agency shall ensure that there should be no damage to the available wildlife.
- (xv) The forest land shall not be used for any purpose other than that specified in the proposal.
- (xvi) The forest land thus diverted shall be non-transferable. Whenever and whatever extent of forest land is not required by the user agency, it shall be surrendered to the State Forest Department under intimation to this Ministry.

The State Government shall ensure compliance of all the above conditions.

Yours faithfully,

(Pankaj Asthana)
Assistant Inspector General of Forests

Copy to :-

1. The Principal Chief Conservator of Forests, Government of Orissa, Bhubaneswar.
2. The Nodal Officer, Forest Department, Government of Orissa, Bhubaneswar.
3. The Chief Conservator of Forests (Central), Regional Office, Bhubaneswar.
4. User Agency.
5. Guard File.
6. Monitoring Cell of FC Section.

(Pankaj Asthana)
Assistant Inspector General of Forests



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-695023000004905F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/WTREEM

10/07/2023

MSKNB/ED/2023-24/06/FK5F7M

03/07/2023

03/07/2023 - 10/07/2023

Permanent Facility

3000147168/A06, Date - 29/08/2022

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	29/06/2023
5. Place of sampling	Near CAAQMS 4 (HSM Water Complex)
6. Environmental conditions during sampling & Transport	1) Temperature :30-38 deg C 2) Barometric Pressure: 741 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,8,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-6, MSK/BBSR/FIELD/RDS-06

Report No. : MSKPL/ED/2023-24/WTREEM

Sample No. : MSKNB/ED/2023-24/06/FK5F7M

RESULT

Sl No.	Parameter	UCM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated, April 02 : 2018	400 (24 Hours)	30.6
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.45
6	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	0.02
7	Nickel as Ni	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 8) : 2006	80 (24 Hours)	23.7
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9) : 1974	180 (1 Hours)	22.7
10	PM10 (Particulate Matter < 10 µm)/Respirable - Suspended Particulate Matter -Cyclonic technique	micro gm/m3	IS 5182 (Part 23) : 2006	100 (24 Hours)	76.9
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	41.5
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	<6.0

Reviewed By

Signature

Name

Designation

Dr. Devottam Banerjee
Mr. Prady Babu, Dr. Devottam Banerjee
Technical In charge

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Dr. Soumyadeep Mukhopadhyay
Lab In charge

Mitra S. K. Private Limited

Doc No: MSK/GEN/1907



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-695023000004905F

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. Pradyo Ban. Dr. Devottam Banerjee
Designation: Technical In charge

Authorized Signatory

Signature:
Name: Dr. Gourpradip Mukherjee
Designation: Lab In charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service 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



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-695023000004904F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/LEKEES

Date :

10/07/2023

Sample No. :

MSKNB/ED/2023-24/06/7M5F8N

Date of receipt of sample:

03/07/2023

Date(s) of performance:

03/07/2023 - 10/07/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000147168/A06, Date - 29/08/2022

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	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	29/06/2023
5. Place of sampling	Near CAAQMS 5 (Coke Oven-2)
6. Environmental conditions during sampling & Transport	1) Temperature :30-38 deg C 2) Barometric Pressure: 745 mm of Hg 3) Rain fall : No & Cool Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-9, MSK/BBSR/FIELD/RDS-08

Report No. : MSKPL/ED/2023-24/LEKEES

Sample No. : MSKNB/ED/2023-24/06/7M5F8N

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02 : 2018	400 (24 Hours)	45.9
2	Arsenic as (As)	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	5 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.59
6	Lead (as Pb)	micro gm/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	0.03
7	Nickel as Ni	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6): 2006	80 (24 Hours)	28.6
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9): 1974	180 (1 Hours)	29.8
10	PM ₁₀ (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m ³	IS 5182 (Part 23): 2006	100 (24 Hours)	89.4
11	PM _{2.5} (Particulate Matter < 2.5 µm)	micro gm/m ³	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	54.3
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.7

Reviewed By:

Signature

Name : Mr. Prady Deb, Dr. Devottam Banerjee

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Soumyadeep Mukherjee

Designation : Lab In charge

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-695023000004904F

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. Pradyot Das, Dr. Divyanshu Banerjee

Designation : Technical In charge

Authorized Signatory

Signature

Name : Dr. Souryadeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India
Tel : 01 33 40443000 / 22650007 Fax : 01 33 22650006
Email : info@mitrask.com Website : www.mitrask.com

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-695023000005530F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/2G4F38

Date :

31/07/2023

Sample No. :

MSKNB/ED/2023-24/07/YO2446

Date of receipt of sample:

22/07/2023

Date(s) of performance:

22/07/2023 - 31/07/2023

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	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	19/07/2023
5. Place of sampling	Near Caagms-5 (Coke oven-2)
6. Environmental conditions during sampling & Transport	1) Temperature : 30-34 deg C 2) Barometric Pressure: 747 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (P-2, 6, 9, 11, 12, 23), TPM-1, 3, 8 & USEPA
8. Identification of the personnel performing sampling by MSK	Mr. Jyoti Prakash
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-10, MSK/BBSR/FIELD/RDS-10

Report No. : MSKPL/ED/2023-24/2G4F38

Sample No. : MSKNB/ED/2023-24/07/YO2446

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02, 2018	400 (24 Hours)	36.3
2	Arsenic as (As)	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.38
6	Lead (as Pb)	micro gm/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6): 2006	60 (24 Hours)	27.5
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9): 1974	180 (1 Hours)	<20.0
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter. Cyclic technique	micro gm/m ³	IS 5182 (Part 23): 2006	100 (24 Hours)	90.6
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m ³	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	54.5
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.4

Reviewed By:

Signature

Name

Designation

Mr. Pradyo Das, Dr. Devikanta Banerjee

Technical In charge

Authorized Signatory:

Signature

Name

Designation

Dr. S. Jayadeep Mukhopadhyay

Lab In charge

**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-695023000005530F

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2000, for Ambient air quality.

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name:

Designation:

Mr. Pradipto Bag, Dr. Devottam Banerjee

Technical in charge

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyadeep Mukhopadhyay

Lab in charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shyachi 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



Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,
3. Pagladanga Road, Kolkata 700015
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005529F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/438F3S

Date :

31/07/2023

Sample No. :

MSKNB/ED/2023-24/07/MD241P

Date of receipt of sample:

22/07/2023

Date(s) of performance:

22/07/2023 - 31/07/2023

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	Ambiant Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	19/07/2023
5. Place of sampling	Near Caegms-4(HSM Water Complex)
6. Environmental conditions during sampling & Transport	1) Temperature : 30-34 deg C 2) Barometric Pressure: 743 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Mr. Jyoti Prakash
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-12, MSK/BBSR/FIELD/RDS-12

Report No. : MSKPL/ED/2023-24/438F3S

Sample No. : MSKNB/ED/2023-24/07/MD241P

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02 : 2018	400 (24 Hours)	28.5
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NOIR): 1999	2 (8 Hours)	0.47
6	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 6) : 2006	80 (24 Hours)	34.5
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9) : 1974	180 (1 Hours)	<20.0
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter. Cyclonic technique	micro gm/m3	IS 5182 (Part 23) : 2006	100 (24 Hours)	96.0
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	55.7
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	7.2

Reviewed By:

Signature

Name : Mr. Pradip Bag, Dr. Devofani Banerjee

Designation : Technical in charge

Authorized Signatory:

Signature

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab in charge

Mitra S. K. Private Limited

Doc No. MSK/GEN/11/07

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

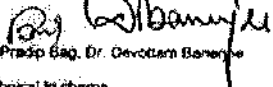
ULR: TC-695023000005529F

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


Statement of Conformity NA

----- END -----

Reviewed By:

Signature : 
Name : M. Pradip Bag, Dr. Devottam Banerjee
Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab in charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Streechi 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

Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005528F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/WTFF39

Date :

31/07/2023

Sample No. :

MSKNB/ED/2023-24/07/FZ245R

Date of receipt of sample:

22/07/2023

Date(s) of performance:

22/07/2023 - 31/07/2023

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	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	19/07/2023
5. Place of sampling	Near Caagms-3(Crm)
6. Environmental conditions during sampling & Transport	1) Temperature :30-34 deg C 2) Barometric Pressure: 743 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Mr. Jyoti Prakash
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-6, MSK/BBSR/FIELD/RDS-06


Report No. : MSKPL/ED/2023-24/WTFF39

Sample No. : MSKNB/ED/2023-24/07/FZ245R

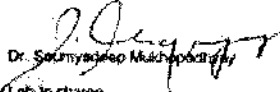
RESULT

Sl No	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	TPM/MSK/ENV/AP/01/8 Issue no- 01 Issue Dated. April 02 : 2018	400 (24 Hours)	32.8
2	Arsenic as (As)	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	5 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.38
6	Lead (as Pb)	micro gm/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6) : 2006	80 (24 Hours)	26.8
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9) : 1974	180 (1 Hours)	<20.0
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m ³	IS 5182 (Part 23) : 2006	100 (24 Hours)	57.6
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m ³	TPM/MSK/ENV/AP/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	31.5
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.4

Reviewed By:

Signature : 
Name : Mr. Pradeep Das, Dr. Devotam Banerjee
Designation : Technical In charge

Authorized Signatory:

Signature : 
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab in charge

**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700016
West Bengal
Tel : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal


ULR: TC-695023000005528F

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2000, for Ambient air quality.

Statement of Conformity NA


----- END -----

Reviewed By:

Signature : 
Name : Mr. Pradyip Bag, Dr. Devdham Banerjee

Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Souryadeep Mukhopadhyay
Designation : Lab in charge

The results relate only to the item(s) tested.

The Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shyambu 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



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-6850



Scan for Portal

ULR: TC-695023000005527F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/41MF36

31/07/2023

MSKNB/ED/2023-24/07/DC242N

22/07/2023

22/07/2023 - 31/07/2023

Permanent Facility

3000148695/A06, Date - 15/12/2022

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	19/07/2023
5. Place of sampling	Near Caaqms-2(Ael)
6. Environmental conditions during sampling & Transport	1) Temperature :30-34 deg C 2) Barometric Pressure: 742 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Mr. Jyoti Prakash
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-4, MSK/BBSR/FIELD/RDS-04

Report No. : MSKPL/ED/2023-24/41MF36

Sample No. : MSKNB/ED/2023-24/07/DC242N

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/6 Issue no- 01 Issue Dated. April 02, 2018	400 (24 Hours)	41.5
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.35
6	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 8) : 2006	80 (24 Hours)	30.6
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9) : 1974	180 (1 Hours)	<20.0
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter, Cyclonic technique	micro gm/m3	IS 5182 (Part 23) : 2006	100 (24 Hours)	64.6
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02, 2018	60 (24 Hours)	35.8
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.8

Reviewed By:

Signature

Name

Designation : Technical In charge

Mr. Prady Bng, Dr. Devottam Banerjee

Authorized Signatory:

Signature

Name

Designation : Lab In charge

Dr. Soumyajit Banerjee

Head Office:

Svrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel : 91 33 4014000 / 22550007 Fax : 91 33 22850008
Email : info@mitrask.com Website : www.mitrask.com

**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-695023000005527F

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality.

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name : Mr. Pradip Bag, Dr. Devottam Banerjee

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Sankardeep Mukhopadhyay

Designation : Lab In charge

The results relate only to the sample(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sfrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.
Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008
Email: info@mitrask.com Website: www.mitrask.com



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-695023000005526F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/EZZF3T

31/07/2023

MSKNB/ED/2023-24/07/1G243F

22/07/2023

22/07/2023 - 31/07/2023

Permanent Facility

3000148695/A06, Date - 15/12/2022

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	19/07/2023
5. Place of sampling	Near Caagms-1(Colony)
6. Environmental conditions during sampling & Transport	1) Temperature :30-34 deg C 2) Barometric Pressure: 742 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Mr. Jyoti Prakash
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-6, MSK/BBSR/FIELD/RDS-06

Report No. : MSKPL/ED/2023-24/EZZF3T

Sample No. : MSKNB/ED/2023-24/07/1G243F

RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02 : 2018	400 (24 Hours)	36.5
2	Arsenic as (As)	ng/m3	USEPA-10 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NIR): 1999	2 (8 Hours)	0.36
6	Lead (as Pb)	micro gm/m3	USEPA-10 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-10 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 6): 2006	80 (24 Hours)	28.5
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9): 1974	180 (1 Hours)	23.5
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter. Cyclonic technique	micro gm/m3	IS 5182 (Part 23): 2006	100 (24 Hours)	56.3
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	31.7
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.5

Reviewed By:

Signature:
Name: Mr. Pradip Bag, Dr. Devottam Banerjee
Designation: Technical In charge

Authorized Signatory:

Signature:
Name: Dr. Sourya Deep Mukherjee
Designation: Lab In charge

Mitra S. K. Private Limited

Doc No. MSK/GEN/1907



Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000005526F

Opinion : Limit as per CPCB notification, New Delhi, 10th November 2009, for Ambient air quality.

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Name

Designation

Mr. Pradyo Bhag, Dr. Devottam Banerjee

Technical In charge

Authorized Signatory

Signature

Name

Designation

Dr. Soomyadeep Mukhopadhyay

Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700010, West Bengal, India.
Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008
Email: info@mitrask.com Website: www.mitrask.com



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-695023000005929F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/8P25EK

Date :

16/08/2023

Sample No. :

MSKNB/ED/2023-24/08/7J6F6L

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

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	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Near Caaqms-3(Crm)
6. Environmental conditions during sampling & Transport	1) Temperature :28-342deg C 2) Barometric Pressure: 745 mm of Hg 3) Rain fall ; No. & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmeya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-10, MSK/BBSR/FIELD/RDS-10

Report No. : MSKPL/ED/2023-24/8P25EK

Sample No. : MSKNB/ED/2023-24/08/7J6F6L

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated, April 02 : 2018	400 (24 Hours)	33.1
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.38
6	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 6): 2006	80 (24 Hours)	30.2
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9): 1974	180 (1 Hours)	24.0
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23): 2006	100 (24 Hours)	69.7
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	37.0
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.9

Reviewed By:

Signature

Name : Mr. Pradeep Bag, Dr. Devottam Banerjee

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Soumya Deep Mukhopadhyay

Designation : Lab In charge

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-695023000005929F

Opinion : NA


Statement of Conformity NA

----- END -----

Reviewed By:

Signature: 
Name: Mr. Prady Babu, Dr. Devottam Banerjee
Designation: Technical In charge

Authorized Signatory:

Signature: 
Name: Dr. Souryadeep Mukhopadhyay
Designation: Lab In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (AIR) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree 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



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-695023000005928F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/9925EP

Date :

16/08/2023

Sample No. :

MSKNB/ED/2023-24/08/4GNF7R

Date of receipt of sample:

07/08/2023

Date(s) of performance:

07/08/2023 - 16/08/2023

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	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/08/2023
5. Place of sampling	Near Caagms-2(Ael)
6. Environmental conditions during sampling & Transport	1) Temperature :28-34deg C 2) Barometric Pressure: 745 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-11, MSK/BBSR/FIELD/RDS-11

Report No. : MSKPL/ED/2023-24/9925EP

Sample No. : MSKNB/ED/2023-24/08/4GNF7R

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated, April 02 : 2018	400 (24 Hours)	30.1
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.45
6	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 6): 2006	60 (24 Hours)	38.3
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9): 1974	160 (1 Hours)	23.2
10	PM10 (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter, Cylonic technique	micro gm/m3	IS 5182 (Part 23): 2006	100 (24 Hours)	76.1
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	44.0
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	7.0

Reviewed By:

Signature :
Name : Mr. Pradip B. Dr. Devotam Banerjee
Designation : Technical in charge

Authorized Signatory:

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

Mitra S. K. Private Limited

Doc No MSK/GEN/15/07

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-695023000005928F

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

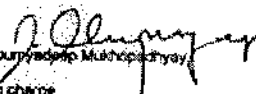
Statement of Conformity NA

----- END -----

Reviewed By:

Signature : 
Name : Mr. Prady Bag, Dr. Devottam Banerjee
Designation : Technical in charge

Authorized Signatory:

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

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel : 91 33 40143000 / 22550007 Fax : 91 33 22650006
Email : info@mitrask.com Website : www.mitrask.com

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-695023000006605F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/6A440J

Date :

18/09/2023

Sample No. :

MSKNB/ED/2023-24/09/G01541

Date of receipt of sample:

08/09/2023

Date(s) of performance:

08/09/2023 - 18/09/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000148895/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	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/09/2023
5. Place of sampling	Near Caaqms-4(HSM Water Complex)
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 742 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,5,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-10, MSK/BBSR/FIELD/RDS-10

Report No. : MSKPL/ED/2023-24/6A440J

Sample No. : MSKNB/ED/2023-24/09/G01541

RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02, 2018	400 (24 Hours)	32.2
2	Arsenic as (As)	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.32
6	Lead (as Pb)	micro gm/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6): 2006	80 (24 Hours)	26.7
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9): 1974	180 (1 Hours)	25.6
10	PM10 (Particulate Matter < 10 µm)/Respirable, Suspended Particulate Matter, Cyclonic technique	micro gm/m ³	IS 5182 (Part 23): 2006	100 (24 Hours)	52.3
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m ³	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	30.1
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	<6.0

Reviewed By:

Signature:

Name: Mr. Prady Bag, Dr. Devotam Banerjee

Designation: Technical in charge

Authorized Signatory:

Signature:

Name: Dr. Soumyadeep Mukhopadhyay

Designation: Lab in charge

**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

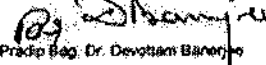
ULR: TC-695023000006605F

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, Dr. Devottam Banerjee
Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Sanyadeep Mukherjee
Designation : Lab in charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid A, Liquid Waste) shall be retained for 15 days as per CPCB guideline 5 (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji 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

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-695023000006604F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/3U440R

Date :

18/09/2023

Sample No. :

MSKNB/ED/2023-24/09/8K1530

Date of receipt of sample:

08/09/2023

Date(s) of performance:

08/09/2023 - 18/09/2023

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	Ambient Air
3. Unique Identification of sample (If any)	NA
4. Date of sampling	06/09/2023
5. Place of sampling	Near Caqms-3(Crm)
6. Environmental conditions during sampling & Transport	1) Temperature :25-36 deg C 2) Barometric Pressure: 747 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-3, MSK/BBSR/FIELD/RDS-03

Report No. : MSKPL/ED/2023-24/3U440R

Sample No. : MSKNB/ED/2023-24/09/8K1530

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	TPM/MSK/ENV(AP)/01/8 Issue no- 01 Issue Dated. April 02 : 2018	400 (24 Hours)	35.9
2	Arsenic as (As)	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	6 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.41
6	Lead (as Pb)	micro gm/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m ³	USEPA-IO 3.4 by ICP-OES, June: 1999	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6): 2006	80 (24 Hours)	30.4
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9): 1974	180 (1 Hours)	24.5
10	PM ₁₀ (Particulate Matter < 10 µm)/Respirable Suspended Particulate Matter. Cyclonic technique	micro gm/m ³	IS 5182 (Part 23): 2006	100 (24 Hours)	67.8
11	PM _{2.5} (Particulate Matter < 2.5 µm)	micro gm/m ³	TPM/MSK/ENV(AP)/01/03 Issue no- 01 Issue Date April 02: 2018	60 (24 Hours)	32.2
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	<6.0

Reviewed By:

Signature:

Name: Mr. Pradyumna Bag, Dr. Devottam Banerjee

Designation: Technical in charge

Authorized Signatory:

Signature:

Name: Dr. Soumyadeep Mukhopadhyay

Designation: Lab in charge

**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695023000006604F

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

Statement of Conformity NA

----- END -----

Reviewed By:

Signature : 
Name : Mr. Pradyot, Dr. Devcliam Banerjee
Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Soumyadeep Mukherjee
Designation : Lab in charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per GPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shiksha 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



Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email. udayaniab@mitrask.com



TC-8950



Scan for Portal

ULR: TC-695023000006626F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/GG44AD

Date :

19/09/2023

Sample No. :

MSKNB/ED/2023-24/09/MP154C

Date of receipt of sample:

11/09/2023

Date(s) of performance:

11/09/2023 - 19/09/2023

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	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/09/2023
5. Place of sampling	Near Caaqms-5(Coke Oven 2)
6. Environmental conditions during sampling & Transport	1) Temperature :26-33 deg C 2) Barometric Pressure: 752 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,6 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-6, MSK/BBSR/FIELD/RDS-06

Report No. : MSKPL/ED/2023-24/GG44AD

Sample No. : MSKNB/ED/2023-24/09/MP154C

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH3)	micro gm/m3	IS 5182 (Part 25)	400 (24 Hours)	35.2
2	Arsenic as (As)	ng/m3	USEPA-103.4 by ICP-OES, June	6 (Annual)	<1.0
3	Benzene	micro gm/m3	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m3	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.72
6	Lead (as Pb)	micro gm/m3	USEPA-103.4 by ICP-OES, June	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m3	USEPA-103.4 by ICP-OES, June	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO2)	micro gm/m3	IS 5182 (Part 6): 2006	80 (24 Hours)	43.6
9	Ozone (as O3)	micro gm/m3	IS 5182 (Part 9): 1974	180 (1 Hours)	27.5
10	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m3	IS 5182 (Part 23): 2006	100 (24 Hours)	74.5
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m3	IS 5182 (Part 24)	60 (24 Hours)	46.2
12	Sulphur Dioxide as (SO2)	micro gm/m3	IS 5182 (Part 2) : 2001	80 (24 Hours)	7.8

Reviewed By:

Signature

Name

Designation

Mr. Pradip Bag, Dr. Devottam Banerjee

Technical In charge

Authorized Signatory:

Signature

Name

Designation

Mr. Pradip Bag, Dr. Devottam Banerjee

Technical In charge

**Address of Laboratory :**

Building No. P- 46, Udayan Industrial Estate,
3, Pagladanga Road, Kolkata 700015
West Bengal
Tel. : +91 7044036120
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695023000006626F

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, Dr. Devottam Banerjee
Designation: Technical In charge

Authorized Signatory:

Signature:
Name: Mr. Pradip Bag, Dr. Devottam Banerjee
Designation: Technical In charge

The results relate only to the item(s) tested.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Street's 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



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-695023000006625F

TEST REPORT

Name & Address of Customer :

TATA STEEL LTD.

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

Report No. :

MSKPL/ED/2023-24/GY44AF

Date :

19/09/2023

Sample No. :

MSKNB/ED/2023-24/09/631539

Date of receipt of sample:

11/09/2023

Date(s) of performance:

11/09/2023 - 19/09/2023

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	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/09/2023
5. Place of sampling	Near Caagma-1(Colony)
6. Environmental conditions during sampling & Transport	1) Temperature :26-33 deg C 2) Barometric Pressure: 752 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-2,6,9,11,12,23), TPM-1,3,8 & USEPA
8. Identification of the personnel performing sampling by MSK	Chinmaya Biswal
9. Field Equipments Used	MSK/BBSR/FIELD/FDS-4, MSK/BBSR/FIELD/RDS-04

Report No. : MSKPL/ED/2023-24/GY44AF

Sample No. : MSKNB/ED/2023-24/09/631539

RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (as NH ₃)	micro gm/m ³	IS 5182 (Part 25)	400 (24 Hours)	38.3
2	Arsenic as (As)	ng/m ³	USEPA-IO3.4 by ICP-OES, June	6 (Annual)	<1.0
3	Benzene	micro gm/m ³	IS 5182 (Part 11) : 2006	5 (Annual)	<4.2
4	Benzo(a)Pyrene	ng/m ³	IS 5182 (Part 12) : 2004	1 (Annual)	<0.5
5	Carbon monoxide (as CO)	mg/m ³	IS 5182 (Part 10) (NDIR): 1999	2 (8 Hours)	0.38
6	Lead (as Pb)	micro gm/m ³	USEPA-IO3.4 by ICP-OES, June	1 (24 Hours)	<0.01
7	Nickel as Ni	ng/m ³	USEPA-IO3.4 by ICP-OES, June	20 (Annual)	<5.0
8	Nitrogen Dioxide as (NO ₂)	micro gm/m ³	IS 5182 (Part 6): 2006	80 (24 Hours)	23.7
9	Ozone (as O ₃)	micro gm/m ³	IS 5182 (Part 9): 1974	180 (1 Hours)	22.5
10	PM10(Particulate Matter<10 µm)/Respirable Suspended Particulate Matter Cyclonic technique	micro gm/m ³	IS 5182 (Part 23): 2006	100 (24 Hours)	69.0
11	PM2.5 (Particulate Matter < 2.5 µm)	micro gm/m ³	IS 5182 (Part 24)	60 (24 Hours)	30.3
12	Sulphur Dioxide as (SO ₂)	micro gm/m ³	IS 5182 (Part 2) : 2001	80 (24 Hours)	6.2

Reviewed By

Signature

Name

Designation

Mr. Pradip Bag, Dr. Devottari Banerjee

Technical In charge

Authorized Signatory

Signature

Name

Designation

Mr. Pradip Bag, Dr. Devottari Banerjee

Technical In charge

Mitra S. K. Private Limited

Doc No.: MSK/GEN/19/07



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-69502300006625F

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

Statement of Conformity NA

----- END -----

Reviewed By:

Signature

Name

Designation

Mr. Prady Bag, Dr. Devottam Banerjee
Technical In charge

Authorized Signatory:

Signature

Name

Designation

Mr. Prady Bag, Dr. Devottam Banerjee
Technical In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sivachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 49143000 / 22650007 Fax : 91 33 22650006
Email : info@mitrask.com Website : www.mitrask.com