

By-Email

Ref.No.: MGM/P&E/511 Date: 29/11/2024

To,
The Additional Director,
Ministry of Environment and Forest & Climate Change,
Eastern Region Office,
A/3, Chandrasekharpur,
Bhubaneswar-751023

Subject: Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Joda West Iron and Manganese Mine of M/s TATA Steel Ltd., for the period from April'2024 to September'2024

#### Reference:

1) MoEFCC's Letter Ref No: J-11015/86/2004-IA. II(M) dated 13th September 2005.

2) MoEFCC's notification vide S.O-5845 (E), dated 28th November 2018.

Respected Sir,

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance awarded to us vide MoEFCC's Letter Ref No: J-11015/86/2004-IA. II(M) dated 13<sup>th</sup> September 2005 in respect of Joda West Iron and Manganese Mine of M/s TATA Steel Ltd. for the period from April'2024 to September'2024 for your kind perusal.

This is in reference to the above referred MoEFCC's notification, the six-monthly compliance report is being submitted only in soft copy mode, shared with your good office at e-mail @ roez.bsr-mef@nic.in.

We believe the above submission is in order.

Thanking You,

Yours Faithfully,

F: TATA STEEL LTD.

Head (Mine Tanning),

Joda West Iron & Manganese Mines,

Ferro Alloys Mineral Division

Encl: As above.

#### Copy To:

 Zonal Office Kolkata, Central Pollution Control Board, South end Conclave, Block 502, 5th and 6th Floors, 1582 Rajdanga Main Road, Kolkata, West Bengal 700107.
 The Marchay Country Class B. West Bengal 700107.

2) The Member Secretary, State Pollution Control Board, A/118, Nilakantha Nagar, Bhubaneswar, Odisha-751012.

3) The Regional Officer, State Pollution Control Board, Baniapat, DD College Road, Keonjhar, Odisha-758001.

#### TATA STEEL LIMITED

#### Half Yearly Compliance Report 2024 01 Dec(01 Apr - 30 Sep)

### Acknowledgement

Proposal Name	Joda West Manganese Ore Mine of M/s Tata Steel, Dist. Keonjhar, State-Odisha {Production Capacity: 1.80 LTPA of Manganese Ore}, ML Area 1437.719 Ha.
Name of Entity / Corporate Office	Tata Steel
Village(s)	N/A
District	KENDUJHAR

Proposal No. IA/OR/MIN/11664/2005

Plot / Survey / Khasra No. N/A

State ODISHA

MoEF File No. No.J-11015/86/2004-

IA.II(M)

Category	Non-Coal Mining
Sub-District	N/A
Entity's PAN	****2803M
Entity name as per PAN	UTSAV KASHYAP

### **Compliance Reporting Details**

**Reporting Year** 2024

Six Monthly EC Compliance Report for Joda West Iron and Mn Mine Project Proponent: Tata Steel Limited Project

Tata Steel Limited Project
Type: Mining (Opencast)
Mineral: Manganese

**Reporting Period** 01 Dec(01 Apr - 30 Sep)

### **Details of Production and Project Area**

Name of Entity / Corporate Office

Remarks (if any)

Tata Steel

	Project Area as per EC Granted	<b>Actual Project Area in Possession</b>
Private	9.347	71.273
Revenue Land	229.029	119.894
Forest	1199.34	1246.55
Others	0	0
Total	1437.716	1437.716999999999

## **Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Manganese Ore	Tons per Annum (TPA)	31/03/2026	180000	178830	180000

#### **Conditions**

#### **Specific Conditions**

Sr.No.	<b>Condition Type</b>	Condition Details
1	Statutory compliance	Mining shall not be undertaken in areas of forestland within the lease for which necessary approval/ forestry clearance has not been obtained.

#### PPs Submission: Complied

The present leasehold area of Joda West Iron and Manganese Mine is 1437.719 ha. Out of which, forest land and non-forest land prevails over 1246.552 ha and 191.167 ha. respectively. Stage-II Forest clearance has been accorded vide letter no F F.No.8-89/2004-FC, dated 10.08.2007 for 436.678 ha of forest land. FC for balance area of 809.874 ha (Sabik Forest and Balance Forest) has been applied. Presently mining is restricted to only 436.678 ha diverted forest land, non-forestland of 191.167 ha and some portions of the broken-up forestland (broken up prior to 1980).

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2 GREENBELT along roads, OB coother areas within less than 409.809 local DFO/Agricu

A green belt of should be raised around ML area (296.163 ha), along roads, OB dump sites (64.774 ha), township (21.242 ha) and in other areas within the lease (227.63 ha) covering a total area of not less than 409.809 ha by planting native species in consultation with local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.

#### PPs Submission: Complied

Plantation activities are ensured in accordance with the provisions of Progressive Mine Closure Plan (PMCP). Tata Steel Limited has developed a site-specific biodiversity management plan for implementation of measures for protection and conservation of biodiversity in and around the mine. Accordingly, emphasis on the principles of restoration is ensured by following scientific plantation strategies with the help of mixed varieties of native (non-exotic) forestry saplings in the scheme of plantation. So far, around 114.830 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 500164 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 45.1 hectares over OB dump, 62.881 ha of Avenue Planation and 6.848 ha of Safety zone plantation where the saplings have attained self-sustaining stage. The mine management has also established a centralized nursery over an area of 2000 sq-mtr with a generation potential of around 1 lakh saplings/year within the lease area for promoting greenbelt/ afforestation related measures which caters to all the sapling requirement of all the three leases in Manganese Group of Mines. Apart from above we have planted 6515 sapling from April 24-Sep 24. Glimpses of Greenbelt and associated afforestation measures undertaken at mine level is enclosed as Annexure 3.

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WATER QUALITY
MONITORING AND
PRESERVATION

Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.

#### PPs Submission: Complied

Ground water is not being used for any mining associated processes. There are no wet beneficiation plants within the lease. Majorly water is used for meeting domestic requirements of office areas, rest shelters areas for workers, supply to villagers in nearby villages nearby and Haul Road dust suppression purposes. Presently, mine draws around 146 KLD of ground water from 3-4 bore wells which is exclusively used for drinking and domestic consumption and is also supplied to local villagers for drinking purposes. As there is seepage evidenced for one of the quarries thus it s dewatering potential of 246KLD has been included in the purview of NOC granted by CGWA vide

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NOC no. CGWA/NOC/MIN/REN/2/2023/7840 which is valid till 22nd July 2024. Copy of the said NOC is enclosed as Annexure 4. Apart from above we have applied for renewal of the NOC. Copy of the online application has been attached.

4 MINING PLAN

Mining shall not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.

PPs Submission: Complied

As per the approved mining plan and status thereof, it is conclusive that ultimate pit depth of the mine at the end of mine plan period will not intercept the regional ground water table however during the advancement of mining operation at Gangeiguda Quarry feeble seepage from one of its face (attributed to some localized aquifer) was encountered and accordingly a detailed hydrogeological investigation was carried out in this regard by engaging a CGWA accredited/empanelled agency. With the help of ground water modelling studies, it was estimated that peak seepage for mine would be around 246 KLD. Based on the above said studies and deliberations at CGWA, NOC was granted to Joda west mine for the Abstraction of 146 KLD (from bore wells) and 246 KLD from Mine pits (as seepage) vide NOC no. CGWA/NOC/MIN/REN/2/2023/7840 valid till 22nd July 2024.

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5 WATER QUALITY MONITORING AND PRESERVATION Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers. The monitoring should be done for quantity four times a year in pre-monsoon (April / May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forest and the Central Ground Water Authority quarterly.

**PPs Submission:** Complied

A network of open dug wells and bore wells have been identified for monitoring of GW levels and quality in and around the mine areas. A copy of the abstract of GW level recorded during the monitoring period is enclosed herewith as Annexure 5.

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6 WATER QUALITY MONITORING AND PRESERVATION Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn shall be periodically monitored at specific locations in both surface water downstream and in ground water at lower elevations from mine area, in consultation with the OSPCB and State Ground Water Board. Suitable treatment measures shall be undertaken in case levels are found to be higher than permissible limits.

PPs Submission: Complied

Water Quality parameters are regularly tested for both surface water and ground water. Monitoring reports are submitted to SPCB from time to time. So far from the water quality analysis result of both surface and ground water attributes, no such adverse impacts have been observed when compared with applicable permissible limits/standards prescribed. An abstract of water quality assessment for April 2024 to September 2024 is enclosed herewith as Annexure 6.

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7

Statutory compliance

"Consent to Operate" should be obtained from SPCB before expanding mining activities.

**PPs Submission:** Complied

Consent to Operate for Production of Mn Ore for 180000 TPA and Operation of stationary Screening Plant of 1X70 TPH has been accorded by SPCB, Odisha vide letter No. 4234/IND-I-CON-186 dated 17-03-2022 which is valid up to 31/03/2026. A copy of the valid CTO is enclosed as Annexure 7.

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8

Statutory compliance

A plan for conservation Plan for conservation of endangered fauna including the Indian Elephant found in and around the mine area shall be prepared and implemented in consultation with identified agencies/institutions and with the State Forest Department. The Plan

should be dovetailed with that prepared/under implementation/ proposed for the endangered fauna found in the Reserve Forest in the buffer zone of the project site. The costs for the specific activities/tasks should be earmarked in the Conservation Plan and shall not be diverted for any other purpose. Year-wise status of the implementation of the Plan and the expenditure thereon should be reported to the Ministry of Environment & forests, RO, Bhubaneshwar.

#### **PPs Submission:** Complied

A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7726/1WL-SSP-93/2015 dated 31.08.2015. Following funds have been deposited by PP to State Forest Dept till date for - - Rs. 9,79,48,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other - Rs 6,18,21,917/- for the implementation of regional wildlife conservation as per the demand notices. A copy of the approval of site-specific wildlife conservation plan is enclosed herewith as Annexure 8.

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#### MINING PLAN

A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

#### **PPs Submission:** Complied

A Final Mine Closure Plan (FMCP) shall be prepared in accordance with the provisions laid down under the "GUIDELINES FOR PREPARATION OF FINAL MINE CLOSURE PLANS" as prescribed by Indian Bureau of Mines. As per the said guideline, FMCP is required to be prepared 2 years in advance from the date of closure/life of the mine. However presently during the approval of Mine Plan, a progressive mine closure plan (PMCP) is being submitted for approval. During the process of such approval, based on the area put to use for excavation and allied activities, we have deposited a sum of Rs. 30.5990 Cr to Indian Bureau of Mines (IBM) in the form of Bank Guarantees towards financial assurance for the implementation of measures of PMCP provisions. This approval was communicated to the Regional office , MoEF and CC, Bhubaneswar vide our letter no MGM/P and E/106/23 dated 31.03.2023. Copy of the letter is enclosed herewith as Annexure 9.

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#### LAND RECLAMATION

Topsoil should be stacked properly with proper slope at earmarked site(s) with adequate measures and should be used for reclamation and rehabilitation of mined out area.

#### PPs Submission: Complied

No topsoil generated during the period April 2024 to September 2024 since mining has not advanced into any virgin land. Whenever topsoil is generated, it will be stacked in a designated place earmarked for the same. Topsoil recovered during mining operation earlier has been concurrently used for plantation over matured dumps and for roadside avenue plantation.

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11

#### WASTE MANAGEMENT

OB and other wastes should be stacked at earmarked sites only and should not be kept active for long periods of time. Plantation should be taken up for soil stabilization along the slopes of the dump and terraced after every 5-6 m of height and overall slope angle shall be maintained not exceeding 28°. Sedimentation pits shall be constructed at the corners of the garland drains. Retention/toe walls shall be provided at the base of the dumps.

#### PPs Submission: Complied

Mining and all its associated operational activities are ensured in line with the provisions of approved mining plan. Dedicated sites have been earmarked for storing overburden (OB) and other waste and/or minerals/ mineral rejects. The status thereof is updated in the surface plan on quarterly basis. All matured dumps are stabilized by bio-reclamation with the plantation of Vetiver grass on the slopes and native varieties of forestry saplings. The dump is terraced at every 5-6 mtr and overall slope is maintained well within 28 deg. Environmental Protection Measures ensured at site especially for the dump management aspects are as follows: 1. Network of Garland Drains and/or

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Toe Walls 2. Intermittent Sedimentation tanks/settling pits 3. Slope stabilization by means of coir matting and/or vetiver grass plantation 4. Final rehabilitation measures by means of native varieties of forestry saplings both on the slope and benches of the dump. Copy of latest surface plan along with photos of the implemented dump stabilization measures is enclosed as Annexure 1.

WATER QUALITY
MONITORING AND
PRESERVATION

Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient & length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall/super cyclone period. A separate storm water sump for this purpose should be created.

#### **PPs Submission:** Complied

Existing catch drains and garland drains have been constructed all along the periphery of dump at the toe, so that silt/sediments in the surface runoff can be arrested. Size, gradient and length of the drains and the ponds are adequately made with respect to the size of the same to take care of the peak flow during the rainy season. The garland drain, catch drains and sedimentation pits are periodically de-silted and maintained properly every year before the onset of monsoon. The storm water which gets collected in the lower most areas of the leasehold, during rains, is connected to a series of drains which lead to D Quarry mine pit to store the water and also recharge the ground water table.

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WATER QUALITY
MONITORING AND
PRESERVATION

Dimension of retaining wall at the toe of OB dumps and benches within the mine to check run-off and siltation should be based on the rainfall data.

#### PPs Submission: Complied

While designing network of garland drains, check dams, retention walls and rain passes for slope protection as well as arresting silt and sediment during monsoon season, following factors are considered such as Rainfall (peak scenarios), catchment area, gradient slope and retention hours.

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AIR QUALITY

MONITORING AND
PRESERVATION

Trace Metals such as Ni, Co, As and Hg should be analyzed in dust fall and soil samples for at least one year during summer, monsoon and winter seasons. If concentrations of these metals are found below the standards then with prior approval of MOEF this specific monitoring could be discontinued.

#### PPs Submission: Complied

Yearly monitoring of trace metals both in dust fall and soil samples for parameters like Ni, Co, As and Hg is being carried out. So far, no such trace mineral has been detected in the collected samples. An abstract of dust fall analysis carried out during the period April 2024-September 2024 is enclosed as Annexure-2.

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15 AIR QUALITY
MONITORING AND
PRESERVATION

Mineral and OB transportation shall be done in trucks/dumpers covered with tarpaulins. Vehicular emissions should be kept under control and regularly monitored. Suitable measures should be taken to check fugitive emissions from haulage roads, transfer points, etc.

#### **PPs Submission:** Complied

Mineral Transportation is ensured by tippers and all the trucks are covered with tarpaulins before issuance of transit permits for their onward transportation. All the despatch vehicles are mandatorily required to have Pollution under Check (PuC) certificate to enter the mine. To restrict the fugitive emissions form haul roads, the following measures have been taken up: -1. Fixed Sprinkling System for the Haul Roads 2. Mist Canons at sorting yards 3. Automatic Wheel wash facility at the exit

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point of the mines 4. Dust suppression by means of mobile water tanker (capacity 10Kl) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding

#### **General Conditions**

Sr.No.	Condition Type	Condition Details
1	MINING PLAN	No change in the calendar plan including excavation, quantum of manganese ore and waste should be made.

#### PPs Submission: Complied

Production and excavation quantum is regulated by the Mine Plan approved by Indian bureau of Mines (IBM). No change in the calendar plan has been made. Total annual production achieved from the mine is well within the EC limit of 1.8 Lakh tonnes per annum.

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AIR QUALITY

MONITORING AND
PRESERVATION

Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx & CO monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Data on ambient air quality (RPM, SPM, SO2, NOx & CO) should be regularly submitted to the Ministry including its regional office at Bhubaneshwar and the State Pollution Control Board / Central Pollution Control Board once in six months.

#### **PPs Submission:** Complied

In consultation with Regional Office, State Pollution Control Board (Keonjhar Region), 06 nos of dedicated Ambient Air Quality monitoring station have been established and regular monitoring is being carried out twice a week. Photographs of fixed type platforms properly geotagged with the spatial coordinates have been shared with State Pollution Control Board and the same was accepted to SPCB during renewal of CTO. In addition to this, 12 nos of locations have also been identified in the buffer zone for regular monitoring. Abstract of Ambient Air Quality monitoring result for the period during April 2024 to September 2024 is enclosed as Annexure 10.

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3 AIR QUALITY
MONITORING AND
PRESERVATION

Drills should be wet operated or with dust extractors and controlled blasting should be practiced.

#### PPs Submission: Complied

Wet drilling concept is already in place and practiced. Exploratory drills have been provided with inbuilt DE system. Controlled blasting technique with NONEL is in practice. Ground vibrations are being checked for every blast done in the mine. Blasting parameters are assessed periodically by engaging agency like CIMFR, Dhanbad. Based on the recommendation of such assessments, the blasting rounds are designed and fired.

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4 AIR QUALITY
4 MONITORING AND
PRESERVATION

Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dumpers/ trucks, loading & unloading points should be provided and properly maintained.

#### PPs Submission: Complied

Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-10Kl) for Haul Roads, Dump yards and other locations) 2. Mist Canons (30 LPH) for sorting yards and screening plants 3. Fixed Sprinkling system for static haul roads 4. Automatic Wheel wash facility at Railway Siding and exit point of the mines. Photographs of the fugitive dust pollution control measures deployed at the mine are enclosed as Annexure 11.

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5 Noise Monitoring & Prevention

Adequate measures should be taken for control of noise levels

below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. should be provided with ear plugs/ muffs.

#### PPs Submission: Complied

Ear plugs and Earmuffs are provided to the workers working in mining operation and DG operations and other high noise generating equipment s. Provision of acoustic enclosures are invariably ensured before the installation of such noise generating instruments. Following monitoring measures are ensured for the regulation of noise pollution associated impacts: 1. Monitoring of Noise level (both ambient noise survey) and workplace noise survey is carried out on monthly basis using an integrated sound level meter. 2. Occupational Noise Exposure assessment is also carried out for the persons engaged in high noise generating areas on quarterly basis by sampling individual workers over eight-hour durations. Noise level monitoring data for the period during April 2024 to September 2024 is enclosed as Annexure 12.

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6 WATER QUALITY MONITORING AND PRESERVATION Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

#### **PPs Submission:** Complied

For effective management of effluent following mitigative measures are ensured at the mine level: 1. Effluents from Workshop/Garage: Vehicle washing system and associated operational activities are provided with separate catchment drains and finally the effluents are collected in Oil-Water Separation system having skimming arrangements for oil and grease. 2. Wastewater/runoff collected from the mine pits: Since there is no wet process thus no wastewater is generated at any stage from any process. 3. Surface runoff is channelized and accumulated in the mine pit. After adequate retention period, the same is pumped to water treatment plant for final treatment before domestic consumption. 4. Periodically water samples from mine pits and oil-water separation system are collected and analysed by an NABL accredited agency for checking compliance w.r.t applicable standards.

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7 MISCELLANEOUS

Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

#### PPs Submission: Complied

Environmental Monitoring services are carried out by engaging an NABL Accredited agency having it s laboratory recognized by Ministry of Environment, Forest and Climate Change. Though no captive laboratory has been established at site but the entire services is outsourced to the third party who have an environmental laboratory within 20 Kms from the mine.

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8 Huma

**Human Health Environment** 

Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

#### **PPs Submission:** Complied

Personnel Protective Equipment s (PPEs) are being mandatorily used by all the workers as per applicability. It is regularly ensured at the entry points. Safe Operating Procedure based training is imparted to all the workers apart from the initial VT training. Periodical Medical Examination of employees (departmental and contractual) are conducted as per prescribed norms of Mines Rule, 1955. Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling and Free Silica exposure assessment by a DGMS approved agency. 2. Hand-Arm Vibration and Whole Body Vibration Exposure Assessment report by a DGMS approved laboratory 3. Mn Poisoning test (periodic) by a medical laboratory.

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9

**MISCELLANEOUS** 

A separate environmental management cell with suitable qualified

		personnel should be set up under the control of a Senic who will report directly to the Head of the Organization	
The con Environ up head evel inc	ment management plan. A Centralized by the Chief (Environment) and	ent for reviewing and monitoring the implementation of zed Environmental Management Department has been set supporting staff. The operation and legal sections at mine (Environment), Senior Manager - Mine Planning, Area Engineer, Chemists, etc.	Date: 29/11/2024
0	MISCELLANEOUS	The funds earmarked for environmental protection metable kept in separate account and should not be diverted purpose. Year wise expenditure should be reported to the and its Regional Office located at Bhubaneswar.	for other
A dedicate of december A dedicate of the december A december 2 dec	ount having a unique cost centre ma on related expenditures are booked	environmental expenditure is maintained in a separate apped in the SAP system. All sorts of environmental in the said cost centre for accounting purpose. The details nancial years is as under: - FY-2021-22: Rs. 274.5 Lakhs - 24: Rs. 378.33 Lakhs	Date: 29/11/2024
1	Statutory compliance	The Regional Office of this Ministry located at Bhub monitor compliance of the stipulated conditions. The pauthorities should extend full cooperation to the office Regional Office by furnishing the requisite data / informonitoring reports.	oroject r (s) of the
The contatutory		peration to the officers of the Regional Office and other te data / information / monitoring reports as and when ture as well.	Date: 29/11/2024
2	PUBLIC HEARING	A copy of clearance letter will be marked to the conc Panchayat/local NGO, if any, from whom suggestion/ has been received while processing the proposal.	
The clea	ubmission: Complied arance letter has been uploaded on to to Chairman, Municipal Council, Jo	the website of the Company. Copy of the clearance letter oda on 12.01.2006.	Date: 29/11/2024
.3	MISCELLANEOUS	The State Pollution Control Board should display a c clearance letter at the Regional Office, District Industr Collector's Office/Tehsildar's Office for 30 days.	
The EC	ubmission: Complied documents was displayed in the off or s Office/ Tehsildar s Office for 30	fice of Regional Office, District Industry Centre and 0 days.	Date: 29/11/2024
		The project authorities should advertise at least in tw newspapers widely circulated around the project, one of	

PPs Submission: Complied A copy of Environmental Clearance with regard to Joda West Manganese Mine was published in Oriya News Papers Dharitri and Sambad on 17.10.2005.		Date: 29/11/2024	
15	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.		

#### PPs Submission: Complied

There is no change in the mining technology and scope of working of the mines. Mining is carried out as proposed by using shovel-dumper combination. Dry mobile screening is carried out with the help of a 1X75 TPH screen plant.

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Visit Remarks		
Last Site Visit Report Date:	N/A	
Additional Remarks:		

**Note:** This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.

Compliance to the Environment Clearance Letter No: J-11015/86/2004-IA. II(M) dated 13<sup>th</sup>
September 2005 in respect of "Expansion of Joda West Manganese Mines (0.45LTPA to
1.80 LTPA) of M/s Tata Steel Limited located in villages Joda, Bichhakundi, Kamarjoda,
Banspani and Bhuyan Roida, Tehsil-Barbil, District-Keonjhar, Odisha."

#### **Table A:- Specific Conditions**

SN.	EC Conditions	Status of Compliance
(i)	Mining shall not be undertaken in	The present leasehold area of Joda West Iron and Manganese Mine
	areas of forestland within the lease	is 1437.719 ha. Out of which, forest land and non-forest land prevails
	for which necessary approval/	over 1246.552 ha and 191.167 ha. respectively. Stage-II Forest
	forestry clearance has not been	clearance has been accorded vide letter no F F.No.8-89/2004-FC,
	obtained.	dated 10.08.2007 for 436.678 ha of forest land. FC for balance area
		of 809.874 ha (Sabik Forest and Balance Forest) has been applied.
		Presently mining is restricted to only 436.678 ha diverted forest land,
		non-forestland of 191.167 ha and some portions of the broken-up
(::)	Tanacil abouted be atacked avenuely	forestland (broken up prior to 1980).
(ii)	Topsoil should be stacked properly	No topsoil generated during the period April 2024 to September 2024
	with proper slope at earmarked site(s) with adequate measures and	since mining has not advanced into any virgin land. Whenever topsoil is generated, it will be stacked in a designated place
	should be used for reclamation and	earmarked for the same. Topsoil recovered during mining operation
	rehabilitation of mined out area.	earlier has been concurrently used for plantation over matured
	Teriabilitation of mined out area.	dumps and for roadside avenue plantation.
(iii)	OB and other wastes should be	Mining and all its associated operational activities are ensured in line
(,	stacked at earmarked sites only and	with the provisions of approved mining plan. Dedicated sites have
	should not be kept active for long	been earmarked for storing overburden (OB) and other waste and/or
	periods of time.	minerals/ mineral rejects. The status thereof is updated in the
	•	surface plan on quarterly basis. All matured dumps are stabilized by
	Plantation should be taken up for	bio-reclamation with the plantation of Vetiver grass on the slopes and
	soil stabilization along the slopes of	native varieties of forestry saplings. The dump is terraced at every
	the dump and terraced after every	5-6 mtr and overall slope is maintained well within 28°.
	5-6 m of height and overall slope	Environmental Protection Measures ensured at site especially for the
	angle shall be maintained not	dump management aspects are as follows: 1. Network of Garland
	exceeding 28°. Sedimentation pits	Drains and/or Toe Walls 2. Intermittent Sedimentation tanks/settling
	shall be constructed at the corners	pits 3. Slope stabilization by means of coir matting and/or vetiver
	of the garland drains. Retention/toe	grass plantation 4. Final rehabilitation measures by means of native
	walls shall be provided at the base of the dumps.	varieties of forestry saplings both on the slope and benches of the dump. Copy of latest surface plan along with photos of the
	of the dumps.	implemented dump stabilization measures is enclosed as
		Annexure 1.
(iv)	Catch drains and siltation ponds of	
(,	appropriate size should be	along the periphery of dump at the toe, so that silt/sediments in the
	constructed to arrest silt and	surface runoff can be arrested. Size, gradient and length of the
	sediment flows from soil, OB and	drains and the ponds are adequately made with respect to the size
	mineral dumps. The drains should	of the same to take care of the peak flow during the rainy season.
	be regularly desilted and maintained	The garland drain, catch drains and sedimentation pits are
	properly.	periodically de-silted and maintained properly every year before the
	Garland drains (size, gradient and	onset of monsoon. The storm water which gets collected in the lower
	length) and sump capacity should	most areas of the leasehold, during rains, is connected to a series of
	be designed keeping 50% safety	drains which lead to D Quarry mine pit to store the water and also
	margin over and above the peak	recharge the ground water table.
	sudden rainfall and maximum	
	discharge in the area adjoining the	

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SN.	EC Conditions	Status of Compliance
	mine site. Sump capacity should	•
	also provide adequate retention	
	period to allow proper settling of silt	
	material.	
	Storm water return system should	
	be provided. Storm water should not	
	be allowed to go to the effluent	
	treatment plant during high	
	rainfall/super cyclone period. A	
	separate storm water sump for this purpose should be created.	
(v)	Dimension of retaining wall at the	While designing network of garland drains, check dams, retention
(*)	toe of OB dumps and benches	walls and rain passes for slope protection as well as arresting silt
	within the mine to check run-off and	and sediment during monsoon season, following factors are
	siltation should be based on the	considered such as Rainfall (peak scenarios), catchment area,
	rainfall data.	gradient slope and retention hours.
(vi)	Trace Metals such as Ni, Co, As and	Yearly monitoring of trace metals both in dust fall and soil samples
	Hg should be analyzed in dust fall	for parameters like Ni, Co, As and Hg is being carried out. So far, no
	and soil samples for at least one	such trace mineral has been detected in the collected samples. An
	year during summer, monsoon and	abstract of dust fall analysis carried out during the period
	winter seasons. If concentrations of	April 2024-September 2024 is enclosed as <b>Annexure-2</b> .
	these metals are found below the	
	standards then with prior approval	
	of MOEF this specific monitoring could be discontinued.	
(vii)	Mineral and OB transportation shall	Mineral Transportation is ensured by tippers and all the trucks are
(vii)	be done in trucks/dumpers covered	covered with tarpaulins before issuance of transit permits for their
	with tarpaulins. Vehicular emissions	onward transportation. All the despatch vehicles are mandatorily
	should be kept under control and	required to have "Pollution under Check (PuC)" certificate to enter
	regularly monitored. Suitable	the mine. To restrict the fugitive emissions form haul roads, the
	measures should be taken to check	following measures have been taken up: -1. Fixed Sprinkling System
	fugitive emissions from haulage	for the Haul Roads 2. Mist Canons at sorting yards 3. Automatic
	roads and transfer points, etc.	Wheel wash facility at the exit point of the mines 4. Dust suppression
		by means of mobile water tanker (capacity 10Kl) deployed for Haul
		Roads and other locations. 5. Fixed sprinkling arrangement at
(viii)	A green belt of should be raised	railway siding  Plantation activities are ensured in accordance with the provisions of
(VIII)	around ML area (296.163 ha), along	Progressive Mine Closure Plan (PMCP). Tata Steel Limited has
	roads, OB dump sites (64.774 ha),	developed a site-specific biodiversity management plan for
	township (21.242 ha) and in other	implementation of measures for protection and conservation of
	areas within the lease (227.63 ha)	biodiversity in and around the mine. Accordingly, emphasis on the
	\covering a total area of not less	principles of restoration is ensured by following scientific plantation
	than 409.809 ha by planting native	strategies with the help of mixed varieties of native (non-exotic)
	species in consultation with local	forestry saplings in the scheme of plantation. So far, around 114.830
	DFO/Agriculture department. The	hectares of area (including waste dump, safety zone, back filled area
	density of the trees should be	and avenue plantation zones) have been covered under plantation
	around 2500 plants per ha.	with 500164 nos of saplings (approx.). In the process of
		afforestation, the mine has ensured rehabilitation of around 45.1
		hectares over OB dump, 62.881 ha of Avenue Planation and 6.848
		ha of Safety zone plantation where the saplings have attained self- sustaining stage. The mine management has also established a
		centralized nursery over an area of 2000 sq-mtr with a generation
		1 22 S 200 The Will a golfoldholl

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SN.	EC Conditions	Status of Compliance
		potential of around 1 lakh saplings/year within the lease area for promoting greenbelt/ afforestation related measures which caters to all the sapling requirement of all the three leases in Manganese Group of Mines. Apart from above we have planted 6515 sapling from April 24-Sep 24. Glimpses of Greenbelt and associated afforestation measures undertaken at mine level is enclosed as Annexure 3.
(ix)	Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.	Ground water is not being used for any mining associated processes. There are no wet beneficiation plants within the lease. Majorly water is used for meeting domestic requirements of office areas, rest shelters areas for workers, supply to villagers in nearby villages nearby and Haul Road dust suppression purposes. Presently, mine draws around 146 KLD of ground water from 3-4 bore wells which is exclusively used for drinking and domestic consumption and is also supplied to local villagers for drinking purposes. As there is seepage evidenced for one of the quarries thus it s dewatering potential of 246KLD has been included in the purview of NOC granted by CGWA vide NOC no. CGWA/NOC/MIN/REN/2/2023/7840 which is valid till 22 <sup>nd</sup> July 2024. Copy of the said NOC is enclosed as <b>Annexure 4</b> . Apart from above we have applied for renewal of the NOC. Copy of the online application has been attached.
(x)	Mining shall not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.	' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
(xi)	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers. The monitoring should be done for quantity four times a year in pre-monsoon (April / May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment and Forest and the Central Ground Water Authority quarterly.	A network of open dug wells and bore wells have been identified for monitoring of GW levels and quality in and around the mine areas. A copy of the abstract of GW level recorded during the monitoring period is enclosed herewith as <b>Annexure 5</b> .
(xii)	Trace metals such as Fe, Cr <sup>+6</sup> , Cu,	Water Quality parameters are regularly tested for both surface water
	Se, As, Cd, Hg, Pb, Zn and Mn shall	and ground water. Monitoring reports are submitted to SPCB from

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GVI	N. EC Conditions Status of Compliance						
(xiii)	be periodically monitored at specific locations in both surface water downstream and in ground water at lower elevations from mine area, in consultation with the OSPCB and State Ground Water Board. Suitable treatment measures shall be undertaken in case levels are found to be higher than permissible limits.  "Consent to Operate" should be obtained from SPCB before expanding mining activities.	time to time. So far from the water quality analysis result of both surface and ground water attributes, no such adverse impacts have been observed when compared with applicable permissible limits/standards prescribed. An abstract of water quality assessment for April 2024 to September 2024 is enclosed herewith as Annexure 6.  Consent to Operate for Production of Mn Ore for 180000 TPA and Operation of stationary Screening Plant of 1X70 TPH has been accorded by SPCB, Odisha vide letter No. 4234/IND-I-CON-186 dated 17-03-2022 which is valid up to 31/03/2026. A copy of the valid CTO is enclosed as Annexure 7.					
(xiv)	A plan for conservation Plan for conservation of endangered fauna including the Indian Elephant found in and around the mine area shall be prepared and implemented in consultation with identified agencies/institutions and with the State Forest Department. The Plan should be dovetailed with that prepared/under implementation/proposed for the endangered fauna found in the Reserve Forest in the buffer zone of the project site. The costs for the specific activities/tasks should be earmarked in the Conservation Plan and shall not be diverted for any other purpose. Year-wise status of the implementation of the Plan and the expenditure thereon should be reported to the Ministry of Environment and forests, RO, Bhubaneshwar.	A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7726/1WL-SSP-93/2015 dated 31.08.2015.  Following funds have been deposited by PP to State Forest Dept till date for –  • Rs. 9,79,48,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other  • Rs 6,18,21,917/- for the implementation of regional wildlife conservation as per the demand notices.  A copy of the approval of site-specific wildlife conservation plan is enclosed herewith as <b>Annexure 8</b> .					
(xv)	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment and Forests 5 years in advance of final mine closure for approval.	A Final Mine Closure Plan (FMCP) shall be prepared in accordance with the provisions laid down under the "GUIDELINES FOR PREPARATION OF FINAL MINE CLOSURE PLANS" as prescribed by Indian Bureau of Mines. As per the said guideline, FMCP is required to be prepared 2 years in advance from the date of closure/life of the mine. However presently during the approval of Mine Plan, a progressive mine closure plan (PMCP) is being submitted for approval. During the process of such approval, based on the "area put to use" for excavation and allied activities, we have deposited a sum of Rs. 30.5990 Cr to Indian Bureau of Mines (IBM) in the form of Bank Guarantees towards financial assurance for the implementation of measures of PMCP provisions. This approval was communicated to the Regional office, MoEF and CC, Bhubaneswar vide our letter no MGM/P and E/106/23 dated 31.03.2023. Copy of the letter is enclosed herewith as <b>Annexure 9</b> .					

### **Table B:- General Conditions**

SN.						
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.	There is no change in the mining technology and scope of working of the mines. Mining is carried out as proposed by using shovel-dumper combination. Dry mobile screening is carried out with the help of a 1X75 TPH screen plant.				
(ii)	No change in the calendar plan including excavation, quantum of manganese ore and waste should be made.	Production and excavation quantum is regulated by the Mine Plan approved by Indian bureau of Mines (IBM). No change in the calendar plan has been made. Total annual production achieved from the mine is well within the EC limit of 1.8 Lakh tonnes per annum.				
(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx and CO monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Data on ambient air quality (RPM, SPM, SO2, NOx and CO) should be regularly submitted to the Ministry including its regional office at Bhubaneshwar and the State Pollution Control Board / Central Pollution Control Board once in six months.	In consultation with Regional Office, State Pollution Control Board (Keonjhar Region), 06 nos of dedicated Ambient Air Quality monitoring station have been established and regular monitoring is being carried out twice a week. Photographs of fixed type platforms properly geotagged with the spatial coordinates have been shared with State Pollution Control Board and the same was accepted to SPCB during renewal of CTO. In addition to this, 12 nos of locations have also been identified in the buffer zone for regular monitoring. Abstract of Ambient Air Quality monitoring result for the period during April 2024 to September 2024 is enclosed as <b>Annexure 10</b> .				
(iv)	Drills should be wet operated or with dust extractors and controlled blasting should be practiced.	Wet drilling concept is already in place and practiced. Exploratory drills have been provided with inbuilt DE system.  Controlled blasting technique with NONEL is in practice. Ground vibrations are being checked for every blast done in the mine. Blasting parameters are assessed periodically by engaging agency like CIMFR, Dhanbad. Based on the recommendation of such assessments, the blasting rounds are designed and fired.				
(v)	Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dumpers/ trucks, loading and unloading points should be provided and properly maintained.	Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-10Kl) for Haul Roads, Dump yards and other locations) 2. Mist Canons (30 LPH) for sorting yards and screening plants 3. Fixed Sprinkling system for static haul roads 4. Automatic Wheel wash facility at Railway Siding and exit point of the mines. Photographs of the fugitive dust pollution control measures deployed at the mine are enclosed as <b>Annexure 11</b> .				
(vi)	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. should be provided with	Ear plugs and Earmuffs are provided to the workers working in mining operation and DG operations and other high noise generating equipment s. Provision of acoustic enclosures are invariably ensured before the installation of such noise generating instruments. Following monitoring measures are ensured for the regulation of noise pollution associated impacts:				

SN.	EC Conditions	Status of Compliance				
	ear plugs/ muffs.	<ol> <li>Monitoring of Noise level (both ambient noise survey) and workplace noise survey is carried out on monthly basis using an integrated sound level meter.</li> <li>Occupational Noise Exposure assessment is also carried out for the persons engaged in high noise generating areas on quarterly basis by sampling individual workers over eight-hour durations.</li> <li>Noise level monitoring data for the period during April 2024 to September 2024 is enclosed as Annexure 12.</li> </ol>				
(vii)	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	For effective management of effluent following mitigative measures are ensured at the mine level:  1. Effluents from Workshop/Garage: Vehicle washing system and associated operational activities are provided with separate catchment drains and finally the effluents are collected in Oil-Water Separation system having skimming arrangements for oil and grease.  2. Wastewater/runoff collected from the mine pits: Since there is no wet process thus no wastewater is generated at any stage from any process.  3. Surface runoff is channelized and accumulated in the mine pit. After adequate retention period, the same is pumped to water treatment plant for final treatment before domestic consumption.  4. Periodically water samples from mine pits and oil-water separation system are collected and analysed by an NABL accredited agency for checking compliance w.r.t applicable standards.				
(viii)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	Environmental Monitoring services are carried out by engaging an NABL Accredited agency having it s laboratory recognized by Ministry of Environment, Forest and Climate Change.  Though no captive laboratory has been established at site but the entire services is outsourced to the third party who have an environmental laboratory within 20 Kms from the mine.				
(ix)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Personnel Protective Equipment s (PPEs) are being mandatorily used by all the workers as per applicability. It is regularly ensured at the entry points. Safe Operating Procedure based training is imparted to all the workers apart from the initial VT training. Periodical Medical Examination of employees (departmental and contractual) are conducted as per prescribed norms of Mines Rule, 1955. Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling and Free Silica exposure assessment by a DGMS approved agency. 2. Hand-Arm Vibration and Whole Body Vibration Exposure Assessment report by a DGMS approved laboratory 3. Mn Poisoning test (periodic) by a medical laboratory.				
(x)	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the Organization.	The company has made a robust arrangement for reviewing and monitoring the implementation of Environment management plan. A Centralized Environmental Management Department has been set up headed by the Chief (Environment) and supporting staff. The operation and legal sections at mine level include Head (Mine Planning), Head (Environment), Senior Manager - Mine Planning, Area Manager (RM Environment), Environment Engineer,				

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SN.								
		Chemists, etc.						
(xi)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	A dedicated cost Centre for maintaining all environmental expenditure is maintained in a separate GL account having a unique cost centre mapped in the SAP system. All sorts of environmental protection related expenditures are booked in the said cost centre for accounting purpose. The details of expenditure incurred during the last 3 financial years is as under:  • FY-2021-22: Rs. 274.5 Lakhs  • FY-2022-23: Rs. 272.92 Lakhs  • FY-2023-24: Rs. 378.33 Lakhs						
(xii)	The Regional Office of this Ministry located at Bhubaneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	The company has been extending full co-operation to the officers of the Regional Office and other statutory agencies by furnishing the requisite data / information / monitoring reports as and when required. The same shall be continued in future as well.						
(xiii)	A copy of clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom suggestion/ representation has been received while processing the proposal.	The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Chairman, Municipal Council, Joda on 12.01.2006.						
(xiv)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.	District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.						
(xv)	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in. and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Manganese Mine was published in Oriya News Papers Dharitri and						

### <u>Table C:- Additional Conditions as per MoEFCC Letter No. 106-9/11/EPE dt. 02.12.2014</u> <u>issued to all Non-Coal Mining Projects</u>

CNI	SN FC Conditions Status of Compliance						
SN.	EC Conditions	Status of Compliance					
(i)	The project authority shall adopt best mining practices for given conditions in the mining area, adequate number of check dam, retaining wall/ structure, garland drains and settling ponds should be provided to arrest the wash off with rainwater in catchment area.	The mine is operated by opencast mining method using shovel-dumper combination.  Due care is taken during all the aspects of mining operations (starting from excavation till dispatch of the minerals) to ensure sustainable practices are adopted such as:  1. Wet drilling (Drills with inbuilt features of wet drilling) for preventing fugitive dust generation at the working face.  2. Controlled blasting by means of pre-split blasts using both NONEL and SME for arresting fly rocks and improved fragmentation with minimal ground vibration is practiced.  3. Pre-wetting is also carried out prior to blasting to minimize dust generating potential of blasts.  4. Stationary water sprinklers and mobile water tankers are operated main/permanent haul roads.  5. Garland drains all along the periphery of dumps supported with toe walls/gabion walls and adequate no of settling pits (1.5mX1.5mX2m) have been erected for guiding effluents/surface runoff up to mine pit.					
(ii)	The natural water bodies and or stream which are flowing in and around the village should not be disturbed. The water table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the project authority has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug well.	Agreed. No such water bodies exists within the mine lease area and thus natural water course remains unaffected due to mining activities. Drinking water is being provided to the villagers. A network of wells have been identified in the core and buffer zone for regular water quality monitoring.					
(iii)	The illumination and sound at night at project sites disturb the village in respect of both human and animal population. Consequent sleeping disorder and stress may affect the health in the village located close to mining operation. Habitations have a right to darkness and minimal noise level at night. The Project Proponents must ensure that the biological clock of the village is not disturbed by orienting the floodlights mask way from the village and keeping the noise levels well within prescribed limits for day/ night hours.	The operation of the mine is restricted to the two shifts only. It is being ensured that there is no illumination or noise related disturbance to the habitats and fauna found close to the mining areas and the biological clock of the village is not disturbed.					
(iv)	The project Authority shall make necessary alternative arrangement, where required, in consultation with	No such grazing land have been acquired by the company.					

CNI	EC Conditions	Status of Compliance
SN.	EC Conditions	Status of Compliance
	state Government to provided alternated areas for livestock	
	grazing. In this case context, the	
	Project Authority should implement	
	the direction of Hon ble Supreme	
	Court with regard to acquiring	
	grazing land. The sparse tress on	
	such grazing ground, which	
	provides mid-day shelter from the	
	scorching sun, should be	
	scrupulously guarded felling lest the	
	cattle abandon the grazing ground	
	or return home by noon.	
(v)	Wherever blasting is undertaken as	Deep hole drilling and controlled blasting technique is adopted in the
( ' '	part of mining activity, the Project	mine. Vibration study has been conducted by CIMFR. Each blast is
	Authority shall carry out vibration	monitored for the Peak Particle Velocity which is well within the
	studies well before approaching any	DGMS prescribed limits. Rock breakers are used to avoid secondary
	such habitats or other building to	blasting depending upon the strata.
	evaluate the zone of influence and	
	impact of blasting on	
	neighbourhood. Within 500 meters	
	of such sites vulnerable to blasting	
	vibration, avoidance of use of	
	explosives and adoption of	
	alternative means of mineral	
	extraction such as ripper/dozer	
	combination/ rock breakers/ surface	
	mineral etc should be seriously	
	considered and practiced wherever	
	practicable. A provision for	
	monitoring of each blast should be	
	made so that impact of blasting on	
	nearby habitation and dwelling unit could be ascertained. The covenant	
	of lease deed under rule 31 of MCR	
	1960 provided that no mining	
	operation shall be carried out within	
	50 meters of public works such as	
	public roads and building or	
	inhabited sites except with prior	
	permission from the competent	
	Authority.	
(vi)	Main haulage road in the mines	Permanent portions of the haul roads are provided with fixed
` '	should be provided with permanent	sprinklers. Water sprinkling though mobile tanker is carried out
	water sprinkler and other road	regularly on all haul roads, mineral stacking area and overburden
	should be regularly wetted water	dumping areas and for dust suppression.
	tanker fitted with sprinkler. Crusher	
	and material transfer points should	
	invariably be provided with bag filter	
	and or dry fogging system. Belt	
	conveyor fully covered to avoid air	
	borne dust.	

SN.	EC Conditions	Status of Compliance
(vii)	The project Authority shall ensure	There is no crop land nearby the M.L. area.
(111)	that productivity of agriculture crops	
	is not affected due to the mining	
	operation. Crop Liability Insurance	
	Policy has to be taken by PP as a	
	precaution to compensate for the	
	crop loss. The impact zone shall be	
	5 Km from the boundary of mine	
	lease area for insurance policy. In	
	case, several mines are located in	
	cluster mines, formed inter – alia, to	
	sub serve such and objective shall	
	be responsibility for securing such	
	Crop Liability Policy.	
(viii)	In case any village is located within	No such village exist within the ML area.
	the mining leasehold which is not	
	likely to be affected due to mining	
	activities during the life of mine, the	
	Expert Appraisal Committee (EAC)	
	should consider the proposal of	
	Environmental Clearance (EC) for reduced mining area. The mining	
	lease may be executed for the area	
	for which EC is accorded. The	
	mining plan also accordingly	
	revised and required stipulation	
	under the MMDR Act 1957 and	
	MCR 1969 met.	
(ix)	Transportation of minerals by road	There is no transportation road passing through any village.
, ,	passing through the village shall not	
	be allowed.	
	A "bypass" road should be	
	constructed (say leaving a gap of at	
	least 200 m) for the purpose of	
	transportation of minerals so that	
	the impact of sound, dust and	
	accidents could be mitigated.	
	The PP shall bear the cost towards	
	the widening and strengthening of	
	existing public road network in case	
	same is proposed to be used for the	
	project. No road movement should	
	be allowed on existing village road  No road movement should be	
	allowed on existing village road	
	without appropriately increasing	
	carrying capacity of such road	
(x)	Likewise, alteration or re-routing of	Land Acquisition is not involved.
(^)	foot paths, pagdandies, cart road	Land / togaloldoff to flot involved.
	and village infrastructure/ public	
	utilities or roads (for purpose of land	
	acquisition for mining) shall be	

SN.	EC Conditions	Status of Compliance
	avoided to extent possible and in	
	such case acquisition is inevitable,	
	alternative arrangements shall be	
	made first and the only the area can	
	be acquired. In these types of cases	
	Inspection reports by site visit by	
	expert may be insisted upon which	
	should be done through reputed	
	Institutes.	
(xi)	The CSR activates by companies	Tata Steel has taken up many social initiatives for the improvement
	including mining establishment has	of quality of life of the surrounding community by means of
	become mandatory up to 2% their	education, health and other socio-economic aspects. TSF (Tata
	financial turn over, socio Economic	Steel Foundation) has been pioneering the initiatives through CSR
	Development of neighbourhood.	activities. A number of rainwaters harvesting cum recharge ponds
	Habitats could also be planned and	have been constructed in the peripheral villages.
	executed by the PPs more	
	systemically based on need based	
	door to door survey by established	
	Social Institute/ Workers on the	
	lines as required under TOR. "R and	
	R Plan// compensation details for Project Affected People (PAP)	
	Project Affected People (PAP) should be furnished. While	
	preparing the R and R plant, the	
	relevant State/ national	
	Rehabilitation and Resettlement	
	Policy should be kept in view. In	
	respect of SCs and STs and weaker	
	section of society in study, a need	
	bashed sample survey, family-wise,	
	should be undertaken to assess	
	their requirement, and action	
	programmes prepared and	
	submitted accordingly, integrating	
	the sectoral programs of line	
	department of State Government. It	
	may be clearly brought out whether	
	the village including their R and R	
	and socio-economics aspect should	
	be discussed in EIA report.	

Old Stabilized Dump







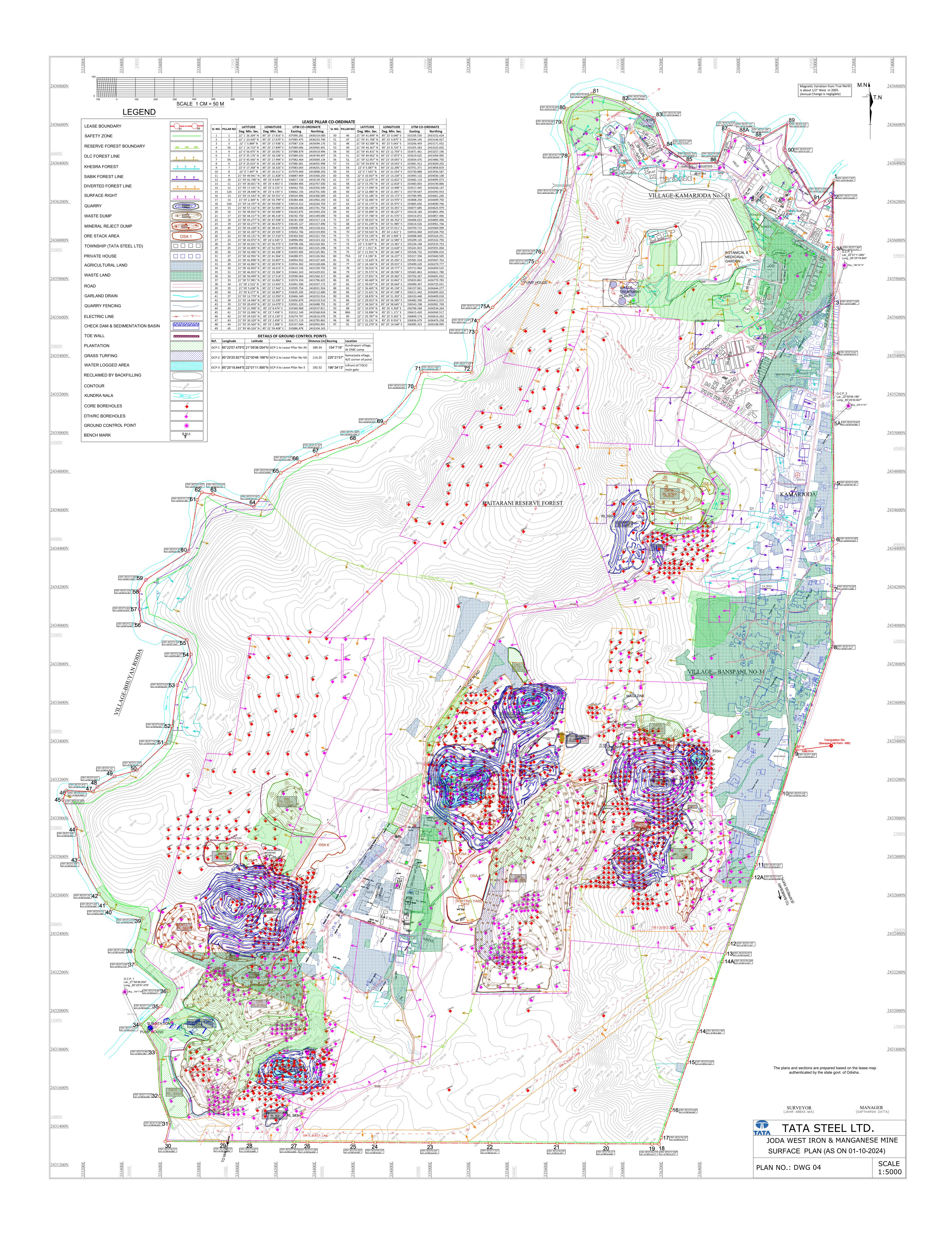
**Garland Drains, & Retaining walls** 











## DUST FALL ANALYSIS RESULT ABSTARCT

## JODA WEST IRON & MN MINES & TIRINGPAHAR IRON & MN MINE

DUST FALL ANALYSIS (SUMMER SEASON – APRIL'24)										
Heavy Metal concentrations (g/m2-mo)										
Location	Arsenic	Cadmium	Copper	Hexavalent Chromium	Iron	Lead	Manganese	Mercury	Selenium	Zinc
Stocking Yard, D Quarry	<0.0016	< 0.0016	1.657	<0.0003	1.835	0.0018	0.546	<0.0003	<0.0016	0.0213
Stocking Yard, Ganguiguda	<0.0016	< 0.0016	1.4099	<0.001	14.009	<0.0016	6.637	<0.0010	< 0.0016	0.025
Admin Office, Bichakundi	<0.0016	< 0.0016	0.953	<0.0023	31.603	<0.0016	6.993	<0.0023	< 0.0016	0.0586
Haul Road, H Quarry	<0.0016	< 0.0016	0.9533	< 0.0005	5.993	<0.0016	1.718	< 0.0005	< 0.0016	0.0154
Dumping Yard, H Quarry	<0.0016	<0.0016	1.0779	<0.0003	2.86	0.0027	0.567	<0.0003	<0.0016	0.0379
Screen Plant, D Quarry	<0.0016	<0.0016	0.8275	<0.0007	15.409	<0.0016	4.034	<0.0007	<0.0016	0.0199



AtP O :BARBIL Ward No-6 Dist : Keonihar, Odishe - 758035 CIN: U51909WB1956PTC023037 TESTING - INSPECTION

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Report No. MSKGL/ED/202	4-25/000898 Date: 10.05.202
	ANALYSIS REPORT OF DUSTFALL
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.04.2024 to 30.04.2024
Location	Stoking Yard, D Quarry (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	1.6570 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(O)	BDL(DL:0.0003 g/m2-mo)
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- O-C/G	1.835 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	0.0018 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	0.546 g/m2-mo
8	Mercury (as Hg )	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
9	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(O)	BDL(DL:0.0003 g/m2-mo)
10	Zinc (as Zn)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D(ICP-OES): 2018	0.0213 g/m2-mo

Checked by:-

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist.: Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED/202	Date: 10.05.2024	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	01.04.2024 to 30.04.2024	
Location	Stoking Yard, Ganguiguda Pit (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	1.4099 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(0)	BDL(DL:0.0003 g/m2-mo)
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- O-C/G	14.009 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.0003 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	6.637 g/m2-mo
8	Mercury (as Hg )	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
9	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(0)	BDL(DL:0.0003 g/m2-mo)
10	Zinc (as Zn)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D(ICP-OES): 2018	0.0250 g/m2-mo

Checked by:

For Mitra S. K. Private Limited

AVP O BARBIL Ward No-6 Dist: Keonihar, Odisha - 758035 CIN: U51909WB1958PTC023037

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Report No. MSKGL/ED/202	- A Company of the Co	Date: 10.05.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	01.04.2024 to 30.04.2024	
Location	Admin Office , Bichakundi (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

S1. No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0,0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	0.9530 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(0)	BDL(DL:0.0003
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- 0-C/G	g/m2-mo) 31.603 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.0003 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	6.993 g/m2-mo
9	Mercury (as Hg )	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
-	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(0)	BDL(DL:0.0003 g/m2-mo)
10	Zinc (as Zn)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D(ICP-OES): 2018	0.0586 g/m2-mo

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For Mitra S. K. Private Limited

AuP.O. BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/202	4-25/000900	Date: 10.05.2024
	Date: 10.05.2024	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	01.04.2024 to 30.04.2024	
Location	Haul Road, H Quarry (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	0.9533 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(O)	BDL(DL:0.0003 g/m2-mo)
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- O-C/G	5.993 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.0003 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	1.718 g/m2-mo
8	Mercury (as Hg )	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
9	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(0)	BDL(DL:0.0003 g/m2-mo)
10	Zinc (as Zn)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D(ICP-OES): 2018	0.0154 g/m2-mo

Checked by:

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/202		Date: 10.05.2024
	- Heet 10.003.2024	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	01.04.2024 to 30.04.2024	
Location	Dumping Yard, H Quarry (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	1.0779 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(0)	BDL(DL:0.0003
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- O-C/G	g/m2-mo) 2.860 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	0.0027 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	0.567 g/m2-mo
9	Mercury (as Hg )	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
7	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(0)	BDL(DL:0.0003 g/m2-mo)
10	Zinc (as Zn)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D(ICP-OES): 2018	0.0379 g/m2-mo

Checked by: 89

For Mitra S. K. Private Limited

ALP.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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	ANALYSIS REPORT OF DUSTFALL	Date: 10.05.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IRON & MANGANDON	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 01.04.2024 to 30.04.2024	
Location	Screen Plant, D Quarry (JWIMM)	

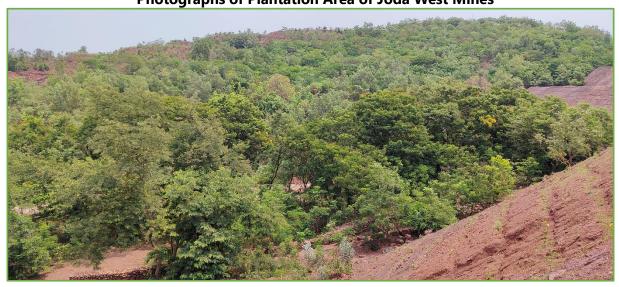
# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Results
1	Arsenic as (As)	None	EPA 3050 B (Digestion),1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
2	Cadmium (as Cd)	None	EPA 3050 B (Digestion), 1996 ,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo
3	Copper (as Cu)	None	EPA 3050 B (Digestion) EPA 6010 D (ICP-OES): 2018	0.8275 g/m2-mo
4	Hexavalent Chromium (as Cr+6)	None	EPA 3060A_(0)	BDL(DL:0.0003
5	Iron (as Fe)	None	APHA 24th Edition, 2023 4500- O-C/G	g/m2-mo) 15.409 g/m2-mo
6	Lead (as Pb)	None	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.0003 g/m2-mo)
7	Manganese (as Mn)	None	EPA 6010D_(0)	
8	Mercury (as Hg )		EPA 3050 B (Digestion),1996	4.034 g/m2-mo
		None	,EPA 6010 D (ICP-OES): 2018	BDL(DL:0.0003 g/m2-mo)
-	Selenium (as Se)	None	USEPA-29 - 25/06/1996_(0)	BDL(DL:0.0003
10	Zinc (as Zn)	None	EPA 3050 B (Digestion), 1996 ,EPA 6010 D(ICP-OES): 2018	g/m2-mo) 0.0199 g/m2-mo

Checked by:-( 84

For Mitra S. K. Private Limited

**Photographs of Plantation Area of Joda West Mines** 















भारत सरकार जल शक्ति मंत्रालय जल संसाधन, नदी विकास और गंगा संरक्षण विभाग केन्द्रीय भूमि जल प्राधिकरण Government of India Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Central Ground Water Authority

# (भूजल निकासी हेतु अनापत्ति प्रमाण पत्र) NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:				Joda West Manganese Mines Tata Steel Ltd															
Project Address:					Joda West Manganese Mines, Tata Steel Ltd, Post Office: Bichakundi, Tahsil / Taluk: Barbil / Champua														
Village:				Camp	Camp Of Tisco					ock:	k: Joda								
District:				Kend	Kendujhar					ate:	Od	disha							
Pin Code:																			
Communication Address:				Bichh	Joda West Iron And Manganese Mine Of M/s Tata Steel Limited, Village-Bichhakundi, Post- Bichhakundi, Block-joda, Kendujhar, Odisha, Joda, Kendujhar, Odisha - 758034														
Address of CGWB Regional Office :					Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 750001														
1	NOC No.	>/N/INI/D	MINI/DENI/2/2022/7940						to of loovenee			12/0E/2022							
1.	NOC No.:		CGWA/NOC/MIN/REN/2/2023			1023/1				ate of Issuence ategory:			13/05/2023						
3.	3. Application No.:		21-4/	21-4/1195/OR/MIN/2017								лу. Е 2020	Safe						
5.	Project Status:			Existing With Additional Ground Requirment				Water		6. NOC Type:				Renewal					
7.	Valid from	Valid from: 23/07			7/2022					3. <b>V</b>	Valid up to:			22/07/2024					
9.	Ground W	ater Abs	tractior	n Permi	tted:														
Fresh Water					Saline	Saline Water De					watering				Total				
	m³/day	ear m³/c		/day	day m³/year			m³/day		m³/year			m³/day		m³/year				
	146.00 143080							246.00			89790.00								
10.	Details of	ground w	ater al	ostracti	on /Dew	/atering	g stru	ctures											
Total Existi					ting No	ng No.:4							Total Proposed			No.:1			
				DW	DCB	BW	TW	MP	MP	u [	DW	DCB	BV	٧	TW	MP	MPu		
	Abstraction	e*	0	0	4	0	0	0		0	0	0		0	0	0			
	3 4 1 1 4			0	0	0	0	0	0		0	0	0	1	0	1	0		
	/- Dug Well; D								ine Pit;M	1Pu-M	ine Pu	mps							
11.	11. Ground Water Abstraction/Restoration Charges paid								d (Rs.):				286160.00						
12.	. Number of Piezometers(Observati constructed/ monitored & Monitori								No. of Piezomete			Monitoring Mechanism							
	**DWLR - Digital Water Level Recorder										М	Manual D		R**	R** DWLR With Telemetry				
								1				0	1	1 0					

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011 Phone: (011) 23383561 Fax: 23382051, 23386743 Website: cgwa-noc.gov.in

#### (Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

#### Validity of this NOC shall be subject to compliance of the following conditions:

#### Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC
- 8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act. 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

#### **General conditions:**

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCE list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

#### CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation Ministry of Jal Shakti, Govt. of India

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011 Phone: (011) 23383561 Fax: 23382051, 23386743 Website: cgwa-noc.gov.in

> पानी बचाये – जीवन बचाये SAVE WATER - SAVE LIFE

## Government of India Ministry of Jal Shakti Department of Water Resources, River Development and Ganga Rejuvenation Central Ground Water Authority (CGWA) Application for Issue of NOC to Abstract Ground Water (NOCAP)

## Application for Renewal of NOC to Dewater Ground Water for Mining Industry (Application for Renewal of NOC)

Application Number: 21-4/1195/OR/MIN/2017

App	olied For Renewal : 3rd		
1.	General Information:		
	Water Quality:	Fresh V	Vater
	Purpose of Renewal Application:	Existing	with Additional Ground Water Requirment
	Application Type Category/ Type of Application	Mangar	nese ore
2.	Name of Mine/Project:	JODA V	WEST MANGANESE MINES TATA STEEL LTD
3.	Location Details of the Mining Unit- (Attach Site, A Outside) (\$):	Approved	Mining Plan, Toposketch of Surrounding 10km Radius
	Address Line 1 :	JODA V	WEST MANGANESE MINES, TATA STEEL LTD
	Address Line 2:	POST (	OFFICE: BICHAKUNDI
	Address Line 3:	TAHSIL	/TALUK: BARBIL/CHAMPUA
	State:	ODISH	A
	District:	KENDL	JJHAR
	Sub-District:	JODA	
	Village/Town:	Camp o	of Tisco
	Latitude:		
	Logitude:		
	Area Type :	Non-No	otified
	Area Type Category :	Safe	
	Whether industry is MSME:	No	
4.	Communication Address		
	Address Line 1:	JODA V	VEST MANGANESE MINES, TATA STEEL LTD
	Address Line 2:	POST (	OFFICE: BICHAKUNDI
	Address Line 3:	TAHSIL	/TALUK: BARBIL/CHAMPUA
	State:	ODISH	A
	District:	KENDL	JJHAR
	Sub-District:	JODA	
	Pincode:	758034	
	Phone Number with Area Code:		
	Mobile Number:	91 7752	2004290
5.	Fax Number: Details of Existing NOC issued by CGWA (enclose E-Mail:	e copy)	achy@tatasteel.com
	NOC Letter No:	Janyas	CGWA/NOC/MIN/REN/2/2023/7840
	Date of Issuance:		13/05/2023
	Vailidity (Start):		23/07/2022
	Validity (End):		22/07/2024

Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)
Application for Issue of NOC to Abstract Ground Water (NOCAP)

## Application for Renewal of NOC to Dewater Ground Water for Mining Industry (Application for Renewal of NOC)

Application Number: 21-4/1195/OR/MIN/2017

**Applied For Renewal: 3rd** 

		son for not applying for r dity (Attach Affidavit):	enewal before expiry of NOC	NA					
6.	Cha	Change in Land Use Pattern after execution of Project and Surroundings (10 km Radius - Outside)							
	The predominant land use in the study is forest (78.26%) followed by scrub land (6.83%), crop land (5.92%), mining (4.81%), built-up (3.46%), river (0.38%), water bodies (0.29%) and barren land (0.05%).  7. Land Use Detail of Project Area								
7.	Land	d Use Detail of Project Ar	ea						
		Land Use Details	Existing (sq meter)	Proposed (sq meter)	Grand Total (sq meter)				
	Gree	en Belt Area	10363300.00	0.00	10363300.00				
	Ope	n Land	2443110.00	0.00	2443110.00				
	Roa	d/ Paved Area	693400.00	0.00	693400.00				
	Roo	ftop area of building/ ds	871800.00	0.00	871800.00				
	Tota	I	14371610.00	0.00	14371610.00				
8.	Whether there is a change in Topography of the Area after the execution of the Project:			Yes					
	a)	Regional		No Significant changes to happen due to the mining project. The project is alredy in operational phase. It is an operational opencast mine (operational since 1930).					
	b) Project Area		As a result of mining excavation and the dumping of overburden, there are anticipated topographical changes within the project area. However, these changes will strictly adhere to the provisions outlined in the approved mine plan.						
9.		ether there is change in D r the execution of the Pro	Prainage pattern of the area	No					
	a)	Regional							
	b)	Project Area							
10.		sent Townships / Villages ject:-	s within 10 km radius of the	Raikala, Balita, Bhagalapur, Bel Gobindapur, Daduan, Joda, Bar Khadabandha, Langalakanti, Ja Bandhuabeda, Kamalpur, Palas Chormalda, Laidapada, Rugudid Tanto, Serenda, Bhusugaon, Bh	nspal, Bholabeda, janga, Jadibahal, a(Ka), Guruda, dihi, Gamulai, Lotapani,				

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11.	Whe	ther th	e Groundwa	ter Table	will be Inte	ersected by	Activity :-			Yes		
	(a)	At Wh	at Depth (m	bgl)				Pre-monsoon		Post-monsoon		
		Minim	um (m bgl)						40.00		35.00	
		Maxin	num (m bgl)						45.00		40.00	
	(b)	Maxin	num Depth P	roposed t	o Dewater	(m bgl)		116.00				
	(c)	Grour	ndwater Flow	Direction	(Attach N	/lap)(\$)		East-North-E	ast			
	(d)	Any O	ther Informa	tion				NA				
12.	Tota	l Wate	r Requirmen	t for vario	us Purpos	se to be Mei	ntioned	Existing (m3/day)	Additional (m3/day)	Existing (m3/year)	Additional (m3/year)	
	Grou	ınd Wa	ater Required	l through	Abstract :	Structure		0.00	0.00	0.00	0.00	
	Grou Seep		ater Abstract	ed on acc	ount of D	ewatering /	Mining	246.00	1528.00	89790.00	557720.00	
	Tota	l Grou	nd Water Wit	hdrawal				246.00	1528.00	89790.00	557720.00	
13.	Deta	ils of [	De-Watering	Structure								
	(a)	De-Wa	atering Existi	ng Struct	ure							
	Num	ber of	Existing Stru	uctures:			1					
		SNo.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours(Day) / Days (Year)		Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA /If so Details Thereof	
		1	Mine Pumps / -	- / -			-/-	Centrifugal Pump	50.00	Yes	Yes / -	
	(b)	De-Wa	atering Requi	irment and	d Addition	al Structure	e Detail					
	Num	ber of	Proposed St	ructures:			4					
		SNo.	Type of Structure Name / Year of Construction	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operational Hours(Day) / Days(Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA/If so Details Thereof	
		1	Mine Pumps / -	- / -			- / -	Centrifug al Pump	50.00	Yes	'es / -	
		2	Mine Pumps /-	-/-			- / -	Centrifug al Pump	50.00	Yes	'es / -	
		3	Mine Pumps /-	-/-			- / -	Centrifug al Pump	50.00	Yes	'es / -	
		4	Mine Pumps	-/-			- / -	Centrifug al Pump	75.00	Yes \	'es / -	

#### Government of India Ministry of Jal Shakti Department of Water Resources, River Development and Ganga Rejuvenation Central Ground Water Authority (CGWA)

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**Applied For Renewal: 3rd** 

Abb	nieu	1 01 1	enewai : 3ru									
	(a)	Water	Supply		Yes			85045.00		d Domestic W mines - 233 K	ater supply to	
	(b)	Agric	ulture		No							
	(c)	Greer	Belt Develop	ment	Yes			17155.00	47 KLD for	Greenbelt De	velopment	
	(d)	Supp	ression of Du	st	Yes			33580.00	92 KLD for	Dust Supress	ion.	
	(e)	Recha	arge		No							
	(f)	Any C	Other Item			/ear (20 KLD) 3/year (1382			others,			
15.	Mon	itoring	of Ground W	ater Regir	ne (Attach	n Map(\$))						
			Location Details of the Wells / Piezometers (Latitute Longitude, Reduced Level)					One Piezometer installed at the top of D-Quarry with Latitide- 21.998492 Longitude- 85.410797 and one manual.				
	(b)	Numb	er of Wells / F	Piezomete	rs				monitored.0 emetry and 0	)2 nos. of piez )1 manual	zometers	
	(c)		h Details of G meters( At Le						monitoring i	s done on qua erewith.	arterly basis.	
	(d)		ral Quality of	GW in the	Area & Su	ırroundings	(\$) Ground \herewith	•	ity monitorin	g report is en	closed	
	(e)	Any C	Other Item				Not Appl	icable				
16.			etails of chan showing GW f			egime and q	uality after e	xecution	of the projec	ct (Attach de	tailed report	
	Grou	undwat	er flow directio	n is East- N	North East.	. Hydrogeolog	gical map pro	vided in at	achment se	ction.		
17.	Prop	Proposed Pump / Pumping Groundwater Outside the Mine Pit for Domestic or Other Use (If so, give Details):										
	Num	nber of	Existing Stru	ctures:			0					
		SNo.	Type of Structure Name / Year of Constructio n	Depth (Meter) / Diameter (mm)	Depth to Water Level (Meters below Ground Level)	Discharge (m3/Hour)	Operation al Hours (Day) / Days (Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permission Registered with CGWA/If so Details Thereof	
	Num	nber of	Additional St	ructures:			0					
		SNo.	Type of Structure Name / Year of	Depth (Meter) / Diameter (mm)		Discharge (m3/Hour)	Operation al Hours (Day) / Days (Year)	Mode of Lift Name	Horse Power of Pump	Whether fitted with Water Meter	Whether Permissio n Registered with	

Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Authority (CGWA)
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8.	(a). Co	empliance to the Condition prescribed i	in the NOC	
	SNo.	Conditions given in NOC	Compliance Conditions Applicable	Status of Compliance
	1	Area Specific Plantation	Yes	Plantation is carried out as per the provision of approved Progressive Mine Closure Plan. The status therewith is also submitted to IBM.
	2	Domestic Water School Sanitation	No	NA
	3	Groundwater quality monitoring - Pre monsoon and Post monsoon	Yes	Monitoring. The quality of ground wate in the region is in conformance with Drinking Water Standard as per IS 10500:2012 standard.
	4	Maintenance of recharge structures	Yes	Periodically ensured before monsoon and after monsoon season. Apart from this, de-siltation of village tanks is also ensured for peripheral villages in the summer season.
	5	Number of Pizometers as per NOC and Water Level Record	Yes	One Piezometer fitted with telemetry based AWLR and one manual piezometer are in working conditions.
	6	Number of Tubewells Borewales as per NOC	Yes	04 Bore Wells are working before but now the abstraction from these bore wells has been stopped.
	7	Pizometer fitted with AWLRs with telemetrry as per NOC	Yes	One Piezometer fitted with telemetry based AWLR is in working conditions.
	8	Quantum of Groundwater as per NOC	Yes	As per previous NOC is 392KLD. currently applying for 1774 KLD due to increase in mine pit area.
	9	Recharge through ponds	Yes	One (1) Roof top rainwater harvesting structure have been constructed at the mine office. Apart from this One (1) Rainwater Harvest Pond has also beer constructed near the mine area.
	10	Recycle and reuse of water	Yes	Mining is not a process of intense operation thus scope for re-use of water is limited. Major chunk of usage is for Haul Road Dust Suppression. However Domestic Effluent is completely re-used after tr
	11	RWH and AR structures implemented	Yes	One Roof Top RWH structure at Administration office is in working condition, One RWH Pond of size (L-40mtr X W-50mtr X Depth-7mtr) has been constructed for the purpose.
	12	Submission of Compliance report to the Region	Yes	Self Compliance Report has been submitted through NOCAP Portal.

# Government of India Ministry of Jal Shakti Department of Water Resources, River Development and Ganga Rejuvenation Central Ground Water Authority (CGWA) Application for Issue of NOC to Abstract Ground Water (NOCAP)

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13	Water conservation measures	Yes	Drip Irrigation System for use of treated water from STP, Smart Irrigation System for Nursery with around 2000
			Nos of automated sprinklers, Fixed Sprinkling system for Haul Road (600mtr) approx.
14	Water Security Plan of villages	Yes	An WTP of 400 KLD has been costrcuted for providing treated water to the local villagers.
15	Well monitored around the plant premises	Yes	Around 18 Wells monitored within 10Km radius from the project boundary Apart from this, the mine management undertakes monitoring of around 2-3 wells in and around the mines round the year.
16	Wells fitted with water meter and its Record	Yes	Not Applicable
(b). C	ompliance to the Condition prescribe	d in the NOC - Other	
SNo.	Conditions given in NOC		Status of Compliance
1	The firm shall report compliance of the NOC conditions online on the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.		Self-Compliance Report has been submitted in time. This Action Taken Report shall also be submitted to the

#### 19. Gainful utilaization of pump water:-

The total ground water withdrawal from this project is about 1,774 m3/day. Out of which, 767 m3/day of water is from mine seepage and 1007 m3/day of water is from rainwater. The mine dewatering water will be used for various domestic and industrial purpose. About 146 m3/day of water will be used for drinking and domestic purpose after passing through the water treatment plant. About 92 m3/day of water will be used for dust suppression. Around 87 m3/day of water will be utilised for township supply purpose and for green belt development the consumption of water will be 47 m3/day. Other utility services consume 20 m3/day of mine dewatering water. The remaining 1382 m3/day of mine dewatering water will be discharged to River/Nala after passing through sewage treatment plant.

Board for this purpose.

#### 20. Details of Rrainwater Harvesting and Artificial Recharge Measures for Groundwater Recharge in the Area:-

One RWH Pond of Dimension (L-45mtr, Width-50mtr, Depth-7mtr), One Roof Top RWH/recharge structure at Administration office for area of around 1200sq-mtr, Apart from this around 6-7 RWH Ponds in the peripheral villages.

#### **MINING USE- Self Declaration**

✓ I hereby certify that the data and information furnished above are true to the best of my knowledge and belief and I am aware that if any part of the data / information submitted is found to be false or misleading at any stage, the application will be rejected outright.

I hereby declare that all the mandatory documents prescribed in the application form have been uploaded and no blank /irrelevant documents have been uploaded. I am also aware that any false/ wrong submission /uploading of document will lead to rejection of my application without any notice.

It is to certify that no case related to ground water withdrawal/ contamination is pending against the industry/ project/ unit as on date. Any such case filed against the company/ project/ unit in respect of ground water withdrawal/ contamination during the pendency of this application shall be immediately brought to the notice of CGWA.

I hereby undertake that in case any environmental compensation/ penalty is imposed on the firm by any statutory authority, I shall comply with the decision of such authority.

1. Application Proforma is subject to modification from time to time.

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2. Application is submitted online on website http://cgwa-noc.gov.in to following office.

Regional Director, Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, NH-5, Bhubaneshwar, KHORDHA, ODISHA, 751030

3. Incomplete application will be summarily rejected.

Scanned copy of last page of application with signature and seal should be attached at presribed place before submission of application.

4. Reciept of Processing Fee of Rs. 5000.00/- (Rupees Five Thousand Only) submitted through NON TAX RECEIPT PORTAL (https://bharatkosh.gov.in) should be attached along with hard copy of application.

#### **Processing Fee:-**

Bharat Kosh Transaction Ref. No:-	
Bharat Kosh Transaction Date:-	

Note:- The Processing Fee is Non-Refundable. Applicant should ensure and Check Eligibility of Submission of Application and Required Documents before Submitting Online Application.

5	Hard copy of application required:		No	
6	Ground Water Quality Approved	Not Define	Ground Water Charge Required:	Not Define
	Ground Water Charge Recieve:	No	Ground Water Charge Amount:	
			Ground Water Arear	

#### Attached Files:

1). GroundWater flow Direction Map: (Refer:11-C)

S.No	Attachment Name	File Name
1	Groundwater Flow Direction	Groundwater Flow Direction.pdf

#### 2). GW Level of Observation Wells / Piezometer : (Refer:15-C)

S.No	Attachment Name	File Name
1	Piezometer Data	Piezometer Data.pdf

#### 3). General Quality of Ground Water in the Area : (Refer:17-D)

S.No	Attachment Name	File Name
1	Groundwater Quality Reports	GW Quality Reports.pdf

4). Changes in Topogpraphy: (Refer: 8)

No Attachment Found!

5). Changes in Drainage Pattern: (Refer: 9)

No Attachment Found!

## Department of Water Resources, River Development and Ganga Rejuvenation Central Ground Water Authority (CGWA) Application for Issue of NOC to Abstract Ground Water (NOCAP)

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6). Reason for Not Applying for Renewal before Expiring NOC: (Refer: 5)

No Attachment Found!

7). Existing NOC: (Refer: 5)

S.No	Attachment Name	File Name
1	Existing NOC	Joda west.PDF

!	anno to the Condition nanocally addition	the NOO	. (Defer: 47 e)		
	ance to the Condition prescribed in	tne NOC	,		
SNo.	Conditions given in NOC	Attachments			
		S.No.	Attachment Name	File Name	
1	Area Specific Plantation	No Attacl	hment Found!		
2	Domestic Water School Sanitation	No Attachment Found!			
3	Groundwater quality monitoring - Pre monsoon and Post monsoon	No Attachment Found!			
4	Maintenance of recharge structures	No Attacl	hment Found!		
5	Number of Pizometers as per NOC and Water Level Record	No Attachment Found!			
6	Number of Tubewells Borewales as per NOC	No Attacl	hment Found!		
7	Pizometer fitted with AWLRs with telemetrry as per NOC	No Attacl	hment Found!		
8	Quantum of Groundwater as per NOC	No Attacl	hment Found!		
9	Recharge through ponds	No Attacl	hment Found!		
10	Recycle and reuse of water	No Attacl	hment Found!		
11	RWH and AR structures implemented	No Attacl	hment Found!		
12	Submission of Compliance report to the Region	No Attacl	hment Found!		
13	Water conservation measures	No Attacl	hment Found!		
14	Water Security Plan of villages	No Attacl	hment Found!		
15	Well monitored around the plant premises	No Attacl	hment Found!		
16	Wells fitted with water meter and its Record	No Attacl	hment Found!		

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ompli	iance to the Condition prescribed in t	the NOC	- Other : (Refer: 17-b)	
SNo.	Conditions given in NOC	Attachments		
		S.No.	Attachment Name	File Name
1	The firm shall report compliance of the NOC conditions online on the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.		nment Found!	

#### 10). Extra Attachment :

S.No	Attachment Name	File Name	
1	Water Consumption Data	Water Consumption Data.pdf	

#### 11). Bharat Kosh Reciept (Porcessing Fee):

S.No	Attachment Name	File Name
1	Bharatkosh Reciept for Joda west	Bharatkosh Reciept for Joda west.pdf

#### 12). Application with Signature and Seal:

S.No	Attachment Name	File Name
1	Aplication with Signature and Seal Attachment	Aplication with Signature and Seal Attachment.pdf

#### 13). MSME certificate in case of MSME:

No Attachment Found!

Date : Name & Signature of the applicant

Place: (With official seal)

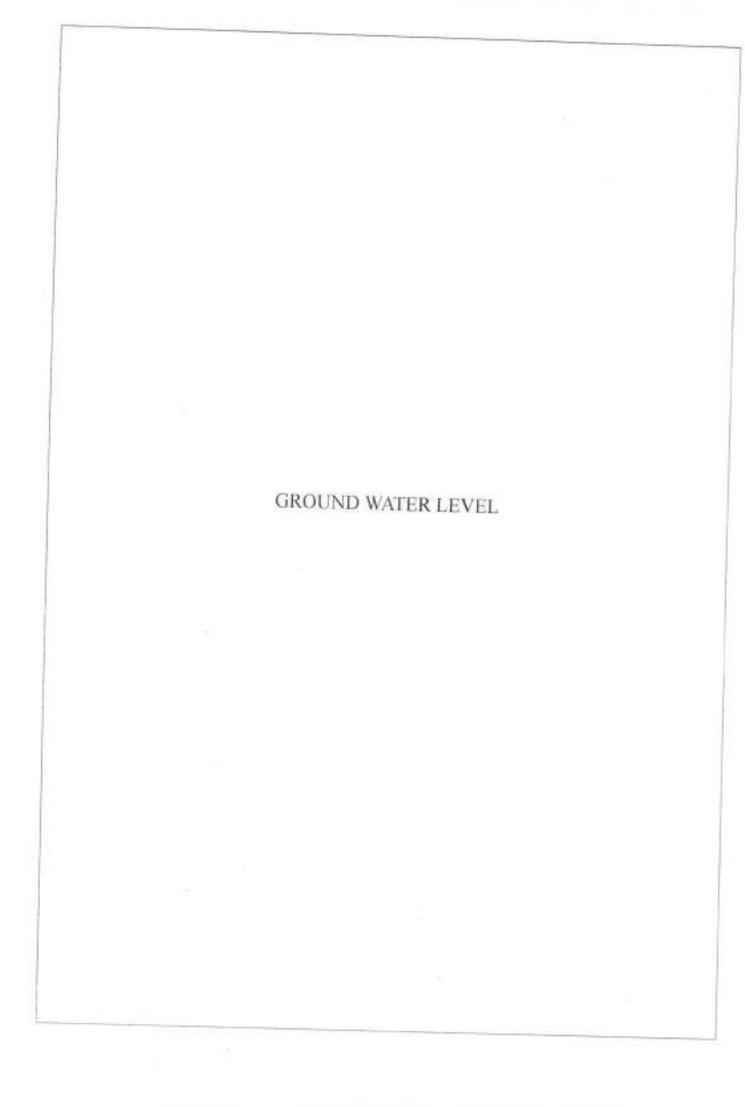
Associated User : tatamngroupmine

Submitted By User : tatamngroupmine

Submission Date: 20/07/2024

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<sup>\*</sup> In case signed by any authorized signatory, the details of the signatory with the authorization shall be enclosed.





AtrP O :BARBIL Ward No-6 Dist : Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T:+91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report	No. MSKGL/ED/20	Date: 29.06.2024				
		MONITORING	REPORT OF GROUND	LEVEL		
Name o						
Name of the Mines JODA WEST			IRON & MANGANESE MINES (JWIMM)			
SL. NO.	Monitoring Location		Date Monitoring	Water Level (Below Ground level, in mtrs)		
1.	Bichakundi, near Community Toilet Bore well No1		22.06.2024	30.6		
2.	Bichakundi Near WTP Bore well No2		22.06.2024	25.5		
3.	Bichakundi near micro activity Centre, Bore well No.3		22.06.2024	292		
4.	Bichakundi, Vej	getable Garden	22.06.2024	33.4		

Checked by:-

For Mitra S. K. Private Limited

**Authorized Signatory** 

AbP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING INSPECTION

T : +91 94370 09815,94370 09820,94370 75289

E berbii@mitrask.co.in W : www.mitrask.com

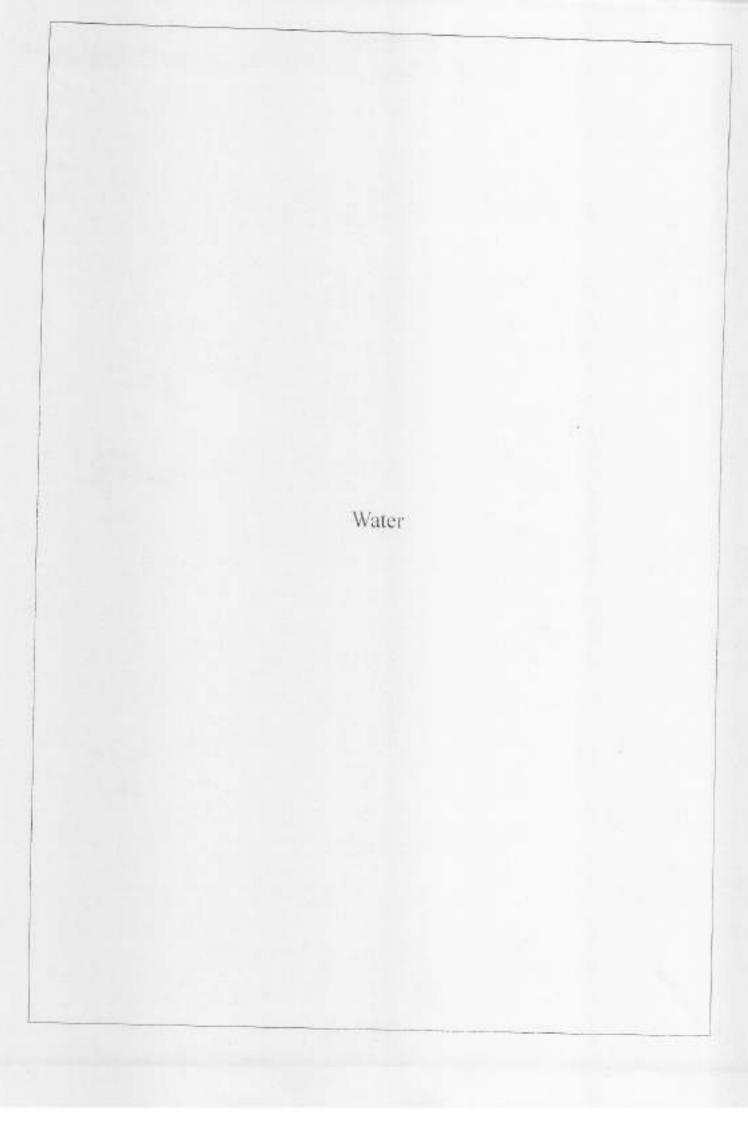
Report	No. MSKGL/ED/20	024-25/4287		Date: 02.10.2024	
		MONITORING	REPORT OF GROUND		
Name	of the Client		TEEL LIMITED		
			RON & MANGANESE MINE	S (JWIMM)	
SL. NO.	Monitoring Location  Bichakundi, near Community Toilet Bore well No1		Date Monitoring	Water Level (Below Ground level, in mt)	
1.			16.09.2024	11.2	
2.	Bichakundi Near WTP Bore well No2		16.09.2024	8.4	
3.	Bichakundi near micro activity Centre, Bore well No.3		16.09.2024	10.3	
4.	Bichakundi, Vegetable Garden		16.09.2024	10.8	

Checked by:-

For Mitra S. K. Private Limited

九

**Authorized Signatory** 



Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

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





Doc No.: MSK/GEN/19/07

Scan for Portel

ULR: TC-695024000007114F

### TEST REPORT

Report No.:

Date: Sample No.: 16/04/2024

Date of receipt of sample:

MSKNB/FD/2024-25/04/WHE31F 04/04/2024

Date(s) of performance:

Location of performance of

04/04/2024 - 18/04/2024

Reference No. & Date :

Permanent Facility

Discipline:

3000155017/056, Date - 15/09/2023

MSKPL/FD/2024-25/XS3E1H

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	03/04/2024		
5. Place of sampling	Pond water Near 5T High School Bhuya Roida JWIMM		
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	Dhambrudhar Das		

Report No.: MSKPL/FD/2024-25/XS3E1H

Sample No.: MSKNB/FD/2024-25/04/WHE31F

#### RESULT

Si No.	Parameter	MON	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	39.2
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	5.8
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
8	Calcium as Ca	mg/l	IS 3025 (Part 40)	12.12
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	32
8	Chloride as CI	mg/l	IS 3025 (Part 32)	14.70
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	150
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	5.6
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.39
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Load as Pb	mg/l	IS 3026 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	18 3025 (Part 46)	4.85
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Signature Name

Attorige Source Mis. Attrayee Saha, Ms. Plai Gangury

8r. Ese. Chemist, Executive Chemist

Authorized Signatory:

Signature

Designation

Designation

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Report No.: MSKPL/FD/2024-25/XS3E1H

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







ULR: TC-695024000007114F

Doc No.: MBK/GEN/19/07

TESTING \* INSPECTION

Sample No.: MSKNB/FD/2024-25/04/WHE31F

RESULT

Chemical	hemical				
SI No.	Parameter	MON	Method	200	
20	Mercury as Hg	mg/l		Result	
21	Nitrate as NO3	0.000	IS 3025 (Part 48)	BDL(DL:0.0002)	
22	Odour	mg/l	APHA (24th EDITION) 4500-NO3- B	1.22	
23		None	IS 3025 (Part 5)	AGREEABLE	
- Control of the Cont	Oil & Grease	mg/I	IS 3025 (Part 39)	BDL(DL:1,4)	
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1		
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	BDL(DL:0.001)	
26	Total Dissolved Solids	mg/l		6.20	
27	Total Hardness as CaCO3	CAROLE III	IS 3025 (Part 16)	98	
28		mg/l	IS 3025 (Part 21)	50.5	
29	Total Suspended Solids	mg/i	IS 3025 (Part 17)	46	
	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)	
30	pH	None	IS 3025 (Part 11)	6.81 AT 24 DEG C	

Opinion:

NA

Statement of Conformity

END ----

Reviewed By:

Albaya Sana Signature

Name Ms. Arrayon Saha, Ms. Pini Gangury Dasignation

Br. Exe. Chemist, Executive Chemist.

Authorized Signatory:

Signature

Name Dr. Soumyadeop Mukhopedhyay

Designation Lab in charge

This results estate only to the through tested.
This Test Popul shall not be repredicted except in tul., without the perceivation of Miles G.K. Private Limited.
The reserved part of manipulative continuous arraphage (price - perceivate samplegs) Food, Visitor) shall be retained for 15 days from the date of lease of the Test Report. Pertinates samplegs, shall be retained 2 days from the date of lease of the Test Report.
The reserved part of samplegs, for chemical arraphage (price - perceivate advantable band by retained for 15 days er per CPOB galaxies is (pos.) I result from the date of source of the Test Report.
The reserved part of samplegs for Microsolological analysis (from - perceivate samplegs of sall be retained for 15 days from the date of lease of the Test Report.
The reserved part of samplegs for Microsolological analysis (from - perceivate samplegs of sall be retained for 15 days from the date of lease of the Test Report.

Head Office:

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Page 2 of 2

#### Address of Laboratory:

Building No. P-48, Udayan Industrial Estate, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

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





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/X53E1H\_1

Date:

16/04/2024

Sample No.:

MSKNB/FD/2024-25/04/WHE31F\_1

Date of receipt of sample:

04/04/2024

Date(s) of performance:

04/04/2024 - 16/04/2024

Reference No. & Date:

3000156017/058, Date - 16/09/2023

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
Unique Identification of sample(if any)	NA NA
4. Date of sampling	03/04/2024
5. Place of sampling	The state of the s
6. Environmental conditions during sampling & Transport	Pond water Near 5T High School Bhuya Roida J/MMM (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	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/XS3E1H\_1

Sample No.: MSKNB/FD/2024-25/04/WHE31F\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mall		
		mg/i	By Calculation	79.08

Opinion:

- END ---

Reviewed By:

Signature

Name

About Sava

Ms. Arrayon Sahe, Ms. Pinti Ganguly

Designation 87. Exe. Chemist, Executive Chemist Authorized Signatory:

Signature

Name

Designation

This consider ever to the terring bettent.
This Test Report should not be represented except in fall, without the permission of Mitter C.K. Private Limited.
This necessed part of analysing the internet exception (Annual Private Section 2 of the Test Report. Permission samples) of the related 2 days from the date of test Report.
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Head Office:

Structe Centro (Str Roor), 748, A.J.C. Bose Road, Kolosta - 700016, West Bergel, India. Tel.: 91:33.40143000 / 22650007 Fax: 91:33.23650008 Enail: Info@mtrask.com Waballe: www.mtrask.com

Address of Laboratory :

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West





Sens for Portal

ULR: TC-695024000007114F

Dec No.: MSK/GEW/19/07

TESTING + INSPECTION

### TEST REPORT

Report No. :

MSKPL/FD/2024-25/XS3E1H Date:

16/04/2024

Sample No.:

MSKNB/FD/2024-25/04/WHE31F

Date of receipt of sample:

04/04/2024

Date(s) of performance: Location of performance of

04/04/2024 - 09/04/2024

Permanent Facility

Reference No. & Date :

3000156017/066, Date - 16/09/2023

Discipline:

Biological

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 NA
4. Date of sampling	03/04/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Pond water Near 5T High School Bhuya Roida JWIMM
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/XS3E1H

Sample No.: MSKNB/FD/2024-25/04/WHE31F

#### RESULT

Aicro Biology					
SI No.	Parameter	UOM	Method	Result	
.4	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	7000	

Opinion:

NA.

Statement of Conformity

NA

END -

Reviewed By

Signature

Ms. Matreyee Chalcabony

Designation ....

Executive Microbiologiai

Authorized Signatory

Signature

Ms. Makrayee Chakraboriv

Designation | Executive Microbiologist

The restalls relate only to the Rem(s) lasted.
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The reserved part of sample(s) for chemical analysis (Non - peristrable sample(s) Food, Water) after be retained for 15 days from the date of issue of the Test Report. Peristrable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The Test Report Peristrable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The Test Report Peristrable sample(s) what is negligible to retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for channel entitytis (Soit, Soit & Liquid Waste) shell be retained for 15 days as per CPCB guidefine & (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, Soaled Water, Soaled food) shell be retained for 15 days from the close of issue of the Test Report.

Shrechi Cestre (Str Ploor), 748, A.J.C. Bose Road, Kalkata - 700016, West Bergal, India. Tel.: 91 33 40143000 / 22550007 Fax: 91 33 22550008 Email: info@mitrask.com Websita: www.mitrask.com

#### Address of Laboratory:

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Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

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





Doc No.: MSKIGEN/18/07



MSKPL/FD/2024-25/TG0E1G

ULR: TC-695024000007113F

### TEST REPORT

Report No.:

Date:

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/V1633M

Date of receipt of sample:

04/04/2024

Date(s) of performance: Location of performance of

04/04/2024 - 16/04/2024

Reference No. & Date:

Permanent Facility

Discipline:

3000156017/056, Date - 16/09/2023

Chemical

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

Water & Residue in Water
Surface Water
NA NA
03/04/2024
Sona River Near Mahanadi Guest House (JWIMM)
(2-5) deg C Cold chain maintained
IS:17614( P-23) 2021 Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/TG0E1G

Sample No.: MSKNB/FD/2024-25/04/v1633M

#### RESULT

SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	19.6
2	Arsenic as As	mg/l	IS 3025 (Part 2)	The state of the s
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	BDL(DL:0.005)
4	Boron as B	mg/l	IS 3025 (Part 2)	5.6
5	Cedmium as Cd	Ngm	IS 3025 (Part 2)	BDL(DL:0.25)
В	Calcium as Ca	mg/l	15 3025 (Part 40)	BDL(DL:0.001)
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	8.08
8	Chloride as CI	mg/l	IS 3025 (Part 32)	28
9	Colour	Hazen	IS 3025 (Part 4)	9.80
10	Conductivity	micro S/am	The state of the s	BDL(DL:1.0)
11	Copper as Cu	mg/I	IS 3025 (Part 14)	70.0
12	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
14	Fluoride as F	mg/l	IS 3025 (Part 38)	5.8
15	Hexavalent Chromium (as Cr+6)		IS 3025 (Part 60)	0.38
16	Iron as Fe	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
17	Load as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
18	Magnesium as Mg	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
19	Manganese as Mn	mg/l	IS 3025 (Part 46)	2.42
	mangeness as Mil	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Albayer Same Ms. Atroyce Same, Ms. Pari Gargoly

Sr. Ext. Chemist, Executive Chemist

Authorized Signatory.

Signature

Designation

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagledenge Road, Kolkata 700015 West Bengal

Report No.: MSKPL/FD/2024-25/TG0E1G

Tel.: +91 7044036120 Email: udeyanlab@mitresk.com





Doc No.: MSK/GEN/19/07

TESTING + INSPECTION

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ULR: TC-695024000007113F

Sample No.: MSKNB/FD/2024-25/04/V1633M

RESULT

Chemical				
SI No.	Parameter	UOM	Method	44 1 2 2
20	Mercury as Hg			Result
21	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
22		mg/l	APHA (24th EDITION) 4500-NO3- B	1.10
23	Odour	None	IS 3025 (Part 5)	AGREEABLE
	Oil & Grease	mg/l	IS 3025 (Part 39)	
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:1.4)
25	Sulphate as SO4			BDL(DL:0.001)
26	Total Dissolved Solids	mg/l	IS 3025 (Part 24) Sec1	4.56
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 16)	50
28		mg/i	IS 3025 (Part 21)	30.3
No.	Total Suspended Solids	mg/l	IS 3025 (Part 17)	31
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	
30	pH	None		BDL(DL:0.02)
		740416	IS 3025 (Part 11)	6.85 AT 24 DEG C

Opinion:

NA.

Statement of Conformity

END ----

Reviewed By:

Signature

Marce

Mr. Atrayee Saho, Ms. Paul Genduly

Atraya Sam 1

Designation

Sr. East Chemist Executive Chemist

Authorized Signatory:

Signature.

: Lab in charge

The recent crisis only to the heating trace.
This Test Report shall not be reported an expect in fall, without the permission of Mitra B.K. Process Limited.
This steerond part of semploys for internative analysis (from - perinted supplies) Proce, Wester) shall be received for 15 days from the date of times of the Test Report. Perfusable samples(s) shall be retained 2 days from the date of issue of the Test Report.
The second part of semploys the chemical analysis (first perinted supplies) and a semploy of a semploy of a chemical analysis (first perinted as expenses) and the retained 2 days from the date of issue of the Test Report.
The second part of semploys be chemical analysis (first perinted supplies) Proof, Seeled Motor, Seeled Motor, Seeled food) shall be retained to 15 days from the Cells of tested Report.

Head Office:

Strachi Certre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.; 91.33.40143000 / 32650007 Fax: 91.33.23650008 Email: inlegiminals.com Vebelte; www.minask.com

Page 2 of 2

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, Pagladanga Road, Kelkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

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





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#### TEST REPORT

Report No. :

MSKPL/FD/2024-25/TG0E1G\_1

Date:

16/04/2024

Sample No.:

MSKNB/FD/2024-25/04/V1633M\_1

Date of receipt of sample:

04/04/2024

Date(s) of performance:

04/04/2024 - 16/04/2024

Reference No. & Date:

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	NA NA
4. Date of sampling	03/04/2024
5. Place of sampling	The state of the s
5. Environmental conditions during sampling & Transport	Sona River Near Mahanadi Guest House (JWIMM)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021
performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/TG0E1G\_1

Sample No.: MSKNB/FD/2024-25/04/V1633M\_1

#### RESULT

hemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mg/l		
		rigo	By Calculation	49.57

Opinion:

- END ---

Reviewed By

Signature

Ms. Atsayes Seite, Ms. Plati Gar Designation - Sr. Exe. Chemist, Executive Chemist Authorized Signatory

Signature

Dustyrellon

The results relate only to the immed tested.

The most report can be reproduced except to fail, without the personners of Mitra 2 Kr. Private Limited.
The reserved part of semploty for channel analysis (from a print subsection) floor, itself is not to expend for the first floorer. Perturbate sample(s) shall be related 2 days from the date of time of employ) for channel analysis (foot, date 4 Liquid Weste) shall be retained for 15 days from the date of time of employ) for channel analysis (foot, date 4 Liquid Weste) shall be installed for 15 days for the date of time of the Test floorer. Perturbate sample(s) shall be related 2 days from the date of time of the Test floorer. The most floorer is the Test floorer. The floorer is the Test floorer is the Test floorer. Perturbate sample(s) shall be related 2 days from the date of time of the Test floorer.

Head Office:

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Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonihar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







ULR: TC-695024000007113F

Doc No.: MISIOGEN/1967

TESTING + INSPECTION

### TEST REPORT

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/TG0E1G

16/04/2024

MSKNB/FD/2024-25/04/V1633M

04/04/2024

04/04/2024 - 09/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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 NA
4. Date of sampling	03/04/2024
5. Place of sampling	Sona River Near Mahanadi Guest House (JWIMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/TG0E1G

Sample No.: MSKNB/FD/2024-25/04/V1633M

#### RESULT

Micro Biology				
Si No.	Parameter	UOM	Method	Result
ti.	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 9221B	22000

Opinion:

NA

Statement of Conformity

NA

- END ----

Reviewed By

Signature

Ms. Mailreyes Chakraborty

Authorized Signatory

Signature

Ms. Matreyee Chakraporty

Designation : Executive Microbiologist

The results relate only to the territo tested.

Designation : Executive Microbiologist

The reserved part of sample(s) for chemical analysis (Non - periodates sample(s) shall be retained for 16 days from the date of issue of the Test Report. Periodate 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 - periodates sample(s) feed, Water) shall be retained for 16 days are from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soit, Soite & Liquid Vitarie) 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 - periodative sample(s) Food, Susted Winter, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Address of Laboratory :

Building No. P. 48, Udayan Industrial Estate, 3, Pagledanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel.: +91 7044036120

Emeil: udayanlab@mitrask.com





Doc No.: MSNOGEN/19/07

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ULR: TC-695024000007091F

### TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/NDBDFJ

15/04/2024

MSKNB/FD/2024-25/04/Z93149

02/04/2024

02/04/2024 - 15/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

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	
Unique Identification of sample(if any)	NA NA	
4. Dete of sampling	01/04/2024	_
5. Place of sampling	Vegetable Garden Pond (JWIMM)	_
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	Pranab Kr. Setti	_

Report No.: MSKPL/FD/2024-25/NDBDFJ

Sample No.: MSKNB/FD/2024-25/04/Z93149

#### RESULT

SI No.	Parameter	MOU	Method	Result
1	Alkalinity as CeCO3	mg/l	IS 3025 (Part 23)	29.4
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	26.5
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	10.20
7	Chemical Oxygen Demand (as COD)	mg/i	IS 3025 (Part 58)	128
8	Chloride as CI	mg/l	IS 3025 (Part 32)	9.80
9	Colour	Hazen	IS 3025 (Part 4)	3.0
10	Conductivity	micro S/om	IS 3025 (Part 14)	110
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/I	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	5.6
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.35
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	5.53
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	4.90
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.44

Reviewed By

Signature : Al

Mexicaple Screwa P. Gary my Me Arrobo Seria New Print Company

: Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation :

Dr. Stampations Washington

Head Office:

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#### Address of Laboratory:

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Report No.: MSKPL/FD/2024-25/NDBDFJ

West Bengal Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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ULR: TC-695024000007091F

Dac No.: MSKIGEN 1907

TESTING + INSPECTION

Sample No.: MSKNB/FD/2024-25/04/293149

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.02
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	8.20
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	72
27	Total Hardness as CaCO3	mg/1	IS 3025 (Part 21)	45.90
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	52.0
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.5 AT 24 DEG C

Opinion:

NA

Statement of Conformity

- END ---

Reviewed By

Signature Name

Attoure Some P. gazzly Ms. Atralyse Sahe, Ms. Plati Ganguly

: Sr. Exe. Chemist, Executive Chemist Designation

Authorized Signatory:

Signature

Name

Dr. Southwases Mus

Designation : Lab In charge

The results visite only to the terropy tested.
This results visite only to the terropy tested.
This results visite only to the terropy tested.
This results are part of surrophish of every tested on the surrophish of every tested on the results completely Food. Water) deather results for 15 days from the date of issue of the Test Report. The results of surrophish for chemical analysis (liet, Sold & Liquid Missey shall be retained by 16 days from the date of issue of the Test Report.
The results part of surrophish for chemical analysis (liet, Sold & Liquid Missey shall be retained by 16 days in our chemical from the date of issue of the Test Report.
The results part of surrophish for Microthological analysis (Non-perishelis sample(s) Food, Sold & Liquid Missey, Seeled Valuer, Seeled Valuer, Seeled then) shall be retained for 15 days from the date of issue of the Test Report.
The results of the Test Report.

Head Office:

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Ernell: mis@mitrask.com Website: www.mitrask.com

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3. Pagisdanga Road, Kolkata 700015 West Bengal

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





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#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.: MSKPL/FD/2024-25/NDBDFJ\_1

Date: 15/04/2024

Sample No.: MSKNB/FD/2024-25/04/293149 1

Date of receipt of sample: 02/04/2024

Date(s) of performance: 02/04/2024 - 15/04/2024

Reference No. & Date: 3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	01/04/2024
5. Place of sampling	Vegetable Garden Pond (JWIMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/NDBDFJ\_1

Sample No.: MSKNB/FD/2024-25/04/Z93149\_1

#### RESULT

Chemical				
SI No.	Parameter	NOM	Mathod	Result
1	Salinity	mg/l	By Calculation	57.99

Opinion:

- END -----

Reviewed By

Signature

About Sour of Name

. Ms. Atreyee Saha, Ms. Pisti Ganguly Designation Sr. Raw. Chemist, Executive Chemist Authorized Signatory:

Signature

The moults relate only to the design testals.
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The Tapport shall not be reproduced enough in fact, without the previously and the previously of the Tapport State of St

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Roed, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel.: +91 7044036120

Email: udeyanlab@mitrssk.com





ULR: TC-695024000007091F

Doc No.: MSK/GEN/19/07

TESTING . IMPRECTION

### TEST REPORT

Report No. :

MSKPL/FD/2024-25/NDBDFJ 15/04/2024

Date:

MSKNB/FD/2024-25/04/293149

Sample No. : Date of receipt of sample:

02/04/2024

Date(s) of performance:

02/04/2024 - 08/04/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/066, Date - 16/09/2023

Discipline:

Biological

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	01/04/2024
5. Pface of sampling	Vegetable Garden Pond (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/NDBDFJ

Sample No.: MSKNB/FD/2024-25/04/Z93149

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100mi	Standard methods for the examination of water & waste water, 24th edth, 9221B	33

Opinion:

NA NA

Statument of Conformity

END ---

Reviewed By

Signature

Ms. Matrovoo Chalcabory

Designation : Executive Microbiologist

Authorized Signatory

Signature

Ms. Maitreyee Chelostosto

Designation

Executive Microbiologist

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

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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. Persinable sample(s) shall be inhamed 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soit & Liquid Waste) shall be retained for 15 days as per CPCB guidaline & (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, Sessied Weter, Sessied food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shracke Centre (5th Floor), 74B, A.J.C. Boss Road, Kolksta - 700016, West Bengel, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Ernell: info@mitresk.com Website: www.mitresk.com

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Al/Po. - Joda, Dist. - Keorijhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







ULR: TC-595024000007090F

Doc No.: MSK/GEN/19/07

TESTING + INSPECTION

### TEST REPORT

Report No.:

Date:

MSKPL/FD/2024-25/M2ADF6

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/WP911J

Date of receipt of sample:

02/04/2024

Date(s) of performance: Location of performance of

02/04/2024 - 15/04/2024

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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
Unique identification of sample(if any)	NA NA
4. Date of sampling	01/04/2024
5. Place of sampling	Pichlaghat Down Stream (JWIMM)
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	Pranab Kr. Setti

Report No. : MSKPL/FD/2024-25/M2ADF6

Sample No.: MSKNB/FD/2024-25/04/WP911J

#### RESULT

hemical				
SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	14.7
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	15 3025 (Part 2)	BDL(DL:0.001
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	6.12
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16.0
8	Chloride as CI	mg/l	IS 3025 (Part 32)	4.90
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	62
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/I	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.4
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.28
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	1.22
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Skinsture Name

Atomice Sour 1 : Ms. Alrayson Sinter, Mr. Pinti Clare

Designation : Sr. Exa. Charriet, Executive Chemist Authorised Signatory.

Signature

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Report No.: MSKPL/FD/2024-25/M2ADF6

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doo No.: MSHOTZETN/19/07

TESTING - INSPECTION

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ULR: TC-695024000007090F

Sample No.: MSKNB/FD/2024-25/04/WP911J

RESULT

Chemical				
SI No.	Parameter	HOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
26	Suiphate as SO4	mg/l	IS 3025 (Part 24) Sec1	4.60
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	40
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	20.40
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	BDL(DL:2.5)
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	7.2 AT 21 DEG C

Opinion:

NA

Statement of Conformity

NA

- END ----

Reviewed By:

Abougesona P. G.

Me. Arrayee Saha, Ms. Post Ganguly

Dasignation

St. Exe. Chemist, Executive Chemist.

Authorized Signatory:

Signature

Designation.

Lab in charge

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





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### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. : MSKPL/FD/2024-25/M2ADF6\_1

Date: 15/04/2024

Sample No.: MSKNB/FD/2024-25/04/MP911J 1

Date of receipt of sample: 02/04/2024

Date(s) of performance: 02/04/2024 - 15/04/2024

Reference No. & Date : 3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	01/04/2024
5. Place of sampling	Pichlaghat Down Stream (JWIMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/M2ADF6\_1

Sample No.: MSKNB/FD/2024-25/04/WP911J\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	32.69

Opinion: NA

-- END ----

Reviewed By

Signature Name:

Atsource Sum Ms. Atrayen Saha, Ms. Pieli Ganguly

Designation

Sr. East. Chemist, Executive Chemist

Authorized Signatory:

Signature

Designation

Name

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Head Office:

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Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Duc No.: MSK/GEW/19/07



ULR: TC-695024000007090F

TEST REPORT

Name & Address of Customer:

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonihar, Odisha - 758034 India

Report No. :

Date: Sample No.:

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/M2ADF6

15/04/2024

MSKNB/FD/2024-25/04/WP911J

02/04/2024

02/04/2024 - 08/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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
Unique Identification of sample(if any)	NA NA
1. Date of sampling	01/04/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Pichlaghat Down Stream (JMMM)
. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
	IS:17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/M2ADF6

Sample No.: MSKNB/FD/2024-25/04/WP911J

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 9221B	2800

Opinion:

NA

Statement of Conformity

NA

- END ---

Reviewed By

Signature

Name

Mr. Matreyes Chalcaborty

Designation | Executive Microbiologist

Authorized Signatory

Signature

Ms. Matruyee Chekroborty

Designation Executive Microbiologist

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The reserved part of sample(s) for charmost analysis (Non - perishable sample(s) Food. Water) shall be retained for 15 days from the date of lesses of the Test Report. Perishable sample(s) shall be retained 2 days. The reserved part of sample(s) for disensal analysis (Soil, Soild & Liquid Water) shall be retained for 15 days as per CPOB guideline & (Art) 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. Souled Wester, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

Page 4 of 4

Shredhi Centra (Sti-Floor), 748, A.J.C. Bose Road, Kokuta - 700016, West Bergel, India. Tel.: 91 33 40145030 / 22650007 Fax: 91 33 22650035 Ernal: Info@minisk.com Websita: www.mittosk.com

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Jode, Dist. - Keonjher, Odisha - 758034 India

Tata Steel Ltd.(MGM) Joda West

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-895024000007089F

Dec No.: MSK/GEN/19/07

### TEST REPORT

Report No.:

MSKPL/FD/2024-25/R7EDES Date: 15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/RCB15E

Date of receipt of sample:

02/04/2024

Date(s) of performance: Location of performance of

02/04/2024 - 15/04/2024

Reference No. & Date :

Permanent Facility

Discipline:

3000156017/056, Date - 16/09/2023

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)	NA NA
4. Date of sampling	01/04/2024
5. Place of sampling	Pichlaghat Up Stream (JWIMM)
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	Pranab Kr, Setti

Report No.: MSKPL/FD/2024-25/R7EDES

Sample No.: MSKNB/FD/2024-25/04/RCB15E

#### RESULT

SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CeCO3	mg/l	IS 3025 (Part 23)	19.6
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	8.16
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	12.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32)	5.88
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	80
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.1
14	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	2.45
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature Name

Atronger School P. Gon

: Sr. Exp. Charmist, Executive Chemist

Authorized Signatory.

Skrieture

Designation

Designation

Address of Laboratory:

Building No. P-48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Report No.: MSKPL/FD/2024-25/R7EDES

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





DIO No.: MSK/GEN/19/07

TESTING \* INSPECTION

Sean for Portal

ULR: TC-695024000007089F

Sample No.: MSKNB/FD/2024-25/04/RCB15E

RESULT

Chemical					
SI No.	Parameter	NOM	Mathod		
20	Mercury as Hg			Result	
21	Nitrate as NO3	mg/i	IS 3025 (Part 48)	BDL(DL:0.0002)	
22	Odour	mg/l	APHA (24th EDITION) 4500-NO3- B	0.74	
23	11-22/15/10	None	IS 3025 (Part 5)	AGREEABLE	
	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)	
24	Phenolic Compounds as C6H5OH	ing/l	IS 3025 (Part 43) Sec1		
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	BDL(DL:0.001)	
26	Total Dissolved Solids	mg/l	The state of the s	5,58	
27	Total Hardness as CaCO3		IS 3025 (Part 16)	60	
28	Total Suspended Solids	mg/l	IS 3025 (Part 21)	30.60	
29		mg/l	IS 3025 (Part 17)	BOL(DL:2.5)	
***************************************	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)	
30	pH	None	IS 3025 (Part 11)	6.7 AT 23 DEG C	

Opinion:

NA:

Statement of Conformity

END ----

Reviewed By:

Bigmiture

Name

Designation

Ms. Atrayon Sarw, Mx. Plati Garguly - Sr. Exp. Chamiet, Executive Chamiet Authorized Signatory:

Signature

Cleatgration

List in charge

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Page 2 of 2

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Report No.:

MSKPL/FD/2024-25/R7EDES 1

Date:

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/RCB15E\_1

Date of receipt of sample:

02/04/2024

Date(s) of performance:

02/04/2024 - 15/04/2024

Reference No. & Date:

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	NA NA
4. Date of sampling	01/04/2024
5. Place of sampling	Pichlaghat Up Stream (JWIMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/R7EDES\_1

Sample No.: MSKNB/FD/2024-25/04/RCB15E\_1

#### RESULT

Chemical				
Si No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	42.18

Opinion:

END -----

Reviewed By

Signature

Designation

Ms. Alrayee Sohn, Ms. Plati Banguly Br. Exe. Chemist, Executive Chemist

Atomure Some P. Son

Authorized Signatory:

Signature

Name

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The reserved just of complete) for character samples (from a personal samples) Prod, Model of this too extend for 15 days from the date of some of the Test Report. Production samples (from the date of some of the Test Report. Production samples (from the date of some of the Test Report. Production samples (for 5 days from the date of some of the Test Report. Production of the reserved part of (assessment) for the Report. Production of the Test Report.
The reserved part of (assessment) for Microbiological analysis (Mod. 5 Listed Wester) shall be examined for 15 days from the date of some of the Test Report.
The reserved part of (assessment) for Microbiological analysis (Mod. 5 periodule) sample(f) Prod, Seeled Wester, Spelled tood) shall be reserved part of (assessor) for the Test Report.
The reserved part of (assessor) for Microbiological analysis (Mod. 5 periodule) sample(f) Prod, Seeled Wester, Spelled tood) shall be reserved part of cases of the Test Report.

Head Office:

Shrachs Centra (Str. Floor), 748, A.J.C. Bose Road, Kokuta - 700016, West Bongal, India. Tel.: 91 33 40143000 / 20550007 Fax: 91 33 22950008 Email: info@mitrask.com Website: www.mitrask.com





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolksta 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Sean for Portal

ULR: TC-695024000007089F

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odlsha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/R7EDES

15/04/2024

MSKNB/FD/2024-25/04/RCB15E

02/04/2024

02/04/2024 - 08/04/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Biological

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 NA
4. Date of sampling	01/04/2024
5. Place of sampling	Pichlaghat Up Stream (JWIMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/R7EDES

Sample No.: MSKNB/FD/2024-25/04/RCB15E

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	170

Opinion:

NA

Statement of Conformity

NA

END -

Beviewed By:

Ms. Watneyers Chalcosborty Designation : Executive Microbiologist

Authorized Signatory

Signature

Ms. Matreyee Chakraborty

Designation : Executive Microbiologist

The results relate only to the tierrox) tested.

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

The reserved part of sample(s) for chemical analysis (see - persence campags) rood, watery enterto insurance for the case of see reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waste) shall be religioud for 15 days as per CPCB guidaline & (Ar.) I month from the date of lesse of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - penshable sample(s) Food, Bealed Water, Seeled 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





Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION



ULR: TC-595024000007088F

#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd (MGM) Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date:

Discipline:

MSKPL/FD/2024-25/YVKDDR

15/04/2024

MSKNB/FD/2024-25/04/M6412D

02/04/2024

02/04/2024 - 15/04/2024

Permanent Facility

3000156017/058, Date - 16/09/2023

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)	NA.
4. Date of sampling	01/04/2024
5. Place of sampling	Keth-hutting after H-quarry Down Stream (Sona River), (JWIMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/YVKDDR

Sample No.: MSKNB/FD/2024-25/04/M6412D

#### RESULT

Chemical				
Si No.	Parameter	UOM	Method	Result
1	Alkslinity as CaCO3	mg/l	IS 3025 (Part 23)	29.4
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	3.6
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0,001)
6	Calcium as Ca	mg/I	IS 3025 (Part 40)	8.16
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16.0
8	Chloride as Cl	mg/i	IS 3025 (Part 32)	7.84
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	90
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.1
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.28
15	Hexavalent Chromium (as Cr+6)	mg/l	18 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	3.67
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Ms. Atteres Satu. Ms. Plat Gel

Designation . Sr. Exe. Chemist, Executive Chemist Authorized Signatory.

Signature

Designation

Shrachi Centre (Sh Floor), 74B, A.J.C. Bose Road, Kokata - 700016, West Bengal, India. 1et : 91:33.40140000 / 22650007 Pax : 91:33 22650008 [mist] : sto@mitraek.com Website : www.mitrask.com Head Office:

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Report No.: MSKPL/FD/2024-25/YVKDDR

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

ULR: TC-695024000007088F

Sample No.: MSKNB/FD/2024-25/04/M6412D

RESULT

Chemical					
SI No.	Parameter	UOM	Method	Result	
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)	
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	0.78	
22	Odour	None	IS 3025 (Part 5)	AGREEABLE	
23	Olf & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1,4)	
24	Phenolic Compounds as C5H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)	
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	6.50	
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	62	
27	Total Hardness as GaCO3	mg/l	IS 3025 (Part 21)	35.70	
28	Total Suspended Solids	mg/i	IS 3025 (Part 17)	4.2	
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)	
30	pH	None	IS 3025 (Part 11)	7.1 AT 22 DEG C	

Opinion:

Statement of Conformity

NA

END ---

Reviewed By:

Signature

Name

Araye Sake P. gon Mr. Arbyroo Baha, No. Prati Carbury Designation

Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Designation

The results refut only to the theretal busined.
The results refut Propert shall not be repredicted except in fact, without the permission of allegs (i.H. Private Lindon).
The reserved part of carripology for monical analysis (No. -portainose carripology Private Business for 15 days from the date of the Text Report. Perhabble example(s) of will be retained 2 days from the date of texts of the Text Report.
The reserved part of carripology for there is entirely in the retained of a Liquid Wester, Societ & Li

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladangs Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/YVKDDR 1

Date:

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/M6412D\_1

Date of receipt of sample:

02/04/2024

Date(s) of performance:

02/04/2024 - 15/04/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	01/04/2024
5. Place of sampling	Keth-hutting after H-quarry Down Stream (Sona River), (JWMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/YVKDDR\_1

Sample No.: MSKNB/FD/2024-25/04/M6412D 1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	47.45

Opinion:

NA

--- END ----

Reviewed By:

Signature

Ms. Atrayes Sohe, Ms. Plef Gangui

Deelgriation Sr. Eas. Chemiet, Executive Chemist

Abouge Show P. S

Authorized Signatory:

Signature

The results relate only to the tension senter.

This Tell Report shall not be reproduced ecosyste to fast, without two potentials of Miles S.K. Private Levelet.

The Tell Report shall not be reposited ecosyste to fast, without two potentials of Miles S.K. Private Levelet.

The reserved past of completely by developing the control of sentences insulption private potentials assigned by the control of the Tell Report.

The reserved past of completely by developing analysis (San Salid & Layer Weeting shall be insulated for 15 days as per CPUS performs 5,04c) 1 month from the date of leave of the Test Report.

The reserved past of sample(s) by Milestonian past (Non-polarisation sample(s) what is example(s) what is example(s) with the date of leave of the Test Report.

Head Office:

Structs Centre (5th Floor), 74B, A.J.C. Bose Road, Kolosta - 70001B, West Bergel, India. Tet : 01:33-40143000 / 22650007 Fez : 31:33-22650008 Email : Info@mitrask.com Website : www.mitrask.com

Address of Laboratory:

Building No. P- 45, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

AbPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM) Joda West

Tel.: +91 7044036120







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ULR: TC-695024000007088F

Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION

### TEST REPORT

Report No. :

Date:

MSKPL/FD/2024-25/YVKDDR

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/M6412D

Date of receipt of sample:

02/04/2024

Date(s) of performance:

02/04/2024 - 08/04/2024

Location of performance of Reference No. & Date:

Permanent Facility 3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drewn 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 NA
4. Date of sampling	01/04/2024
5. Place of sampling	Keth-hutting after H-guarry Down Stream (Sona River), (JWMM)
8. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Setti
	A CONTROL CONTROL

Report No.: MSKPL/FD/2024-25/YVKDDR

Sample No.: MSKNB/FD/2024-25/04/M6412D

#### RESULT

Micro Biology				
Si No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 92218	2200

Opinion:

NA

Statement of Conformity

NA

- END -----

Reviewed By:

Signature

Ms. Maitreyes Chekraborty

Designation

Executive Microbiologist

Authorized Signatory

Signature

Mt. Maltreyee Chekrabony

Designation Executive Microbiologist

The results rotate only to the item(s) faciled.

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.

The reserved part of sample(s) for chamical analysis (won - personates sample(s) shall be retained for 15 days from the data or issue of the Test Report.

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

The reserved part of sample(s) for Microbiological analysis (Non - parishable sample(s) Food, Seeled Rood) shall be retained for 15 days from the data of issue of the Test Report.

Head Office: Stream Centre (5th Floor), 746, A.J.C. Bose Road, Kolkata - 700016, Wast Bangel, Incle. Tel: 91 35 40143000 / 22650007 Pax: 91 33 22650008 Emial: info@mitrack.com Wabalis: www.mitrack.com

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estats, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM). Joda West

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-895024000007087F

Doc No.: MSKVGEN/19/07

TESTING + INSPECTION

### TEST REPORT

Report No.:

15/04/2024

Date: MSKNB/FD/2024-25/04/GAW13G Sample No.:

02/04/2024 Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date:

Discipline:

02/04/2024 - 15/04/2024

MSKPL/FD/2024-25/N11DDN

Permanent Facility

3000156017/056, Date - 16/09/2023

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)	NA NA
4. Date of sampling	01/04/2024
5. Place of sampling	Keth-hutting before H-quarry Up Stream (Sona River), (JWIMM)
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	Pranab Kr. Setti

MSKPL/FD/2024-25/N11DDN Report No.:

Sample No.: MSKNB/FD/2024-25/04/GAW13G

#### RESULT

hemical				
SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	15.68
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0,005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	5.6
4	Boron as B	mg/i	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	4.90
7	Chemical Oxygen Demand (as COD)	mg/li	IS 3025 (Part 58)	24.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32)	7.84
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	74
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	5.8
14.	Fluoride as F	mg/i	IS 3025 (Part 60)	0.32
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.06)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	1.96
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature None

Designation

Mo, Asiayee Sano, Mo, Pioli Ganou

Sr. Exe. Chamist, Executive Chamist

Authorized Signatory

Lab In charge

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkete 700015 West Bengal

Report No.: MSKPL/FD/2024-25/N11DDN

Tel.:+91 7044038120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/10/07

TESTING + INSPECTION

Scan for Portal

ULR: TC-695024000007087F

Sample No.: MSKNB/FD/2024-25/04/GAW13G

RESULT

Chemical				170 - 100
SI No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	0.86
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1,4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	4.60
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	48
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	20.40
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	8.60
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.8 AT 23 DEG C

Opinion:

NA

Statement of Conformity

- END -

Reviewed By:

Signature Marso

Atrayer Seena & : Ma. Alrayere Sohe, Ms. Plati Gangul

: Br. Ean. Chemist. Executive Chemist Designation

Authorized Signatory:

Signature

Name

Designation : Lab in charge

The results value only to the through tested.
This Two Report chart set an expendence second in fall, without the premission of Miles S.K. Proofs Larger for the Report of second part of second-larger for the second-large

Head Office:

Shrochi Centro (Sth Floor), 748, A.J.C. Boxe Road, Kokata - 700016, West Bengal, India. Tel.: 91:33:40143000 / 22650007 Fas: 91:33:22650009 Ernall : into@mitrask.com Websile : www.mitrask.com

Page 2 of 2

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odleha - 758034 India

Tel.: +91 7044036120

Emait udayaniab@mitrask.com





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/N11DDN 1

Date:

15/04/2024

Sample No.:

MSKNB/FD/2024-25/04/GAW13G\_1

Date of receipt of sample:

02/04/2024

Date(s) of performance:

02/04/2024 - 15/04/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	NA .
4. Date of sampling	01/04/2024
5. Place of sampling	Keth-hutting before H-quarry Up Stream (Sona River), (JWIMM)
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	Pranab Kr. Setti

Report No.: MSKPL/FD/2024-25/N11DDN\_1

Sample No.: MSKNB/FD/2024-25/04/GAW13G\_1

#### RESULT

hemical				
Si No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	38.71

Opinion:

- END -----

Reviewed By

Atracke Sam P. Name

Mr. Airayee Saho, Ms. Pieli Garguly

Designation Sr. Exe. Cherrist. Executive Cherrist Authorized Signatory:

Signature

Name

Designation

The results visible only to the burning feature.

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The reserved part of vision-phylography for discretized enoughing from i pertainable complete) if control in the reserved part of supplying for control enoughing from i pertainable complete) if control is not the date of issue of the Test Report.

The reserved part of supplying for discretized enoughing from i pertainable sumple(s) shall be retained for 15 days are per CPCR published 5 (Art) 1 month from the date of issue of the Test Report.

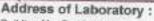
The reserved part of sumple(s) for discretized enoughing from i pertainable sample(s) form the date of issue of the Test Report.

The reserved part of sumple(s) for discretized enoughing from i pertainable sample(s) form the date of issue of the Test Report.

Head Office:

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000007087F

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/N11DDN

15/04/2024

MSKNB/FD/2024-25/04/GAW13G

02/04/2024

02/04/2024 - 08/04/2024

Permanent Facility

3000155017/056, Date - 16/09/2023

Biological

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

esidue in Water
ater
aver
1
ng before H-quarry Up Stream (Sona River), (JWIMM)
C Cold chain maintained
P-25) 2022
Setti
f.

Report No.: MSKPL/FD/2024-25/N11DDN

Sample No.: MSKNB/FD/2024-25/04/GAW13G

#### RESULT

Micro Biology				
SI No.	Parameter	MON	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	7000

Opinion:

NA

Statement of Conformity

NA

END ---

Reviewed By:

Signature

Mx. Maltreyee Chalcaborty

Designation

Executive Microbiologist

Authorized Signatory

Ms. Makreyee Chakraborty

Designation

Executive Microbiologist

The results return only to the item(s) seared.

The results make only to the field (a) search.

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The resultwed part of assurpting for charmical analysis (Non - persisable sample(s) Food, Weber) shall be retained for 15 days from the date of issue of the Test Report. Pershable sample(s) what be retained for 15 days as per CPCB quideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for charmical analysis (Soit, Soid & Liquid Wayte) shall be retained for 15 days as per CPCB quideline & (Air) 1 month from the date of issue of the Test Report.

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

Head Office:

Shrecht Centre (Sth Floer), 748, A.J.C. Bose Roset, Kolkete - 700018, West Bengel, India. Tel: : 91 30 40143000 / 2050007 Fex: : 91 33 22500000 Ernet : into@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@mitresk.com





Scan for Portal

ULR: TC-695024000008381F

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGW)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date:

Sample No.: Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/QF2053

13/05/2024

MSKNB/FD/2024-25/04/BNMAC2

17/04/2024

17/04/2024 - 12/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been enalyzed 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	16/04/2024
5. Place of sampling	kandara Village baitarani river. (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain meintained
7. Sampling Plan & Method used	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dambarudher Des

Report No.: MSKPL/FD/2024-25/QF2053

Sample No.: MSKNB/FD/2024-25/04/BNMAC2

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	59.4
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	BDL(DL:2.0)
4	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
6	Calcium as Ca	llgm	IS 3025 (Part 40)	20.20
7	Chemical Oxygen Demand (98 COD)	mg/l	IS 3025 (Part 58)	16.0
8	Chloride as CI	mg/l	IS 3025 (Part 32)	7.35
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	152
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.1
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.32
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/i	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	6.06
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL/DL-0 02)

Reviewed by:

Signature

Name

brauseo Som Ms. Atrayee Saro, Ms. Piel Gargely

Designation

: St. Exe. Charries, Executive Charries

Authorized Signatory.

Signature

o Mugnobadrijar

Designation

Lab In charge

Doc No.: MSKGGEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Report No.: MSKPL/FD/2024-25/QF2053

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





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ULR: TC-695024000008381F

Sample No.: MSKNB/FD/2024-25/04/BNMAC2

RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.85
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BOL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Suiphate as SO4	mg/l	IS 3025 (Part 24) Sec1	10.8
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	96
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	75.75
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	20.1
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.9 AT 26 DEG C

Opinion:

NA NA

Statement of Conformity

-- END ----

Reviewed By

Signature

Atrayee Scara

Ms. Almine Sohs, Ms. Pioli Ganguly

Designation

fr. Exe. Chemist, Executive Chemist

Authorized Signatory

Lab in charge

Dr. Sportyastep Mustopadiyay

The results readle celly to the density tented.

The Text Report shall not be reported except in Fall, velocut the permission of Milw S.K. Private Larger.

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The received gast of company and content analysis (Soci. Social & Liquid Weets) shall be retained for 15 days from the date of the Text Report.

The received gast of completely for discretical energies (No. Social & Liquid Weets) shall be retained for 15 days a per CPCB gardetine & (Ary 1 receive those of insert of content analysis (Soci. Social & Liquid Weets) shall be retained for 15 days from the case of insert of insert

Head Office:

Strachi Carire (Sh Floor), 74B, A.J.C. Bose Road, Kolketa - 700018, West Bengal, India, Tel.: 91 23 40143000 / 22850007 Fax: 91 33 22590000 Email: #fm@mt/rask.com Website: www.mt/resk.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





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### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

MSKPL/FD/2024-25/QF2053\_1

13/05/2024

Sample No. :

MSKNB/FD/2024-25/04/BNMAC2\_1

Date of receipt of sample:

17/04/2024

Date(s) of performance: Reference No. & Date :

17/04/2024 - 12/05/2024

3000156017/056, Date - 16/09/2023.

We hereby certify that the following sample Orawn 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 NA
4. Date of sampling	16/04/2024
5. Place of sampling	kandara Village baitarani riyer. (JWIMM)
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	Pranab Sethi, Dambarudhar Das

Report No.: MSKPL/FD/2024-25/QF2053\_1

Sample No.: MSKNB/FD/2024-25/04/BNMAC2\_1

#### RESULT

Chemical				
SI No.	Parameter	NOM	Method	Result
1	Salinity	mg/l	By Calculation	50.61

Opinion:

NA

-- END ----

Reviewed By:

Signature Marco

Abrayee Sava : Me Alrayee Sahe, Ms. Flali Garguly

Designation

Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

North

dost way i

Designation

Leb In charge

The results white term of the flowing terms of the

Head Office:

Shrecht Centre (6th Floor), 748, A.J.C. Bose Road, Kolkets - 700016, West Bengel, Incle. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650009 Ernell : 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





Doc No.: MSK/GEN/19/07

TESTING + IMSPECT



ULR: TC-695024000008381F

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/QF2053

13/05/2024

MSKNB/FD/2024-25/04/BNMAC2

17/04/2024

17/04/2024 - 22/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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 NA
4. Date of sampling	16/04/2024
5. Place of sampling	kandara Village baitarani river. (JWMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dembarudhar Das

Report No.: MSKPL/FD/2024-25/QF2053

Sample No.: MSKNB/FD/2024-25/04/BNMAC2

#### RESULT

Micro Biology				
SI No.	. Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	70

Opinion:

NA

Statement of Conformity

- END -----

Reviewed By

Signature

Ma. Mattrayer Chalcaborty

Designation Executive Microbiologist Authorized Signatory

Signature

Name

Mr. Suivente Pelo

Designation : Technical in charge

The results reliate only to the item(x) feeted.

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The reserved part of sample(s) for chamical 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 guidaline & (Air) 1 month from the date of issue of the Test Report.

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

Head Office:

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#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagledenga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel.: +91 7044038120 Email: udayanlab@mitrask.com





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MSKPL/FD/2024-25/1B206Q

MSKNB/FD/2024-25/04/C8XABR

ULR: TC-895024000008382F

Doc No.: MSK/GEN/18/07

TESTING # INSPECTION

### TEST REPORT

Report No.:

13/05/2024

Date:

Sample No.:

17/04/2024

Date of receipt of sample:

Date(s) of performance: Location of performance of 17/04/2024 - 12/05/2024

Reference No. & Date:

Permanent Facility 3000156017/056, Date - 16/09/2023

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	16/04/2024
5. Place of sampling	sona river before confluence with baltarani river.( Kandara Village) (JWIMM)
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	Pranab Sethi, Dambarudhar Das

Report No.:

MSKPL/FD/2024-25/1B206Q

Sample No.: MSKNB/FD/2024-25/04/C8XABR

#### RESULT

hemical				
SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	44.55
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	BDL(DL:2.0)
4	Boron as B	mg/i	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	14.14
7	Chemical Oxygen Demand (as COD)	mg/I	IS 3025 (Part 58)	16.0
8	Chloride as Cl	mg/I	IS 3025 (Part 32)	9.80
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	120
11	Copper as Cu	mg/I	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/I	IS 3025 (Part 38)	6.4
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.25
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/I	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	4.85
19	Manganese as Mn	mg/1	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Abaya Sava P. Jazaly Signature Ms. Andyon Sone, Ms. Plot Conguly Notice

- Sr. Ess. Chemist, Executive Chemist Designation

Authorized Signatory

Signature

Designation

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladenge Road, Kolketa 700015 West Bengal

Report No.: MSKPL/FD/2024-25/18206Q

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





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ULR: TC-695024000008382F

Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION

Sample No.: MSKNB/FD/2024-25/04/C8XABR

RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.89
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL-1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	6.20
26	Total Dissolved Solids	mg/t	IS 3025 (Part 16)	90
27	Total Hardness as GaCO3	mg/l	IS 3025 (Part 21)	55.55
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	BDL(DL:2,5)
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	7.0 AT 28 DEG C

Opinion:

NA

Statement of Conformity

NA

END ---

Roviewed By:

Signature None

Alvaya Sam P. Smy Ms. Atrayon Saha, Ms. Pini Garguly

Designation

8r. Exs. Chemist, Executive Chemist

Authorized Signalory

Signature

None

T verytoppoum quebeur

Designation

Lab In charge

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The reserved part of services for chemical emission (Set, Solid & Liquid Water) shall be relatived for 15 days as per CPUB guidaline & (As) 1 security from the date of tests of the Test Report.
The reserved part of services for chemical emission (Set, Solid & Liquid Water) shall be relatived for 15 days from the date of tests of the Test Report.
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Head Office:

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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





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### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

MSKPL/FD/2024-25/1B206Q 1 Report No.:

Date: 13/05/2024

MSKNB/FD/2024-25/04/C8XABR\_1 Sample No. :

Date of receipt of sample: 17/04/2024

Date(s) of performance: 17/04/2024 - 12/05/2024

Reference No. & Date : 3000156017/056, Date - 16/09/2023

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	16/04/2024
5. Place of sampling	sona river before confluence with baitarani river.( Kandara Village) (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) dag C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dambarudhar Das

Report No.: MSKPL/FD/2024-25/1B206Q\_1

Sample No.: MSKNB/FD/2024-25/04/C8XABR 1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	63.27

Opinion: NA

END -

Reviewed By:

Signature Name:

Alsagee Same 1 Ms. Atrabas Saha, Ms. Piali Ganguly

Designation

- Sr. Exe. Chemist, Executive Chemist

Authorized Signetory

Signature

Narive

Designation

Lab in charge

The results relate only to the Benefit tested.

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The reserved past of sample(s) for therefored manifests (Sold & Uquid Waste) shall be retained for 15 days on per CPCD publishes & (A) 1 records from the date of issue of the Test Report.

The reserved past of sample(s) for Microthological energies (Nov. - perishable sample(s) Food. Soulded Water) shall be retained for 15 days from the date of issue of the Test Report.

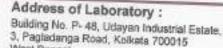
The reserved past of sample(s) for Microthological energies (Nov. - perishable sample(s) Food. Soulded Water, Soulded World, Soulded Good) shall be retained for 15 days from the date of issue of the Test Report. Pertrinsible sample(s) shall be retained 2 days from the date of issue of the Test Report.

Head Office:

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Doe No.: MSKYGEN/19407





West Bengal Tel.: +91 7044038120

Email: udayanlab@mitrask.com

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West







Scan for Portal

ULR: TC-695024000008382F

### TEST REPORT

Report No.:

MSKPL/FD/2024-25/1B206Q

Date:

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/C8XABR

Date of receipt of sample:

17/04/2024

Date(s) of performance:

17/04/2024 - 22/04/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

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
Unique Identification of sample(if any)	V 101
4. Date of sampling	NA.
5. Place of sampling	15/04/2024
6. Environmental conditions during	sona river before confluence with baltarani river ( Kandara Village) (JWIMM)
Environmental conditions during sampling & Transport     Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
I Identification of the second Used	IS:17614( P-25) 2022
3. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dambarudhar Das

Report No.: MSKPL/FD/2024-25/18206Q

Sample No.: MSKNB/FD/2024-25/04/C8XABR

### RESULT

licro Biology				
Si No.	Parameter	UOM	Method	
1	Total coliform	MENINOS	Standard methods for the examination	Result
		MPN/100ml	of water & waste water, 24th ledth, 9221B	170

Opinion:

NA

Statement of Conformity

NA

- END -

Reviewed By-

Signature

Name

Ms. Maltreyee Chakraborty

Désignation : Executive Microbiologist

Authorized Signatory

Stoneture

Name

Designation : Technical in charge

The results relate anly to the Ross(s) sessed.

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This data of loss of the Test Report.

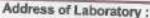
The reserved part of semple(s) for chemical analysis (Non - perishable semple(s) Food, Sealed Water, Sealed food) shall be retained for 15 days as per CPCB guideline 5 (Air) 1 month from the date of issue of the Test Report.

The reserved part of semple(s) for Microbiological analysis (Non - perishable semple(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Stracts Centre (5th Flour), 748, A.J.C. Boss Road, Kobate - 700018, West Bengel, India. 31 33 40143000 / 22650007 Fax: 91 33 22650008

Email: Info@mitrask.com Watada : www.mitrask.com

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Building No. P-48, Udayan Industrial Estate, 3, Pagfadanga Road, Kolketa 700015 West Bengal

Tel.: +91 7044036120

Emeil: udayanlab@mitrask.com





ULR: TC-695024000009100F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Pc. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/A0464D

22/05/2024

MSKNB/FD/2024-25/06/5KW73T

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Weter
3. Unique Identification of sample(if any)	
4. Date of sampling	NA NA
5. Place of sampling	07/05/2024
	Keth Hutting before H-Quarrry (Up stream) (JWIMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chein maintained
7. Sampling Plan & Method used	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021
performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/A0464D

Sample No.: MSKNB/FD/2024-25/05/5KW73T

#### RESULT

hemical				
SI No.	Parameter	UOM		
1	Arsenic as As	77.00	Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0,25)
4	The Property of the Property o	mg/I	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BOL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
-	Fluoride as F	mg/l	IS 3025 (Part 60)	The state of the s
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
9	Leed as Pb	mg/l		BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg		IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
	ATTO AS ATT	mg/l	IS 3025 (Part 2)	BDL(Dt:0.02)

Opinion:

NA

Statement of Conformity

END -----

Reviewed By

Signature

Name Designation

Sr. Fixecutive Chamist

Authorized Signatory:

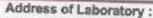
Designation :

Head Office:

Shrechi Canire (Sri Floor), 748, A.J.C. Bose Road, Kolkata - 700015, West Banget, India. Tel.: 91 33 40143000 / 22550007 Fex: 91 33 22550000 Shealt : artogynizusk.com Webelte : www.mitrosk.com

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagledenga Road, Kolkata 700015 Wast Bengal

Tel.; +91 7044036120

Email: udayımlab@mitrask.com







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Reviewed By:

Signature

Designation - Sr. Executive Chemist

Alanja Sana P. Gr : Ms. Alrayee Saha, Ma. Plate Ganguly

Aithorized Signatory.

Signature

Designation : Lab In charge

The results velotic only to the feoretyl bostoni.
The Tour Report shall not be reported in fail, with set the permission of feltre S.K. Private Liveage.
The Tour Report shall not be reported in fail, with set the permission of feltre S.K. Private Liveage.
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Head Office:

Shrooki Centre (Sin Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bergal, India. Txl.: 91.33 40143000 / 22650007 Pac: 91.33 22650006 Email: info@mitraec.com Website: www.mitraek.com

Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagledenge Road, Kolkate 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

AUPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Teta Steel Ltd.(MGM)\_Joda West







Dec No.: MSKIGENMENT

TESTING . INSPECTION

ULR: TC-695024000009100F

### TEST REPORT

Report No. :

Date:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/A0464D

22/05/2024

MSKNB/FD/2024-25/05/5KW73T

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

We hareby 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)	The state of the s
4. Date of sampling	NA NA
5. Place of sampling	07/05/2024
	Keth Hutting before H-Quarmy (Up stream) (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Praneb Ku Sethi

Report No.: MSKPL/FD/2024-25/A0464D

Sample No.: MSKNB/FD/2024-25/05/5KW73T

### RESULT

icro Biology				
Si No.	Parameter	UOM	Method	D
1	Total coliform		Standard methods for the examination	Result
	Total Collors	MPN/100ml	of water & waste water, 24th ledth, 9221B	14

Opinion:

NA.

Statement of Conformity

- END -

Reviewed Bur

Signature

1 Ms. Matricyne Chakebony

Designation | Executive Microbiologist

Signature

Designation : Technical in charge

The results made only to the imm(x) tested.

This Test Report shall not be reproduced except in full, without the permission of Mina S.K. Private Limited.
This reserved part of sample(s) for characal analysis (Non - periodolic sample(s) Food, Water) shall be retained for 15 days from the date of insure of the Test Report, Periodolic sample(s) shall be retained 2 days.

The date of last of the Test Report, Periodolic sample(s) shall be retained 2 days.

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

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

The reserved part of sample(s) for Microbiological analysis (Non - periodolile sample(s) Food, Sealed Water, Sapled tood) shall be retained for 15 days from the date of laque of the Test Report. Shredhi Cerine (56 Floor), 745, A.J.C. Bean Flood, Kokota - 705016, West Bengal, India. Tel. : 21 33:40142000 / 22050007 Fax : 91 33 22950008 Enail: Info@mitrusk.com Websile : www.mitrask.com

AUP.O.:BARBIL Ward No-6 Dist : Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269 E : barbil@mitrask.co.in

W : www.mitrask.com

Report No. MSKGL/ED/202		Date: 22.05.2024
tyange of the cheut	ANALYSIS REPORT OF SURFACE WATER  M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024 MANGANESE MINES (JWIMM)	
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	30 30	-
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	0.7.5	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		13
4	Chloride (as Cl.)	mg/l		250	<4.0
5	DO	-	APHA (24th Edition), 4500 -CI B	-	10
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.6
7		us/cm	APHA (24th Edition), 2510B		98
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.09
3700	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		21177
9	Odour	mg/l	APHA (24th Edition), 2150B	222	2.9
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeabl
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	0.000	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B	***	0.05
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	***	2.6
15		mg/l	APHA (24th Edition), 5210B	944	40
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	7122	61
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		44
	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	-
8	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5,5-9.0	7.40

Checked by:-

For Mitra S. K. Private Limited

**Authorized Signatory** 

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagiadanga Road, Kolkata 700015 West Bengal

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







Doc No.: MSK/GEN/19/07

ULR: TC-695024000009101F

## TEST REPORT

Name & Address of Customer;

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No. :

Date of receipt of sample: Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/89464Y

22/05/2024

MSKNB/FD/2024-25/05/7SR7BQ

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

Group     Description of sample	Water & Residue in Water
3. Unique Marville V	Surface Water
Unique Identification of sample(if any)     Date of sampling	NA NA
5. Place of sampling	07/05/2024
6. Environmental and data	Keth Hutting after H-Quarry (Down stream) (JWIMM)
6, Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained
I Identification of the con-	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/89464Y

Sample No.: MSKNB/FD/2024-25/05/7SR7BQ

### RESULT

hemical				
SI No.	Parameter	UOM	T T	
1	Arsenic as As	100000	Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cedmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	Topm .	IS 3025 (Part 2)	BDL(DL:0.001)
5	27 2000	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	The second secon
1	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/f	IS 3025 (Part 52) Sec2	BDL(DL:0.1)
9	Lead as Pb	Nem		BDL(DL:0.01)
10	Manganese as Mn	mgfl	18 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg		IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
- /-		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Oplnion:

NA

Statement of Conformity NA

END -----

Reviewed By:

Signature

Attracte Salus P. Jan.

5c. Executive Chamlet

Authorized Signatory:

Designation

Address of Laboratory:

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

Email: udayanlab@mitrask.com







Doc No.: MSK/GEN/19/07

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ULR: TC-895024000009101F

Raylwand By:

Signature

Abraga Saha P. Jan Mi Ampin Sohi, Ne. Prof. Genguty : Sr. Executive Chemist

Designation.

Authorized Signatory:

Signature

Designation :

Lab in charge

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Shrechi Centre (55) Picori, 748, A.J.C. Bose Rossi, Kelkata - 700010, West Bangel, India. Tel.: 91 33 49143000 / 23650007 Fax: 31 33 2365000 Email: info@mitrask.com Wataste ; www.mitrask.com

Page 2 of 2

Address of Laboratory:

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At/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India Pin

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







DIO No.: MISKIGEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000009101F

## TEST REPORT

Name & Address of Customer: Report No.: Tata Steel Ltd.(MGM)\_Joda West

Date:

MSKPL/FD/2024-25/89464Y 22/05/2024

Sample No.:

MSKNB/FD/2024-25/05/75R7BQ 08/05/2024

Date of receipt of sample: Date(s) of performance:

08/05/2024 - 13/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 15/09/2023

Discipline:

Biological

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of	Surface Water
Unique Identification of sample(if any)     Date of sampling	NA NA
5. Place of sampling	07/05/2024
	Keth Hutting after H-Quarry (Down stream) (JWIMM)
5. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
I Identification of the passes of	IS:17614( P-25) 2022
I. Identification of the personnel performing sampling by MSK	Pranab Ku Seth

Report No. : MSKPL/FD/2024-25/89464Y

Sample No.: MSKNB/FD/2024-25/05/7SR7BQ

### RESULT

	KEGGET		
Parameter	UOM	Method	
Total coliform	MPN/100ml	Standard methods for the examination	Result
		Parameter UOM	Parameter UON Method  Standard methods for the examination

Opinion:

NA

Statement of Conformity

NA.

END --

Reviewed By:

Signature

Ms. Matreyee Chalcaborty

Designation

Executive Microbialogist

Authorized Signatory

Signature

Technical in charge

The requite miste only to the item(s) tested.

The results relate only to the fluency) tested.
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This reserved part of sample(s) for chemical enotytes (Non - particulable comple(s) Food, Water) shall be retained for 15 days from the date of issue of the Tast Report. Purishable comple(s) shall be retained 2 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sall, Salid & Liquid Waste) shall be retained for 15 days as per CPCB guideline is (APr) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - periodatic sample(s) Food, Sanied Water, Sasted food) shall be retained for 15 days from the date of issue of the Test Report.

Shrechi Cestre (Str. Ploor), 748, A.J.C. Sesse Road, Kolluste - 700016, West Bengal, India. Tel.: 91 33 40143000 J 23660007 Pax: 91 33 23500066 Small: Info@mitrask.com Website : www.cotrask.com

At/P.O :BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W: www.mitrask.com

Report No. MSKGL/ED/2024-25/001425 Date: 22.05.2024 ANALYSIS REPORT OF SURFACE WATER Name of the Client M/s. TATA STEEL LIMITED Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM) Date of sampling 07.05.2024 Location Keth-Hutting after H- Quarry Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

S1. No	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Result
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l		30	<2.0
3	Chemical Oxygen Demand (COD)	-	APHA (24th Edition), 2340 C		8
4	Chloride (as Cl.)	mg/i	APHA (24th Edition), 5220B	250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CI B		12
6		mg/l	APHA 24th Edition, 2023 4500-0-C/G	***	
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		6
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	96
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.07
-	Odour	mg/l	APHA (24th Edition), 21508	166	5.7
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	-	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B		0.09
4	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	***	3.5
5	Total Dissolved Solids (as TDS)		APHA (24th Edition), 5210B	****	36
6		mg/l	APHA (24th Edition), 2540C		59
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	44
	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	5.2

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladenga Road, Kolkata 700015 West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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ULR: TC-695024000009102F

Dog No.: MSKIGEN/19/07

TESTING + INSPECTION

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odlaha - 758034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/RK4645

22/05/2024

MSKNB/FD/2024-25/05/83G750

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Weter & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	07/05/2024
5. Place of sampling	Sona river near Pichlaghat Pump House (Up stream) (JWIMM)
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	Praneb Ku Sethi

Report No.: MSKPL/FD/2024-25/RK4645

Sample No.: MSKNB/FD/2024-25/05/83G750

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BOL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mgfl	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
8	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	Ngrsi	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0,4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity

- END ----

Reviewed By:

Signature

Atograsama P. Jung: Mr. Mr. Mad Georgia

Designation

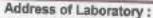
: Sr. Executive Chemist

Authorized Signatury:

Designation :

Doc No.: MSK/GERM19/07





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





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ULR: TC-695024000009102F

Signature

Marrai

Designation

Mir. Altreien Sahn, Ms. Plat Ger Sr. Executive Chemist

Abayee Sun P

Authorized Signatory.

Signature

Designation

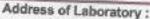
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This reserved part of sample(s) for description for description of the Test Report of the Test Repor

God No.: MSKIGEN/1907





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





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ULR: TC-695024000009102F

TEST REPORT

### Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/RK4645

22/05/2024

MSKNB/FD/2024-25/05/83G750 08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

1. Group 2. Description of sample	Water & Residue in Water
Unique Identification &	Surface Water
. Unique Identification of sample(if any) . Date of sampling	NA .
5. Place of sampling	07/05/2024
f. Fristromantal and the	Sona river near Pichlaghat Pump House (Up stream) (JWIMM)
6. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 -5) dag C Cold chain maintained
	IS:17614( P-25) 2022
<ol> <li>Identification of the personnel performing sampling by MSK</li> </ol>	Praneb Ku Sethi

Report No. : MSKPL/FD/2024-25/RK4645

Sample No.: MSKNB/FD/2024-25/05/83G750

### RESULT

licro Biology		NEOOLI		
SI No.	Parameter	UOM	Method	David.
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth,	Result
			92218	12

Opinion:

MA

Statement of Conformity

NA

- END --

Reviewed But

Signature

Ms. Matrayee Chalcatorty Designation : Executive Microbiologist

Authorized Signatory:

Blanstule

Mr. Sukareta Pelai

Technical in charge

The results relate only to the item(s) tested.
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The recorned part of simple(s) for chemical enalysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of tissue of the Test Report. Perishable sample(s) shall be retained 2 days.

The reserved part of sample(s) for observed analysis (high - periodeted sample(s) must, erect ) small as retained for 10 days with the date of section of sections of sections respect. Percentage sample(s) from the date of sections analysis (Set. Selid & Liquid Waster) shell be related 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 - periodete) sample(s) Food, Scaled Water, Sealed food) shell be estained for 15 days from the date of issue of the Test Report.

Shrachi Centre (Sth Floor), 748, A.J.C. Bose Road, Rollette - 700016, West Benget, India. Tel : 91 33 40143000 / 23050007 Fax : 91 33 2350000 Email : info@mitress.com Webelte : www.reltrask.com

AMP O BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/202	4-25/001426	Date 22.05 200 1
ANALYSIS REPORT OF SURFACE WATER		Date: 22.05.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024	
Location	Pichlaghat Pump House Up Stream (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
188	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 52108	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		750
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	10
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B	200	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G		12
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		5.9
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	93
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.13
9	Odour	mg/l	APHA (24th Edition), 2150B	****	4.8
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)		APHA (24th Edition), 5530C	10	<5.0
12		mg/l	(Chloroform Extraction)	1	< 0.001
13	Salinity	PSU	APHA (24th Edition), 2520B		0.09
	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		2.7
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	No.	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	58
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	***	277
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	44
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.36

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





ULR: TC-695024000009103F

Disc No.: MRK/DEN/19/07

TESTING . INSPECTION

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKNB/FD/2024-25/05/85778S 08/05/2024

22/05/2024

08/05/2024 - 22/05/2024

MSKPL/FD/2024-25/T7464U

Permanent Facility

3000156017/056, Date - 16/09/2023

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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
	07/05/2024
5. Place of sampling	Sona river near Pichlaghat Pump House (Down stream): (JWIMM)
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	
performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/T7464U

Sample No.: MSKNB/FD/2024-25/05/85778S

### RESULT

Chemical		- Montage		
SI No.	Parameter	UOM	Method	W
1	Arsenic as As	mg/l		Result
2	Boron as B		IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	15 3025 (Part 2)	BDL(DL:0,25)
4		mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
.6	Copper as Cu	mg/l	IS 3025 (Pert 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	THE RESIDENCE AND ADDRESS OF THE PARTY OF TH
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l		BDL(DL:0.2)
9	Lead as Pb	-	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

Statement of Conformity NA

- END -----

Meviewed By:

Bynaure

Albanyer Sana P. J.

Designation Sr. Executive Cherrent Authorized Signatory

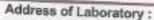
Designation : Lab in charge

Head Office:

Stractiv Centre (5th Floor), 748, A.J.C. Bose Road, Kobata - 750016, West Bengel, India. Tel.: 91 89 40143000 J 20150007 Fax: 91 39 23450005 Email: Info@mikaat.com Webste : www.mitrask.com

DOC NO.: MISKIGEN/1997





Building No. P- 48, Udayon Industrial Estate, 3, Pagladange Roed, Kolketa 700015 West Bangal

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





Scan for Portal

ULR: TC-895024000009103F

Reviewed by:

Signature

Name

Atoronyse Server P. Jong Designation : Sr. Executive Charges

Authorized Signatory:

Signature

Moorea

Dissignation

Lab in charge

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Address of Laboratory :

Building No. P-48, Udayan Industrial Estate, 3, Pegladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

AMPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM) Joda West







Dic No.: MSK/QEN/1907

TESTING . INSPECTION

ULR: TC-695024000009103F

### TEST REPORT

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/T7464U

22/06/2024

MSKNB/FD/2024-25/05/8\$778\$

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Biological

We hereby certify that the following semple 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 NA
4. Date of sampling	07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sona river near Pichlaghat Pump House (Down stream). (JWIMM)
7. Sampling Plan & Method used	(4-5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
or are personnel performing sampling by MSK	Pranab Ku Sethi

Report No. :

MSKPL/FD/2024-25/T7464U

Sample No.: MSKNB/FD/2024-25/05/8S778S

#### RESULT

licro Biology	THE RANGE			
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 92218	17

Opinion:

NA

Statement of Conformity

NA

END -

Reviewed By:

: Ms. Maltreyee Chakraborty

Designation : Executive Microtoclogist

**Authorized Signatory** 

Designation

Technical in charge

The results relate only to the itempty isseed.
The rest Report shall not be reproduced except in full, without the permission of Mitre S.K. Private Limited.
The reserved part of sample(s) for character except in full, without the permission of Mitre S.K. Private Limited.
The reserved part of sample(s) for character except (s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for characterized analysis (Boil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Arr) i month from the date of issue of the Test Report.
The reserved part of sample(s) for Manuskological analysis (Man - perishable exemple(s) Food, Seeled Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

Person 1 of 1

Streets Centre (5th Floor), 748, A.J.C. Bose Road, Kolksta - 703016, West Bergat, India. Tel.: 91 33 40143300 / 22650007 Fax: 91 33 22650006 Ernall - Info@mitrask.com Website : www.inforesk.com

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E : barbi@mitrask.co.in W : www mitrasic.com

Report No. MSKGL/ED/202-		Date: 22.05.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024 (WIMM)	
Location	Pichlaghat Pump House Down Stream (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI, No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (Z4th Edition), 2340 C		- C. (1997)
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220H		11
4	Chloride (as Cl )	mg/I	APHA (24th Edition), 4500 -CI B	250	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G	***	10
80	Electrical conductivity	us/cm		***	6.1
7	NAME AND DESCRIPTION OF THE PARTY OF THE PAR		APHA (24th Edition), 2510B		90
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe 8	3	0.14
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.8
7	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	80.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		3.9
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		32
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		56
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	F0 44.50	44
18	pH value at 20.5 deg C	None		50/100	2.2
-	The second degree	11000	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.32

Checked by:-

For Mitra S. K. Private Limited

Bandham

Authorized Signatory

### Address of Laboratory:

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Tel.: +91 7044038120

Emeil: udayanlab@mitrask.com







ULR: TC-695024000009104F

Dist No.: MSKIGEN/1907

TESTING \* INSPECTION

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jode West

At/Po. - Joda, Dist. - Keonjhar, Odlsha - 758034 India Pin

Report No.:

Date:

Sample No. : Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/8E464Q

22/05/2024

MSKNB/FD/2024-25/05/9FA7AL

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

Water & Residue in Water
Surface Water
NA NA
07/05/2024
Sons River near Mahanadi Guest House (JWIMM)
(2-5) dag C Cold chain maintained
IS:17614( P-23) 2021 Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/8E464Q

Sample No.: MSKNB/FD/2024-25/05/9FA7AL

#### RESULT

SI No.	Parameter	11011		
1	Arsenic as As	UOM	Method	Result
2		mg/l	IS 3025 (Part 2)	BDL(DL:0.006)
3	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Pert 27) Sec1	THE RESIDENCE OF THE PARTY OF T
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (ss Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
9	Lead as Pb	Ngm		BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg		IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate es NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zino as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BOL(DL:0,4)
	ZINC 88 ZIT	Mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

Statement of Conformity

END ---

Reviewed By:

Signature None

Designation

Atomer Sano 1. Mc. Alleyen Saho, No. Piek Go

Sr. Executive Charries

Authorized Signatory:

Designation

Head Office:

Strachi Cerere (Sti Floor), 749, A.J.C. Bose Road, Kollette - 700016, West Bengal, India. Tel. : 91 33 40143001 / 22820007 Fox : 91 35 22600008 Email : Info@mitrusk.com Website : www.mitrusk.com

Doc No.: MSK/GEW19/07



Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagledanga Road, Kolkata 700015 Wast Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000009104F

Signature Name

Designation

Horayce Socha F. J.C. : Sr. Executive Charries

Authorized Signatory

Signature

Lab in charge Designation

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Head Office:

Shrechi Centre (Str. Floor), 740, A.J.C. Bose Road, Kolketa - 700016, West Burgel, India. Tel.: 91 33 40143000 / 29550007 Fev : 91 33 23550006 Ernell : info@edizask.com Website : www.mittask.com

Page 2 of 2

Doc No: MSK/GEW/19/07









ULR: TC-695024000009104F

## **TEST REPORT**

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Address of Laboratory :

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

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. : Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/8E464Q

22/05/2024

MSKNB/FD/2024-25/05/9FA7AL

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
7. Once of sampling	07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sona River near Mahanadi Guest House (JWIMM)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/8E464Q

Sample No.: MSKNB/FD/2024-25/05/9FA7AL

### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	
1	Total coliform	MPN/100ml	Standard methods for the examination	Result
		no re rouni	of water & waste water, 24th edtn, 9221B	17

Opinion:

NA

Statement of Conformity

FND ---

Reviewed By

Signature

Designation

Executive Microbiologist

Authorized Signatory

Signature

Mr. Supports P.

Designation | Technical in charge

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The reserved part of campila(s) for chemical analysis (Non - permission campila(s) Food, Water) shall be referred for 15 days from the date of issue of the Test Report. Permission campila(s) shall be referred 2 days. The reserved part of sample(x) for therefore emerges (non - personance sample(x) roots, reserved part of sample(x) for chemical energies (Soil, Soild & Liquid Weste) shall be retained for 15 days as per CPCS guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(x) for the obsological analysis (Non - periohable sample(x) Food, Soaled Wester, Soaled food) shall be retained for 15 days from the date of issue of the Test Report.

Shrachi Centre (Sh Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, Wast Benget, India Tot.: 91:33 40143000 / 29550007 Fax - 91:33 22650009 Email: info@ndrask.com Websits : www.minssk.com



AUP.O. BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1966PTC023037

T: +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	4-25/001428	Date: 22.05.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024	
Location	Sona River Near Mahanadi Guest House (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	5.2
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B	***	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G		5.7
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		97
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.13
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		6.7
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.09
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		4.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		40
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	***	61
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	***	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	3,4
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.06

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







Disc No.: MSK/GEN/1967

TESTIMS . INSPECTION

Scan for Portal

ULR: TC-895024000009105F

### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jode West

AbPo. - Joda, Dist. - Keonjhar, Odishe - 758034 Indie Pin

Report No.:

Date:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/AE464X

22/05/2024

MSKNB/FD/2024-25/05/CSC74B

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

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)	NA NA
4. Date of sampling	07/05/2024
5. Place of sampling	Pond Inside Bichskundi Vegetables Gerden (JWIMM)
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	Pranab Ku Sathi

Report No.: MSKPL/FD/2024-25/AE464X

Sample No.: MSKNB/FD/2024-25/05/CSC748

### RESULT

SI No.	Parameter	TICAL		The state of the s
1	Arsenic as As	UOM	Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	/mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	The state of the s	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/f	IS 3025 (Part 60)	BDL(DL:0.2)
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Mercury as Hg	mg/l	IS 3025 (Part 46)	BDL(DL:0.0002)
13	Nitrete as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.4) BDL(DL:0.02)

Opinion:

Statement of Conformity

- END -

Reviewed By:

Signature Marus.

Atrayer Some Ms. Atrayon Sahe, Mr. Plati Ganguly

Designation : Sr. Freedolive Charries Authorized Signatory

Designation : Lab in charge

Shrachi Certira (Str Ploof), 748, A.J.C. Bose Rose, Kolketa - 700016, West Bengel, India. Tel.: 91 33 40143030 / 23650007 Flax: 97 33 23650006 Email: info@neltask.com Website : www.mitrock.com Head Office:

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Roed, Kolkets 700015

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







Doc No.: MSKGENMB/07

TESTING \* INSPECTION

Scan for Portal

ULR: TC-695024000009105F

Reviewed By:

Signature

Atrayacan P. Jayry Name

; Mir. Atmeso Sohu, Ma. Pieli Genguly Designation : Sr. Executive Charries

Authorized Signatory.

Signature

Designation : Lab to charge

The results relate only to the family bested.
This Tigs Report shall not be represented that, will not the previous of Man S.K. Preside Lindow.
This Tigs Report shall not be represented except in fail, will not the previous of Man S.K. Preside Lindow.
This relatives part of assembly for observable except in fail, will not perfect the name of the President assembly the control except of the perfect of assembly the control except of the perfect of assembly the relative except of the perfect of assembly the relative except of the perfect of assembly the relative except of the perfect of assembly the following the control except of the perfect of

Head Office:

Shrach Cestra (Sin Place), 748. A.J.C. Socie Rosci, Kolkete - 700010, West Berget, India. Tol., 91.33.40143000 / 22000007 Pex.; 91.33.22500000 Ernell : krio@retrack.com Wabsite : www.mitrack.com

Page 2 of 2

TESTING + IMSPECTION

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM)\_Jods West

Tel.: +91 7044036120

Email: udayantab@mitrasic.com





ULR: TC-695024000009105F

### TEST REPORT

Report No. :

Date:

MSKPL/FD/2024-25/AE464X

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/CSC74B

Date of receipt of sample:

08/05/2024

Date(s) of performance: Location of performance of

08/05/2024 - 13/05/2024 Permanent Facility

Reference No. & Date:

3000156017/056, Date - 16/09/2023

Discipline:

Biological

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

1. Group	Water & Rasidue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	NA NA
4. Date of sampling	07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Pond inside Bichakundi Vegetables Gerden (JWIMM)
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
MSK personal performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/AE464X

Sample No.: MSKNB/FD/2024-25/05/CSC74B

#### RESULT

LEL MELLEN			
Parameter	NOM	Method	Result
Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin.	21
		Table	Total self-com Standard methods for the examination

Opinion:

Statement of Conformity

NA

END -

Rosviewed Bigs

: Ms. Metreyee Chalcoborty

Designation | Executive Microbiologist

Authorized Signatury.

Signature

Mr. Sukanta Palur

Technical In charge

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

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This Teach Report distinct be reproduced except in full, without the permission of Nitra S.K. Private Limited.

This recovered part of semple(s) for chemical enables (Non - periodatite sample(s) Food, Water) shall be retained for 15 days from the date of lease of the Teat Report.

The recovered part of exception for Microbiological analysis (Soil, Soild & Liquid Waste) shall be retained for 15 days as per CPCS guideline & (Air) 1 month from the date of issue of the Teat Report.

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

Shrachi Centre (5th Floor), 740, A.J.C. Bose Rosst, Notions - 700014, Viest Bengel, India. TH. | 81 33 40143000 / 22956007 Fax: 91 33 22950008 Ereal : info@exhauk.com Website : www.mitsak.com

MSK TESTING INSPECTION

At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	4-25/001429	Date: 22.05.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024	
Location	Bichakundi Vegetable Garden Pond (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	30	3.5
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	10.4
4	Chloride (as CI )	mg/I	APHA (24th Edition), 4500 -CLB		16
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		4.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		155
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.61
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.09
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		25.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	044	96
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	944	51
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	21
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.0

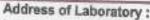
Checked by:-

For Mitra S. K. Private Limited

Bould kary

Authorized Signatory





Building No. P- 48, Udayan Industrial Estate, 3, Pegledanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Scan for Portal

ULR: TC-695024000009106F

## **TEST REPORT**

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West Date:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin.

Report No. :

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/B5464Z

22/05/2024

MSKNB/FD/2024-25/05/QKB76T

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hareby 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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA 07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sona River before Comfluence with baltarni River Kandra Village (JWIMM)
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/B5464Z

Sample No.: MSKNB/FD/2024-25/05/QKB76T

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Decemb
1	Arsenic as As	mg/l	IS 3025 (Part 2)	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l		BDL(DL:0.25)
4	Colour	Hazen	IS 3025 (Part 2)	BDL(DL:0.001)
5	Copper as Cu		IS 3025 (Part 4)	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Fluoride as F	mg/l	18 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9		mgd	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Mercury as Hg	mg/t	IS 3025 (Part 48)	BDL(DL:0.0002)
	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zino as Zri	figen	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

Statement of Conformity

END -----

Reviewed By:

Determition

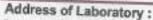
Bt. Executive Charriet

Authorized Signatory:

Designation

DOC NO.: MISKIGENTINO?





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





ULR: TC-895024000009106F

Aboup Sam P. g

Ma. Attages Saha, Mr. Plat Gargun Designation : Br. Executive Chemist.

Authorized Signatory:

Signature

The results telefol only to the hands (special).
This Test Report allow only to the hands (see procedure) accepted full, without the permission of Africa S.K. Private Liested.
The Inserved period consisted only to the control analysis (for respectable sample) for the inserved period on analysis (for the inserved analysis) for respectable sample) (special benefits to reserved period on analysis) (sp. Special benefits) for the inserved analysis (sp. Special benefits) (special benefits) for the inserved analysis (sp. Special benefits) (special benefits) (specia

Head Office:

Structs Centre (5th Ploor), 748, A.J.C. Bose Flood, Kolkata - 700016, West Bengal, India. Tel.: 91:33:40143000 / 23950007 Fax: 91:33:2330006 Email: Info@mitsek.com Website: www.mitsek.com.

Page 2 of 2

Doc No.; MSHOGEN/19/07



Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladenge Road, Kolkata 700015 West Bengal

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





ULR: TC-895024000009106F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhur, Odishe - 758034 India Pin

Report No.:

Date:

Sample No. : Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/B5464Z

22/05/2024

MSKNB/FD/2024-25/05/QKB76T

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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
Unique Identification of sample(if any)	NA NA
4. Date of sampling	07/06/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sone River before Comfluence with baltami River Kendra Village (JWIMM)
7. Sampling Plan & Method used	(2-9) deg C Cold chain maintained
3. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
MSK are personned performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPU/FD/2024-25/B5464Z

Sample No.: MSKNB/FD/2024-25/05/QKB76T

### RESULT

ficro Biology				
Si No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	26

Opinion:

NA

Statement of Conformity

END -

Reviewed Ric

Ms. Mailreyee Chalantorto

Designation Executive Microsiologist

Authorized Signatory:

Sloristure

Mr. Suksenta F

Technical in charge

The results relate only to the sames tested.

This Test Report of sell must be improduced analysis (Non - periodole sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Periodole sample(s) shall be retained 2 days. The second part of sample(s) for charrical endyols (Non - periodole sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Periodole sample(s) shall be retained 2 days. The second part of sample(s) for charrical analysis (Sell, Solid & Liquid Waste) shall be retained for 15 days on per CPCB guideline & (Air) 1 month from the date of issue of the Test Report. The meanined part of sample(s) for followinglest analysis (Non - periodole sample(s) Food, Sealed Water, Sealed load) shall be retained for 15 days from the date of issue of the Test Report.

Shradh Centre (56 Ploor), 748, A.J.C. Bose Rued, Kollute - 760016, West Bengel, India. Tel., 91 33 40143000 / 22600007 Fax: 91 33 22660008 Breal : Intiggerbrack core Website : www.mbrask.com

AI/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com



Report No. MSKGL/ED/20	24-25/001421
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	07.05.2024 MINES (JWIMM)
Location	Sona River Kandra Village before confluence with Baitarni River (IWIMM

## CHEMICAL ANALYSIS OF WATER

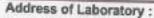
SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	-20
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2,0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	***	13
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B	250	<4.0
5	DO	mg/l	The state of the s	***	14
6	Electrical conductivity	us/cm	APHA 24th Edition, 2023 4500-O-C/G	***	6
7	Iron (as Fe)	100000000000000000000000000000000000000	APHA (24th Edition), 2510B	***	142
8		mg/l	APHA (24th Edition), 3500 Fe B	3	0.09
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	6.7
	Odóur	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/I	APHA (24th Edition), 4500 SO42-E	-	0.07
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	10.8
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	100	59
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		89
17	Total Suspended Solid (as TSS)	mg/l			59
8	pH value at 19.2 deg C	None	APHA (24th Edition),2540D	50/100	3.4
W. 1	PAT AMONG OF TO'S GER C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.42

Checked by:

For Mitra S. K. Private Limited

Doc No.: MSK/GEW/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagiadanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM) Joda West

Tel.: +91 7044636120

Email: udayanlab@mitrask.com





ULR: TC-695024000009107F

### **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/FP4670

Date:

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/S5R796

Date of receipt of sample:

08/05/2024

Date(s) of performance: Location of performance of

08/05/2024 - 22/05/2024

Permanent Facility

Reference No. & Date :

3000156017/066, Date - 16/09/2023

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 NA	
4. Date of sampling	07/05/2024	
5. Place of sampling	- Property of the Control of the Con	
6. Environmental conditions during sampling & Transport	Baitami River Kandra Village (JWIMM)	
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021 Pranab Ku Sethi	

Report No.: MSKPL/FD/2024-25/FP4670

Sample No.: MSKNB/FD/2024-25/05/S5R796

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	
1	Arsenic as As	mg/l		Result
2	Boron as B		IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5		Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/f	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavelent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	The state of the s
9	Lead as Pb	mg/l		BDL(DL:0.01)
10	Manganese as Mn		IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Ho	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	. Ngm	IS 3025 (Part 48)	BDL(DL:0.0002)
13		mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity

- END ---

Reviewed By:

Signatura

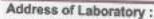
Atraya Same 1. Ms. Airojeo Satu, Me. Plet Geogu

: Br. Copputos Chemist

Authorized Signatory:

Designation : Lab in charge





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolksta 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Scan for Portal

ULR: TC-695024000009107F

Reviewed By:

Signature

Name Designation

: Sr. Enstutive Chemist

Atrace Sava

Airhorized Signatory:

St. Sournaster Wartharps Lab in charge

The results relate only to the hereby nation.
The Test Popert and not be represented to the permanent of Main R.K. Private Lindad.
The Test Popert and not be represented descript in All, without the permanent of Main R.K. Private Lindad.
The results of the Popert and not be represented from the description of control arraying from the data of issue of the Test Report.
The results of a semploy for description of arraying for the semploy for description arraying (see, both 6. Lindad Majori shall be retained for 15 days as per CPCB guitation is (As) 1 month from the data of sever of the Test Report.
The results of the Test Report of arraying (see a semploy) is allowed by the semploy of the first Report.
The results of the Test Report.
The

Doc No.: MSK/GEN/1907



Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladange Road, Kolkata 700015

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com







ULR: TC-695024000009107F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Ab/Pe. - Joda, Dist. - Keorghar, Odisha - 758034 India Pin

Report No.:

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/FP4670

22/05/2024

MSKNB/FD/2024-25/05/S5R798

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
5. Place of sampling	07/05/2024
6. Environmental conditions during sampling & Transport	Baltami River Kendra Village (JWIMM)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/FP4670

Sample No.: MSKNB/FD/2024-25/05/S5R786

#### RESULT

Micro Biology					
Si No.	Parameter	UOM	Method	Result	
1	Total coliform	MPN/100m(	Standard methods for the examination of water & waste water, 24th adtn, 92218	6.8	

Opinion:

NA NA

Statement of Conformity

END ---

Reviewed Sy.

Signature

Name

Ms. Mathayse Chekrobotty Designation : Executive Microbiologist

Authorized Signatory:

Technical in charge

This resides reflect only to the Bornick leased.
This Test Report shall not be reproduced analysis in fall, without the permitistion of fallers S.K. Private Limitar.
The reserved part of complete) for character analysis (Non - perishable complete) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pertshable complete) shall be retained 2 days.
The record of the Test Report.

from two case or cause on our transport.

The reserved part of exemple(s) for chemical analysis (Soil, Soild & Liquid Waste) shell 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 exemple(s) for Microbiological analysis (Non- perishable exemple(s) Food, Seeled Water, Sould food) shall be retained for 15 days been the date of issue of the Test Report.

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Report No. MSKGL/ED/20	24-25/001422	Date: 22.05,2024
	ANALYSIS REPORT OF SURFACE WATER	Date: 22.03.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024	
Location	Baitarni River Kandra Village (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters  Biochemical Oxygen Demand (as	Unite	Method	Max. Tolerance Limit as per CPCB	Results
	BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		= 60
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	14
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B	200	4.4
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G	***	12
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		5.8
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	119
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.29
9	Odour	mg/I	APHA (24th Edition), 2150B	***	5.7
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0 <0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	Total Control	0.07
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		7.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	211	48
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	444	74
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	59
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.44

Checked by:

For Mitra S. K. Private Limited

#### Address of Laboratory:

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Tel.: +91 7044038120 Email: udayanlab@mitrask.com







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ULR: TC-695024000009108F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/F74678

22/05/2024

MSKNB/FD/2024-25/05/X8B77R

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hareby 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 NA
4. Date of sampling	07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Bhulye Roida Pond Water (JWIMM)
7. Sampling Plan & Method used	(2 -5) dag C Cold chain maintained
5. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021
performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/F74676

Sample No.: MSKNB/FD/2024-25/05/XBB77R

#### RESULT

hemical				
SI No.	Parameter	NOM		
1	Arsenic as As	77.57	Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	ng/l	IS 3025 (Part 2)	BDL(DL:0.001)
5		Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	figm	IS 3026 (Part 27) Sec1	BDL(DL-0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	The state of the s
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
	Leed as Ph	mg/l	18 3025 (Part 2)	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l		BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zino as Zn		APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA NA.

Statement of Conformity

END ----

Reviewed By

Signature

: Br. Executive Chargest

Authorized Signatory:

Designation

Dec No.: MSKIGEN/19/07



Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladange Road, Kolkata 700015 Wast Bengal

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





ULR: TC-695024000009108F

Reviewed By:

Signature

Maren

Me. Altoyou Batta, Mr. Fige O Designation St. Executive Chemist

Atomyer Sana P.

Authorized Signatory.

Signature

Lab In charge

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The reserved part of sample(s) for character encopt in fall, without the pervisions of Man S.R. Private Liceted.

The reserved part of sample(s) for character encopes (for Solid A Liquid Rhams) shall be retained by This days from the date of laste of the Test Report, Perinfection sample(s) and be retained 2 days from the date of laste of the Test Report,

This reserved part of sample(s) for discobiological enclysis (from - perinfection sample(s) Food, Solid A Liquid Rhams) shall be retained for This days in more from the date of laste of the Test Report,

This received part of sample(s) for discobiological enclysis (from - perinfection sample(s) Food, Solid Water, Solid food) shall be retained for 19 days from the date of source of the Test Report, Perinfection sample(s) shall be retained 2 days from the date of source of the Test Report, Perinfection sample(s) shall be retained 2 days from the date of source of the Test Report, Perinfection sample(s) shall be retained 2 days from the date of source of the Test Report, Perinfection sample(s) shall be retained as any other food.

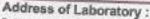
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Page 2 of 2

DOC NO.: MSKYGEN/19(0)





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ULR: TC-695024000009108F

## Name & Address of Customer:

Tala Steef Ltd.(MGM)\_Joda West

AUPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/F74676

22/05/2024

MSKNB/FD/2024-25/05/X8B77R

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

2. Description of sample	Water & Residue in Water
. Unique Identification of sample(if any)	Surface Water
I. Date of sampling	NA NA
5. Place of sampling	07/05/2024
	Bhuiya Roida Pond Water (JWMM)
Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
Identification of the possessed	IS:17614( P-25) 2022
3. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/F74676

Sample No.: MSKNB/FD/2024-25/05/X8B77R

### RESULT

SI No.	Carrier Maries			
at red.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination	Nesuit
		and the second	of water & waste water, 24th edin, 9221B	14

Opinion:

NA

Statement of Conformity

- END ---

Reviewed By:

Signature

Ms. Maltrayee Chakraborly

Designation : Executive Microbiologist

Authorized Signatory:

Signature

Mr. Sakorta Patal

Designation : Technical in charge

Tive results rolete only to the itemis) tested.

This results relate only to the frames) tested.

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This reserved part of sample(s) for charmost enablysis (Non - partertable sample(s) Food, Wester) shall be retained for 15 days from the date of laster of the Test Report. Permissible sample(s) shall be retained 2 days from the date of laster of the Test Report. Permissible sample(s) shall be retained for 15 days from the date of laster of the Test Report. Permissible sample(s) shall be retained for 15 days from the date of laster of laster of the Test Report.

The received part of sample(s) for Microbiological analysis (Non - permissible sample(s) Food, Sealed Water, Seeled food) shall be retained for 15 days from the date of laster of laster of laster of the Test Report. Structs Centry (5th Floor), 748, A.J.C. Bose Fund, Kolkste - 700016, West Bengal, India. Tel.: 91 33:401-43000-7-22x30007 Fax: 91 33:22x950008 Email: info@mitrusk.com Website: www.mitrusk.com

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T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com



Report No. MSKGL/ED/20		Date: 22.05.2024
	5 440 52.05,2024	
Name of the Client	ANALYSIS REPORT OF SURFACE WATER M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024 (WIMM)	
Location	Bhuia Roida Pond Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
- 31	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	14
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 52208		14
4	Chloride (as CI )	mg/I	APHA (24th Edition), 4500 -CIB	250	39
5	DO	mg/l			40
6	Electrical conductivity	110 110	APHA 24th Edition, 2023 4500-0-C/G		4.7
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B		207
8		mg/l	APHA (24th Edition), 3500 Fe B	3	2
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		5.7
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 25208	1	<0.001
13	Sulphate ( as SO4 )	mg/l			0.10
14	Total Alkalinity	1	APHA (24th Edition), 4500 SO42-E	777	9.7
15		mg/l	APHA (24th Edition), 52108		79
16	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		129
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		59
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	39
0	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.14

Checked by:- Kaladi

For Mitra S. K. Private Limited

48 bound busy

Address of Laboratory:

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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AbPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

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





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/Z1537Q\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/B61558\_1

Date of receipt of sample:

03/06/2024

Date(s) of performance:

03/06/2024 - 25/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	01/06/2024
5. Place of sampling	Tindharia Up Stream (Baltarani river)
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	Pankaj Ku. Mahanta

Report No.: MSKPL/FD/2024-25/Z1537Q\_1

Sample No.: MSKNB/FD/2024-25/06/B61558\_1

#### RESULT

Chemical	hemical						
SI No.	Parameter	UOM	Method				
1	Arsenic as As	mg/l		Result			
2	Boron as B		IS 3025 (Part 2)	BDL(DL:0.005)			
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)			
4		mg/l	IS 3025 (Part 2)	BDL(DL:0.001)			
5	Colour	Hazen	IS 3025 (Part 4)	150			
	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)			
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	The second secon			
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)			
8	Hexavalent Chromium (as Cr+6)	mg/l	The state of the s	BDL(DL:0.2)			
9	Lead as Pb	100000	IS 3025 (Part 52) Sec2	BDL(DL:0.01)			
10		mg/l	IS 3025 (Part 2)	BDL(DL:0.005)			
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)			
	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)			
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	2.05			
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)			

Opinion:

NA

- END -

Reviewed By:

Signature

Atrage Sana P. Gar Mr. Araboo Sata, Mr. Plat Gargas

Designation

Sr. Executive Chemist

Authorized Signatory

Signature

: 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





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Rosswed By:

Signature

Name Designation:

Atrougee Saha P. Gerry Sr. Executive Chemist

Authorized Signatory

Lab In charge

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The reserved part of sample(s) for Milministrogical analysis (Non - pertinable sample(s) Food, Seeded Water, Seeled (Soot) shall be retained for 15 days from the date of issue of the Text Report.

Head Office:

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Address of Laboratory :

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West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/Z1537Q\_1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/B61558\_1

Date of receipt of sample:

03/06/2024

Date(s) of performance:

03/06/2024 - 08/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Woder & Decider to Man	
2. Description of sample	Water & Residue in Water	
Unique Identification of sample(If any)	Surface Water	
4. Date of sampling	NA .	
	01/06/2024	
5. Place of sampling	Tindharia Up Stream (Baltarani river)	
6. Environmental conditions during sampling & Transport	(2.5) des C.Could de Could de la Could de	
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained	
8. Identification of the neground posts of	IS:17614( P-25) 2022	
8. Identification of the personnel performing sampling by MSK	Pankaj Ku. Mahanta	

Report No.: MSKPL/FD/2024-25/Z1537Q\_1

Sample No.: MSKNB/FD/2024-25/06/B61558\_1

#### RESULT

ficro Biology				
Si No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 9221B	40

Opinion:

NA

- END -----

Reviewed By:

Signature

Ms. Matreyee Chakraborty

Designation : Executive Microbiologist

**Authorized Signatory** 

Signature

Name Designation

Technical In charge

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

The reserved part of semple(s) based.

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The reserved part of semple(s) for channel 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.

The reserved part of sample(s) for fellorobidogical analysis (Non - perishable sample(s) Food, Seeled Water, Sealed food) shall be retained for 15 days as per CPC8 guideline & (Air) 1 month from the date of issue of the Test Report.

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

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T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

	ANALYSIS REPORT OF SURFACE WATER	Date: 17.06.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)	
Date of sampling	01.06.2024	
Location	Tindharia Up Stream Baitarani River (TIMM)	

## CHEMICAL ANALYSIS OF WATER

SL No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		8
4	Chloride (as CI)	mg/l		250	<4.0
5	DO	-	APHA (24th Edition), 4500 -Cl B	***	6
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	5.1
7		us/cm	APHA (24th Edition), 2510B		84
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	6.4
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	1.9
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	nere	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU ma/l	APHA (24th Edition), 2520B		0.04
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	77	8
5		mg/l	APHA (24th Edition), 5210B	***	20
6	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	***	52
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	***	28
0	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	42
	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.56

Checked by:

For Mitra S. K. Private Limited

### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolketa 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Reference No. & Date :

Date(s) of performance:

25/06/2024

03/06/2024

03/06/2024 - 25/06/2024

3000156017/056, Date - 16/09/2023

MSKNB/FD/2024-25/06/UDG94C\_1

MSKPL/FD/2024-25/2A537B\_1

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
Unique identification of sample(if any)	NA NA
4. Date of sampling	1000
5. Place of sampling	01/06/2024
6. Environmental conditions during sampling & Transport	Tindharia Down Stream (Baitarani river)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
I Identification of the	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pankaj Ku. Mahanta

Report No. : MSKPL/FD/2024-25/2A537B\_1

Sample No.: MSKNB/FD/2024-25/06/UDG94C\_1

#### RESULT

hemical				
SI No.	Parameter	UOM		
1	Arsenic as As		Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	7.700.00000	Hazen	IS 3025 (Part 4)	300
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	The second secon
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
9	Lead as Pb	mg/l		BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg		IS 3025 (Part 2)	0.04
12	Nitrate as NO3	rng/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3-B	1.65
.1710	Anno ao Zir	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

-- END ----

Reviewed By:

Signature Name

Atraya Same P. Young Ms. Atrovee Saha, Ms. Pieli Ganguly

Designation

Sr. Executive Chemist

Authorized Signatory:

Signature

Nome

Designation

Lab in charge

Head Office:

Shrachi Centre (2th Floor), 740, A.J.C. Bose Road, Kolluts - 700016, West Bangal, India. Tel : 91 33 40143000 / 22950007 Fax: 91 33 23690008 Email: Info@mitrack.com Wabate : www.matrack.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015

West Bengal

Tel: +91 7044038120

Email: udayanlab@mitrask.com





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Reviewed By:

Signature

Name

Designation. Sr. Executive Chemist Authorized Signatory

Lab In charge

Atracese Solva P. Gersent

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The reservation of the Tool Report.

Head Office:

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Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/2A537B\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/UDG94C\_1

Date of receipt of sample:

03/06/2024

Date(s) of performance:

03/06/2024 - 08/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	
3. Unique identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	01/06/2024
6. Environmental conditions during sampling & Transport	Tindharia Down Stream (Baitarani river)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
B. Identification of the noment of	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pankaj Ku. Mahanta

Report No.:

MSKPL/FD/2024-25/2A5378\_1

Sample No.: MSKNB/FD/2024-25/08/UDG94C\_1

#### RESULT

licro Biology		KESULI		
SI No.	Parameter	UOM	Method	-
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin,	Result
			9221B	110

Opinion:

NA

- END -----

Reviewed By:

Signature

Ms. Matreyee Chairaborty

Designation Executive Microbiologist

Authorized Signato

Designation

Technical in charge

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

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

The reserved part of sample(s) for chemical analysis (Non - pershape sample(s) Food, Years) small be received for 15 days from the date of sample(s) for chemical analysis (Sod, Soid & 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. Sheachi Contre (Str. Floor), 748, A.J.C. Bose Rosel, Kolkuts - 700016, West Bengal, India. Tel.: 91-33-40143000 / 23650007 Fax: 91-33-22650008 Email: info@mitrask.com Website: www.rnitrask.com

AvP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	Data: 17.04 non
Name of the Client	ANALYSIS REPORT OF SURFACE WATER
The Cite Citetit	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	01.06.2024
Location	Tindharia Down Stream Baitarani River (TIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	СРСВ	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l			6
4	Chloride (as CI)	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO		APHA (24th Edition), 4500 -Cl B		6
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-0-C/G		4.9
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B		72
8		mg/l	APHA (24th Edition), 3500 Fe B	3	7.4
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		2.9
- 20	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	100
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	21/30	<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	< 0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	0.04
14	Total Alkalinity			***	<1.0
5	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 5210B	790	20
6	Total Hardness (as CaCO3 )		APHA (24th Edition), 2540C	MAR	45
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C	-	28
8	pH value at 19.2 deg C	mg/l	APHA (24th Edition),2540D	50/100	55
	pri value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.37

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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West Bengal

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Email: udayanlab@mitrask.com





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### **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/3Y539K\_1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/YEL81G\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000155017/056, Date - 16/09/2023

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

1. Group 2. Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
5. Place of sampling	11/06/2024
Environmental conditions at a	Keth Hutting after H-Quarry (Down stream) (JWIMM)
5. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
I Identification of the	IS:17614( P-23) 2021
I. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/3Y539K\_1

Sample No.: MSKNB/FD/2024-25/06/YEL81G\_1

### RESULT

Chemical				
SI No.	Parameter	UOM		
1	Arsenic as As		Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4		mg/t	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL-1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	The second secon
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
-	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l		BDL(DL:0.2)
9	Lead as Pb	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn		IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
	Zinc as Zin	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

- END ---

Reviewed By

Signature Name

Atraya Sana P. Yayon Ms. Atrayon Sehe, Ms. Plat Gengut

Designation

Sr. Executive Chemist

Authorized Signetory

Signature

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Boke Moed, Kolkete - 700016, West Bengal, India. Tet.: 91 33 40143000 / 23550007 Fax: 91 33 2350008 Email: Info@mitreat.com Website: www.mitreat.com

Designation Lab in charge

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Email: udayanlab@mitrask.com





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Signature

Africayee Saha P. Gazant

Designation:

8r. Executive Chemist

Authorized Signatory

Signature

Name.

D Mulpopostyuy Y

Designation

Lab in charge

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Page 2 of 2

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West Bengal Tel.: +91 7044038120

Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/3Y539K\_1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/YEL81G\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 17/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	White & Basid or Later
2. Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
	11/06/2024
5. Place of sampling	Keth Hutting after H-Quarry (Down stream) (JWIMM)
6. Environmental conditions during sampling & Transport	(2.5) dee C Cold - Lown stream) (JWIMM)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
mornance of the personner performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/3Y539K\_1

Sample No.: MSKNB/FD/2024-25/06/YEL81G\_1

#### RESULT

icro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100mi	Standard methods for the examination of water & waste water, 24th edth, 9221B	17

Opinion:

- END ----

Reviewed By

Signature

Designation

**Executive Microbiologist** 

Authorized Signatory

Designation Technical In charge

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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.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Water) shall be retained for 15 days as per CPCB guideline & (Art) 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.

Shraichi Centre (9th Floor), 749, A.J.C. Bose Road, Kolluna - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22050007 Fax: 91 33 22650008

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Report No. MSKGL/ED/202		Date: 22.06.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	11.06.2024	
Location	Keth-Hutting after H- Quarry Down Stream (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		8
4	Chloride (as CI)	mg/l	APHA (24th Edition), 4500 -CI B	250	<4.0
5	DO	mg/l		***	4
6	Electrical conductivity	1 1 1 2 2 2 2 3 3	APHA 24th Edition, 2023 4500-O-C/G	****	5
7		us/cm	APHA (24th Edition), 2510B		77
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.47
	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	4
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0
12	Salinity	PSU	APHA (24th Edition), 2520B		
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.04
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		1.4
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		32
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	***	48
17	Total Suspended Solid (as TSS)	mg/l	The state of the s	644	36
8		1000	APHA (24th Edition),2540D	50/100	12
	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.75

Checked by B

For 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





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### TEST REPORT

Report No.:

Date:

Sample No.:

MSKPL/FD/2024-25/42539X\_1

Tata Steel Ltd.(MGM)\_Joda West

Name & Address of Customer:

25/06/2024

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

MSKNB/FD/2024-25/06/Q9M800 1 12/06/2024

Date of receipt of sample: Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000158017/056, Date - 16/09/2023

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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	11/06/2024
	Keth Hutting before H-Quarmy (Up stream) (JWIMM)
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	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/42539X\_1

Sample No.: MSKNB/FD/2024-25/06/Q9M800\_1

#### RESULT

Chemical				
SI No.	Parameter	NOM	Method	Describ
1	Arsenic as As	mg/l	IS 3025 (Part 2)	Result
2	Boron as B	mg/l	The state of the s	BDL(DL:0.005)
3	Cedmium as Cd		IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5		Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l		BDL(DL:0.0002)
13	Zinc as Zn		APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
	2010 00 201	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

- END ----

Reviewed by:

Signature

Designation

Name

Mo. Atrayon Saha, Mr. Plat Gonguit Sr. Executive Chemist

traya Saha

Authorized Signatory.

Signature

Head Office:

Shitachi Centre (Sth Floor), 748. A.J.C. Bone Road, Kolkata - 700018, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Ernell : Info@mitrask.com Website : www.mitrask.com

Designation

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Email: udayanlab@mitrask.com





Reviewed By

Atacujec Salan P Gang Mr. Arafee Saha, Mr. Plati Ganguar Sr. Executive Chemist

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Authorized Signatory

Bigneture

Lab in charge

Page 2 of 2

Head Office:

Signature

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: Ms. Mairwyee Chekrabotty

Designation | Executive Microbiologist

Authorized Signatory

Name

Mr. Suksenta Paka

Designation | Technical in charge

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The reserved part of sample(s) for demical analysis (Soil, Solid & Liquid Water) shall be retained for 15 days as per CPCS 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.

Page 1 of 1

Head Office: Shrachi Centra (Sth Ficor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22050007 Fax: 91 33 2350008 Entel: info@mbrask.com Website: www.mbrask.com

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Report No. MSKGL/ED/202	4-25/002098	Date: 22.06.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	11.06.2024	
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B		2
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		4.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	96
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.4
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	-	2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.05
13	Sulphate ( as SO4 )	mg/I	APHA (24th Edition), 4500 SO42-E		<1.0
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		52
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	60
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	***	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	14
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7

Checked by

For Mitra S.K. Private Limited

#### Address of Laboratory:

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Email: udayanlab@mitrask.com





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3000156017/056, Date - 16/09/2023

### **TEST REPORT**

Reference No. & Date :

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.: MSKPL/FD/2024-25/KE539C\_1

Date: 25/06/2024

Sample No.: MSKNB/FD/2024-25/06/N1Q83C\_1

Date of receipt of sample: 12/06/2024

Date(s) of performance: 12/06/2024 - 20/06/2024

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	11/06/2024
5. Place of sampling	Pond inside Bichakundi Vegetables Garden (JWMM)
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	Lokneth Mahanta

Report No.: MSKPL/FD/2024-25/KE539C\_1

Sample No.: MSKNB/FD/2024-25/06/N1Q83C\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/t	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	1S 3025 (Part 2)	BDL(DL:0.02)

Opinion: NA

---- END ----

Reviewed By

Signature

Designation

Atorayee Sala T of

- Sr. Executive Chemist

Authorized Signatory

Signature

Name

Designation : Lab In

Head Office:

Shrachi Certire (3th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Twl.; 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email : info@mitrask.com Website : www.mitrask.com

Address of Laboratory:

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Email: udayanlab@mitrask.com





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Sr. Executive Chemist

Authorized Signatory

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Name

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Disignation Lab in charge

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This reserved part of sample(s) for chemical analysis (Sot, Self & Liquid Water) shall be retained for 15 days as per CPCB peritaine 5 (Airy) 1 month from the date of loave of the Test Report.
This reserved part of sample(s) for Microbiological analysis (Non- peritaining analysis (Non- peritaining analysis (Non- peritaining analysis (Non- peritaining analysis) food. Self Non- the date of loave of the Test Report.

Head Office:

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Page 2 of 2

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, Pagladanga Road, Kolkata 700015

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Name & Address of Customer: Report No. :

> Date: 25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/N1Q83C 1

MSKPL/FD/2024-25/KE538C 1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 14/06/2024

Reference No. & Date : 3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	11/06/2024
5. Place of sampling	Pond inside Bichakundi Vegetables Garden (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/KE539C\_1

Sample No.: MSKNB/FD/2024-25/06/N1Q83C\_1

#### RESULT

Aicro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	<1.8

Opinion: NA

- END ----

Reviewed By:

Signature

Ma. Maitrevee Chalmsborty

Designation | Executive Microbiologist

Authorized Signatory

Signature

Designation | Technical in charge

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

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

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

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

AVP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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	ANAL Voic purpose Date: 22.06.202
No	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	11.06.2024 MANGANESE MINES (JWIMM)
Location	Bichakundi Vegetable Garden Pond (JWIMM)

### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	СРСВ	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l			11
4	Chloride (as CI )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO	-	APHA (24th Edition), 4500 -CI B		6
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G	exa:	4.9
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	-	101
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.62
	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		1,100,000
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	3
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	,,,	<5.0
12	Salinity	- 50	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU mg/l	APHA (24th Edition), 25208		0.05
14	Total Alkalinity	-	APHA (24th Edition), 4500 SO42-E	7779	6
15		1	APHA (24th Edition), 5210B	144	36
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	res	62
17	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	***	40
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	27
.0	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.95

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

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West Bengal

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Email: udeyanlab@mitrask.com





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### TEST REPORT

Name & Address of Customer: Report No. : Tata Steel Ltd.(MGM)\_Joda West

Date:

MSKPL/FD/2024-25/UZ5398\_1

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Sample No.: 25/06/2024 MSKNB/FD/2024-25/06/9P182N\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	
3. Unique identification of sample(if any)	Surface Water
4. Date of sampling	NA.
	11/08/2024
5. Place of sampling	Soon from near Blobbach of D
. Environmental conditions during sampling & Transport	Sona river near Pichlaghat Pump House (Up stream) (JWMM)
. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
	IS:17614( P-23) 2021
3. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/UZ5398\_1

Sample No.: MSKNB/FD/2024-25/06/9P182N\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	
1	Arsenic as As			Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	The state of the s	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	The second secon
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l		BDL(DL:0.2)
9	Lead as Pb		IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL (DL:0.0002)
13	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)

Opinion:

NA

END ---

Reviewed By:

Signature

Designation

Sr. Executive Chemist

Authorized Signatory

Signature

Name

Designation

Address of Laboratory:

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Signeture

Name

Designation

Atocayoe Saba 1. gm Sr. Executive Chemist

Authorized Signatory:

Signature

Nome

Lab In charge

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Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/UZ5398\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/9P182N\_1

Date of receipt of sample:

12/08/2024

Date(s) of performance:

12/06/2024 - 17/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group      Group	
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
f. Date of sampling	NA NA
5. Place of sampling	11/06/2024
Environmental conditions during sampling & Transport	Sona river near Pichlaghat Pump House (Up stream) (JWIMM)
Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
Identification of the nemarcal	IS:17614( P-25) 2022
. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/UZ5398\_1

Sample No.: MSKNB/FD/2024-25/06/9P182N\_1

#### RESULT

licro Biology		KESULI		
SI No.	Parameter	UOM	Method	Mark Contract
10	Total coliform	MPN/100ml	Standard methods for the examination	Result
	7. 80.5.7.7.7.7.7.7.7.	All TO TOOLIN	of water & waste water, 24th editn, 9221B	20

Opinion:

END ----

Reviewed By

Signature.

Ms. Maltrayee Chakraborty

Designation

Executive Microbiologist

Authorized Signatory

Designation

Technical in charge

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The received 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. from the date of sauce of the Test Report.

The reserved part of complicity for chemical analysis (Soil, Soild & Liquid Weste) shall be retained for 15 days as per CPCB quideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - parishable sample(s) Poot, Soaled Wester, Seeled food) shall be retained for 15 days from the date of assue of the Test Report.

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AVP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED/202	Data 22 ac ac-
Name of the Client	ANALYSIS REPORT OF SURFACE WATER
	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	11.06.2024 MANGANESE MINES (JWIMM)
Location	Sona river near Pichlaghat Pump House Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	CPCB	17,7550
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		10
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	250	<4.0
5	DO	mg/l		100	2
6	Electrical conductivity	us/cm	APHA 24th Edition, 2023 4500-O-C/G		5.1
7	Iron (as Fe)		APHA (24th Edition), 2510B	-	81
8	The state of the s	mg/l	APHA (24th Edition), 3500 Fe B	3	1.1
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.8
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	775	0.04
14	Total Alkalinity	-		***	2.2
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 5210B		32
16	Total Hardness (as CaCO3)	-	APHA (24th Edition), 2540C		50
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C	3500	40
8		mg/l	APHA (24th Edition),2540D	50/100	12
	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.80

Checked by:

For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/BT539Q 1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/M8B85G\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	11/06/2024
5. Place of sampling	Sons river near Pichlaghat Pump House (Down stream). (JWMM)
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	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/BT539Q\_1

Sample No.: MSKNB/FD/2024-25/06/M8B85G\_1

### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BOL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/i	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

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

Reviewed By:

Signature

Name Designation

Sr. Executive Chemist

Authorized Signatory:

Signature

Designation

Name

Lab in charge

Head Office:

Shrachi Centre (Sh Floor), 748. A.J.C. Bose Road, Koliula - 700016, West Bengal, India. Tul.: 91 33 40143000 / 22650037 Fax: 91 33 22650008

Page 1 of 2

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Signature.

Atracyce Sam P. Guyaty

Sr. Executive Cheroist Designation

Authorized Signatory

Name:

Designation

Leb in charge

Head Office:

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Page 2 of 2

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





#### TEST REPORT

Report No.:

MSKPL/FD/2024-25/BT539Q\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/M8B85G\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance: Reference No. & Date :

12/06/2024 - 17/06/2024

3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	11/06/2024
5. Place of sampling	
5. Environmental conditions during sampling & Transport	Sona river near Pichlaghat Pump House (Down stream). (JWIMM) (2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614( P-25) 2022
B. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/8T539Q\_1

Sample No.: MSKNB/FD/2024-25/06/M8B85G\_1

#### RESULT

Micro Biology					
SI No.	Parameter	NOM	Method	Result	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 92218	6.8	

Opinion:

NA

--- END -----

Reviewed By:

Signature

Ms. Mnitreyee Chalusborty

Designation Executive Microbiologist

Designation :

Technical in charge

The results rotate only to the item(s) tested.
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The reserved pert of sample(s) for charactel 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) whall be retained 2 days.

The reserved pert of the Test Report.

The reserved part of sample(s) for chemical analysis (Soit, Soit & Liquid Waste) shall be retained for 15 days as per CPCB guideline 8. (Air) 1 month from the date of lesue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perichable sample(s) Food, Seeled Water. Seeled food) shall be retained for 15 days from the date of lesue of the Test Report.

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At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED/202	Date: 22 04 202
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	11.06.2024
Location	Sona river near Pichlaghat Pump House Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	-2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		8
4	Chloride (as CI )	mg/I	APHA (24th Edition), 4500 -CI B	250	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	3.555	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		5.3 90
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	11000000
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	3	1.43
9	Odour	mg/I	APHA (24th Edition), 2150B	(111)	4
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C (Chloroform Extraction)	10	<5.0 <0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.04
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		1.4
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		40
16	Total Hardness (as CaCO3)	mg/I	APHA (24th Edition), 2340 C	779	56
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	F0.1400	36
8	pH value at 20.5 deg C	None	The state of the s	50/100	15
_	The second section	HODE	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.1

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/2D5394\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/6JD7FF\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Major 9 Danidus is Mitter
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water NA
4. Date of sampling	11/06/2024
5. Place of sampling	Sona River Near Mahanadi Guest House JWMM
6. Environmental conditions during sampling & Transport	IS:17814( P-23) 2021
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/2D5394\_1

Sample No.: MSKNB/FD/2024-25/06/8JD7FF\_1

#### RESULT

Chemical				
Si No.	Parameter	UOM	Method	Trans.
1	Arsenic as As	mg/l		Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd		IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	The state of the s	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	The state of the s
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l	The state of the s	BDL(DL:0.02)
12	Nitrate as NO3		IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zing as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
	ZIIIG 88 ZII	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA,

---- END -----

Reviewed By:

Signature Name Atrager Salas F. Garyly Mr. Armon Sana Mr. Pier Gargery

Designation

Sr. Executive Chemist

Authorized Signatory:

Signatura

Nane

Designation

Life in charge

Address of Laboratory:

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Reviewed By:

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Designation

Atronger Sala P. gar

- Sr. Executive Chemist

Authorized Signatory:

Signature

Norne

Designation

Lab in charge

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This Test Report shall out to reproduced except in full, without the pervisions of latter C.K. Power Limited.
This retireved part of sample(s) for devertical analysis (from - perinted extended); Food, Walley shall be retained for 15 days from the date of latter of tests of tests of tests.
The reterior part of sample(s) for devertical excepts (out, Did & L.K. Listad Wasse), shall be retained for 15 days as per CPCB guideline & (Ax) 1 month from the date of issue of the Test Report.
The reterior part of sample(s) for Microbiological excepts (from - perinted is sample(s) Food, Seeled Waller, Seeled Waller, Seeled lood, shall be retained in 15 days from the date of issue of the Test Report.

The reterior part of sample(s) for Microbiological excepts (from - perinted is sample(s) Food, Seeled Waller, Seeled lood, shall be retained in 15 days from the date of issue of the Test Report.

The reterior of the Test Report.

Head Office:

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Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/2D5394\_1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/08/6JD7FF\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 17/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group      Group	
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
f. Date of sampling	NA NA
5. Place of sampling	11/06/2024
Environmental conditions during	Sona River Near Mahanadi Guest House JWIMM
. Environmental conditions during sampling & Transport . Sampling Plan & Method used	IS:17814( P-25) 2022
Identification of the assessment	IS 17614( P-25) 2022
Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/2D5394\_1

Sample No.: MSKN8/FD/2024-25/06/6JD7FF\_1

#### RESULT

licro Biology		REGOLI		
SI No.	Parameter	UOM	Method	-
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin.	Result 2200
			9221B	2200

Opinion: NA

--- END -----

Reviewed By:

Signature

Name Ms. Meltreyon Chakraborty

Designation Executive Microbiologist

Authorized Signatory

Signature Name

Designation

Technical in charge

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

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The reserved part of semple(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained 2 days

The reserved part of sample(s) for chemical analysis (non - perspace sample(s) into a second for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of sample(s) for chemical analysis (Sot. Solid & Liquid Weste) 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 - perspects) Food, Seeled Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report. Shrachy Centre (9th Floor), 748, A.J.C. Bose Road, Kokata - 700016, Wast Bangal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: Info@mitrask.com Vessete : www.mitrask.com

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E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	Date: 2	2.06.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANGANING	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 11.06.2024	
Location	Sona River Near Mahanadi Guest House (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		11
4	Chloride (as CI )	mg/l		250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -Cl B	***	4
6	Electrical conductivity	-	APHA 24th Edition, 2023 4500-O-C/G	****	4.1
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B	***	102
8	100000000000000000000000000000000000000	mg/l	APHA (24th Edition), 3500 Fe B	3	0.25
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		4
23.5	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	Nice .	0.05
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	5
5	Total Dissolved Solids (as TDS)	mg/l		***	44
6	Total Hardness (as CaCO3)	-	APHA (24th Edition), 2540C	***	63
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C	***	44
8	pH value at 19.2 deg C	mg/l	APHA (24th Edition),2540D	50/100	4
_	pri value at 13.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.91

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

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Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/JV54CZ\_1

Date:

27/06/2024

Sample No. :

MSKNB/FD/2024-25/08/VLN8AF\_1

Date of receipt of sample:

13/06/2024

Date(s) of performance: Reference No. & Date :

13/06/2024 - 26/06/2024

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	NA NA
4. Date of sampling	12/06/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sona River before Comfluence with baitarni River Kandra Village (JWIMM)
7. Sampling Plan & Method used	112 - 5 / deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-23) 2021
by MSK	Praneb Kumar Sethy

Report No. : MSKPL/FD/2024-25/JV54CZ\_1

Sample No.: MSKNB/FD/2024-25/06/VLN8AF\_1

#### RESULT

e	ACTION CO.			
Si No.	Parameter	NOM	Method	70 000
1	Arsenic as As	mg/l		Result
2	Boron as B	-	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL-0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	The state of the s	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	The state of the s
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
	Hexavalent Chromium (as Cr+6)	mg/I	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
9	Lead as Pb	mg/l		BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg		IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/t	IS 3025 (Part 48)	BOL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	0.83
	KIND OU ZII	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

-- END ---

Reviewed By

Signature

Designation

fee Saha

Sr. Executive Chemist

Authorized Signatory:

Signature

Designation Lab to charge

Head Office:

Shrachi Centre (9th Floor), 748, A.J.C. Bose Road, Kolkete - 700016, West Bengel, India. Tet.: (§1 33 40143000 / 22650007 Fax: 91 33 22650008 Email: Info@mitrask.com Website: sww.mitrask.com

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Email: udayanlab@mitrask.com





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Reviewed By:

Signature

Africular Caha Pros Gorgery

Sr. Executive Chemiet

Authorized Signatory

Signature

Name

Designation

Lab in charge

Head Office:

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Page 2 of 2

Address of Laboratory :

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Name & Address of Customer:

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West Bengal

Tel: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/JV54CZ\_1

Date:

27/06/2024

Sample No. :

MSKNB/FD/2024-25/08/VLN8AF\_1

Date of receipt of sample:

13/06/2024

Date(s) of performance:

13/06/2024 - 16/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
f. Date of sampling	NA.
5. Place of sampling	12/06/2024
5. Environmental conditions during sampling & Transport	Sona River before Comfluence with baltarni River Kandra Village (JWIMM)
Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
I. Identification of the component and	IS: 17614(P-25) 2022
<ol> <li>Identification of the personnel performing sampling by MSK</li> </ol>	Pranab Kumar Sethy

Report No.: MSKPL/FD/2024-25/JV54CZ\_1

Sample No.: MSKNB/FD/2024-25/06/VLN8AF\_1

### RESULT

icro Biology		RESULT		
SI No.	Parameter	UOM	Method	
		20,00000		Result
	Total coliform	MPN/100mi	Standard methods for the examination of water & waste water, 24th edin, 9221B	<1.8

Opinion:

NA

-- END --

Reviewed By

Signature

Ms. Malireyou Chakrabony

Designation : Executive Microbiologist

Authorized Signatory

Signature

W Sukanta Pake

Namo Designation

Technical in charge

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

The reserved part of sample(s) for chemical analysis (Non - pershable 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 - pershable 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.

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E : barbi@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/20	Date: 22.06.202
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.06.2024
Location	Sona River Kandra Village before confluence with Baitarni River (JWIMM

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B		020
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	***	17
4	Chloride (as CI )	mg/l		250	<4.0
5	DO	-	APHA (24th Edition), 4500 -Cl B	***	12
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	5
7		us/cm	APHA (24th Edition), 2510B	***	148
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.44
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		7
3	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C	2270	<5.0
12	Salinity	Don	(Chloroform Extraction)	1	<0.001
13	Sulphate ( as SO4 )	PSU ma/l	APHA (24th Edition), 2520B	tee	0.07
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E		10
15		mg/l	APHA (24th Edition), 52108	***	60
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		93
17	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		71
-	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	200000
8	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.89

Checked by:

For Mitra S. K. Private Limited

### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/AJ54CG\_1

Date:

27/06/2024

Sample No. :

MSKNB/FD/2024-25/06/LEJ8BX\_1

Date of receipt of sample:

13/06/2024

Date(s) of performance: Reference No. & Date :

13/06/2024 - 26/06/2024

3000156017/056, Date - 16/09/2023

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

Group  1. Group	
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
	12/06/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Baitarni River Kandra Village (JWIMM)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-23) 2021
MSK personner performing sampling by MSK	Pranab Kurnar Sethy

Report No.: MSKPL/FD/2024-25/AJ54CG\_1

Sample No.: MSKNB/FD/2024-25/06/LEJ8BX\_1

#### RESULT

SI No.				
J. 140.	Parameter	UOM	Method	Donnik
-1	Arsenic as As	mg/l	IS 3025 (Part 2)	Result
2	Boron as B	mg/l		BDL(DL:0.005)
3	Cadmium as Cd	-	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Copper as Cu	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	The state of the s	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	
	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l		BDL(DL:0.02)
12	Nitrate as NO3		IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	тел	APHA (24th EDITION) 4500-NO3- B	0.69
	Late as Zil	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

- END ---

Reviewed By:

Signature Name

Designation

Sr. Executive Chemist.

Authorized Signatory.

Signature

Designation

Lab in charge

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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Email: udayanlab@mitrask.com





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Reviewed By:

Signature

Nome

Designation

Alexander Sales To July Ma Anthron Sales Ma Part Gangury

Sr. Executive Chamist

Authorized Signatory

Signature

Name

Designation

List in charge

The results selde only to the iteraph) beated.
This Two Report shall not be represented except in fall, without the previouses of Mice S.K. Procede Limited.
The resurred part of exceptions conspirely for observable sample(s) shall be retained a surger(s) Proce. Whenty shall be interested for 15 days from the date of times of the Test Report. Perinhable sample(s) shall be retained 2 days from the date of times of the Test Report.
The resorted part of sample(s) for decision sample(s) shall be retained 2 days from the date of times of the Test Report.
The resorted part of sample(s) for Microbiologous analysis plan - perinhable sample(s) Proce. Seeind Water, Seeind Seed, shall be retained for 15 days from the date of times of the Test Report.

The resorted part of sample(s) for Microbiologous analysis plan - perinhable sample(s) Proce. Seeind Water, Seeind Seed, shall be retained for 15 days from the date of times of times of times of the Test Report.

Head Office:

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Page 2 of 2

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Email: udayanlab@mitrask.com

Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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## TEST REPORT

Report No. :

MSKPL/FD/2024-25/AJ54CG\_1

Date:

27/06/2024

Sample No.:

MSKNB/FD/2024-25/06/LEJ8BX\_1

Date of receipt of sample:

13/06/2024

Date(s) of performance:

13/06/2024 - 16/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. University of sample	Surface Water
Unique Identification of sample(if any)     Date of sampling	NA NA
5. Place of sampling	12/06/2024
6. Environmental conditions during sampling & Transport	Baitarni River Kandra Village (JWIMM)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-25) 2022
of the personnel performing sampling by MSK	Pranab Kumar Sethy

Report No.: MSKPL/FD/2024-25/AJ54CG\_1

Sample No.: MSKNB/FD/2024-25/06/LEJ8BX\_1

#### RESULT

Micro Biology		RESULT		
SI No.	Parameter	UOM	Method	
1	Total coliform	140044400	Standard methods for the examination	Result
		MPN/100ml	of water & waste water, 24th edth, 9221B	<1.8

Opinion:

NA.

END -----

Reviewed By:

Signature

ee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Technical In charge

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

The results reside only to the itemps) tested.

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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.

The reserved part of sample(s) for Chernical analysis (Not. - perioduce sample(s) room the date of issue of the Tost Report.

The reserved part of sample(s) for Microbiological analysis (Not. - perioducible sample(s)) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Not. - perioducible sample(s)) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Shrachi Centra (Sth Floor), 748, A.J.C. Bose Road, Kofosta - 700016, West Bangat, India. Tet: 91 33 40143000 / 22650007 Fax: 91 33 22650006 Email: info@mitrask.com Website: www.nitrask.com

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/20		Date: 22.06.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	12.06.2024	
Location	Baitarni River Kandra Village (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	***	14
4	Chloride (as CI)	mg/l		250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CI B		8
6	Electrical conductivity	-	APHA 24th Edition, 2023 4500-O-C/G		5.3
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B	-	110
8		mg/l	APHA (24th Edition), 3500 Fe B	3	1.07
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	3.8
-	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		200000000000000000000000000000000000000
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	700	0.06
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	5
15	Total Dissolved Solids (as TDS)	mg/I		****	44
16	Total Hardness (as CaCO3)	-	APHA (24th Edition), 2540C	***	69
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C		51
8		mg/l	APHA (24th Edition),2540D	50/100	28
	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.95

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

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West Bengal Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/4H539P 1

Date:

25/08/2024

Sample No.:

MSKNB/FD/2024-25/06/57384U\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 20/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	11/06/2024
5. Place of sampling	Roids Village Pond Water
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	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/4H539P\_1

Sample No.: MSKNB/FD/2024-25/06/57384U\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL-0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/t	IS 3025 (Part 2)	BDL(DL-0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.12
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

-- END -----

Signature

Sr. Executive Chemist. Designation

Authorized Signatory:

Signature

Name

Designation

Address of Laboratory:

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West Bengal

Tel: +91 7044036120

Email: udayanlab@mitrask.com





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Reviewed By:

Signature

Name

Atroque Sona P. Gryny Mr. Arropous Sona Mr. Prod Gorgey Sr. Executive Chemist.

Designation.

Authorized Signatory

Signature

Name

Designation

Lab In charge

The results name only to the fearing broked.

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This reserved part of samples(s) the character analysis (feer - perioduced except in full results of supples of samples) the character analysis (feer - perioduced complete) Pool. Washington analysis (feer - perioduced complete) and the same of samples(s) the character analysis (feer - perioduced complete) Pool. Washington analysis (feer - perioduced complete) and be resulted of samples(s) feer the same of the Test Report.

The reserved part of samples(s) for Microsological analysis (Non - perioduced complete) Food. Seeled Maker, Seeled Good) shall be resided for 15 days from the class of barry for the Test Report.

The reserved part of samples(s) for Microsological analysis (Non - perioduced complete) shall be retained 2 days from the class of barry for the Test Report.

The reserved part of samples(s) for Microsological analysis (Non - perioduced complete) shall be retained 2 days from the class of the Test Report.

Address of Laboratory:

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Name & Address of Customer:

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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/4H539P\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/08/57384U\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 14/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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		
3. Unique Identification of sample(if any)	Surface Water	
4. Date of sampling	NA 11/06/2024	
5. Place of sampling	100000000000000000000000000000000000000	
6. Environmental conditions during sampling & Transport	Roida Village Pond Water	
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022 Loknath Mahanta	

Report No.: MSKPL/FD/2024-25/4H539P\_1

Sample No.: MSKNB/FD/2024-25/06/57384U 1

#### RESULT

flicro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th. edtn. 92218	<1.8

Opinion:

NA

END -----

Reviewed By:

Signature

Ms. Maitroyee Chelcraborty

Designation : Executive Microbiologist

Authorized Signatory

Designation

Technical in charge

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The reserved part of sample(s) for chemical energies (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 of the reserved part of sample(n) for chemical enalysis (Soil, Soild & Liquid Washe) 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(n) for Microbiological enalysis (Non - perishable sample(n) Food, Sosled Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

Page 4 and 4

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Name & Address of Customer:

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West Bengal

Tel.: +91 7044036120

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### **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/H65FAQ\_1

Date: 19/07/2024

MSKNB/FD/2024-25/07/N0H510\_1

Sample No. : Date of receipt of sample:

08/07/2024

Date(s) of performance: Reference No. & Date:

08/07/2024 - 19/07/2024

3000156017/056, Date - 16/09/2023

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)	Surface Water
4. Date of sampling	06/07/2024
5. Place of sampling	Roida Village Pond Water JWMM
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	D.Pradhan

Report No.: MSKPL/FD/2024-25/H65FAQ\_1

Lab Sample Id.: MSK/KOL/2024-25/106

#### RESULT

hemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	2.1
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	5.6
3	Cadmium as Cd	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	тісгодгатл	TPM/MSK/INST,/93; Issue No. 1 Issue date: 20/01	2.8
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0:02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/t	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	36.7
11	Mercury as Hg	microgram/t	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.78
13	Zinc as Zn	microgram/I	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)

Reviewed By:

Signature

Attempt Same P. Gargaly

Designation :

: Sr. Executive Chemist.

Authorized Signatory:

Signature

Name

Contents

pr. Soomywdeep M. stopadnysy

Designation

Lab in-charge

#### Address of Laboratory:

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West Bengal Tel.: +91 7044038120 Email: udayanlab@mitrask.com





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Opinion:

END -

Reviewed By:

Signature

Name

Atoeyer Sour P. Gay : Mr. Atrapee Saha, Ms. Piell Genguly

Designation

: Sr. Executive Chemist

Authorized Signalory:

Signature

Name

Designation

Cab In-charge

The results retire cells to the iteraph tentor.
This Test Raport shall not be exposituated except in fall, without the persistories of Mins S.K. Provide Limited.
This reterined part of sample(s) for observable sample(s) Finds, without the persistories of Mins S.K. Provide Limited.
This reterined part of sample(s) for observable sample(s) finds the retained 2 days from the state of source of the Test Report.
The reterined part of sample(s) for observable sample(s) Solid & Liquid Water), shall be retained for 15 days on per CPCB quietime & (Aid) 1 month from the date of issue of the Test Report.
The reterined part of sample(s) for Silvorobiological analysis (Rice - periodable sample(s) Food, Sealed Vater, Sealed Food), shall be retained for 15 days from the date of issue of the Test Report. Periodable sample(s) Rice - periodable sample(s) Food, Sealed Vater, Sealed Food), shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shrachi Centre (Sh. Fison), 74B, A.J.C. Bose Road, Kolkata - 700018, West Bengel, India. Tel.: 91:33:40143000 / 22500007 Fax: 91:33:22550008 Email: Info@mitrank.com Viebsite: www.mitrank.com

#### Address of Laboratory :

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Name & Address of Customer:

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Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/H65FAQ\_1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/N0H510\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance:

08/07/2024 - 11/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023.

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)	Surface Water	
4. Date of sampling	06/07/2024	
5. Place of sampling	Roida Village Pond Water JWIMM	
6. Environmental conditions during sampling & Transport	(2 - 5)deg C Cold chain maintained	
7. Sampling Plan & Method used	IS 17614 (P - 25): 2022	
8. Identification of the personnel performing sampling by MSK	D.Pradhan	

Report No.: MSKPL/FD/2024-25/H65FAQ\_1

Lab Sample Id.

MSK/KOL/2024-25/108

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th ledth, 92218	<1.8

Opinion:

NA.

- END --

Reviewed By:

Signature

Ms. Mestreyee Chakraborty

Designation | Executive Microbiologist

Authorized Signatory

Signature

Norte:

Designation

Technical in charge

The results relate only to the item(x) tested

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

The reserved part of sample(s) for otherwisel analysis (Boil, Solid & Liquid Weels) 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: Shrachi Centre (8th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel:: 91 33 40143000 / 22650007 Fax: 91 33 22650008 firmal: info@mitrask.com Websile: www.mitrask.com

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T :+91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com



Report No. MSKGL/ED/20		Date: 19.07.2024
Name of the Client		
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANGANGER	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 06.07.2024	
Location	Bhuia Roida Village Pond Water (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Result
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	9
3	Chemical Oxygen Demand (COD)	mg/l			14
4	Chloride (as CI )		APHA (24th Edition), 5220B	250	31
5	DO	mg/l	APHA (24th Edition), 4500 -Cl B		53
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G		3.2
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		225
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.04
	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		
9	Odour	mg/l	APHA (24th Edition), 21508		4.7
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	Agreeable	Agreeabl
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	-	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B		0.11
4	Transfer and the second	mg/l	APHA (24th Edition), 4500 SO42-E		26.6
5	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		44
6	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	
	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	1	141
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	55
8	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	53

Checked by:

For 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





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## Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India

## **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/HK5FA8\_1

Date:

19/07/2024

Sample No. : Date of receipt of sample:

MSKNB/FD/2024-25/07/ZMR4EW\_1 08/07/2024

Date(s) of performance:

08/07/2024 - 19/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
Date of sampling	Surface Water
5. Place of sampling	06/07/2024
Environmental conditions during sampling & Transport	Baitami River Kandra Village (JWIMM)
Sampling Plan & Method used	(2 - 5)deg C Cold chain maintained
I Identification of the pomograph	IS 17614 (P - 23): 2021
Identification of the personnel performing sampling by MSK	D.Pradhan

Report No.: MSKPL/FD/2024-25/HK5FA6\_1

Lab Sample Id.: MSK/KOL/2024-25/107

#### RESULT

Chemical		KESUL		
Si No.	Parameter	Linus		
1		MOU	Method	Result
	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	
2	Boron as B	microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue	2.4
3	A	microgramii	date: 20/01	BDL(DL:1.0)
	Cadmium as Cd	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	BDI col is on
4	Colour	Hazen	date: 20/01 IS 3025 (Part 4)	BOL(DL:1.0)
5	Copper as Cu	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue	15
6	Cyanide as CN		date: 20/01	16.1
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sect	BDL(DL:0.02)
В	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BOL(DL:0.2)
9	Léad as Pb	/mg/l	IS 3025 (Part 52) Sec2	BOL(DL:0.01)
		microgram/f	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	2.8
10	Manganese as Mn	microgram/l	TPM/MSK/INST,/93; Issue No. 1 Issue	
11	Mercury as Hg		date: 20/01	65.0
12		microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	
13	Zinc as Zn	microgram/i	TPM/MSK/INST./93; Issue No. 1 Issue	1.32
			date: 20/01	23.1

Raviowed By:

Signature

Ms Absorpe Solve P 9 Congrey

Designation: Sr. Executive Chemist.

Authorized Signatory:

Signature

Neme

Designation

Lab In-charge

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagisdanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion:

NA

END ---

Reviewed By

Signature

Nurse

Geolgraffen.

: St. Executive Charmat

Mayerson P. July

Mix Armyon Sana MacParl Ganguly

Authorized Signatory

Signature

Nerro

Lab In-charge

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Head Office:

Shrothi Centre (5th Floor), 74B, A.J.C. Bote Road, Kollada - 700018, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Pair: 91 33 22650006 Email: Info@mitsek.com Website: www.mitrosk.com

Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/HK5FA6\_1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/ZMR4EW\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance:

08/07/2024 - 11/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	I QUI CONTRACTOR CONTR
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
	06/07/2024
5. Place of sampling	Baitami River Kandra Villago (JWIMM)
6. Environmental conditions during sampling & Transport	(2 - 5)deg C Cold chain maintained
7. Sampling Plan & Method used	
	IS 17614 (P - 25): 2022
Identification of the personnel performing sampling by MSK	D.Pradhan

Report No.: MSKPL/FD/2024-25/HK5FA6\_1

Lab Sample Id. MSK/KOL/2024-25/107

#### RESULT

licro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	<1.8

Opinion:

NA

- END ----

Reviewed By

Signature

Ms. Matheyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name

Technical In charge

The nexulax relate only to the item(s) tessed.

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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. Penshable sample(s) shall be retained 2 days.

The reserved part of sample(s) for chemical analysis (9cs. Solid & Liquid Weste) 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 -padahable 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 (Str Floor), 748, A.J.C. Bose Road, Kallasta - 700018, Wast Bengel, India Tel. : 81 33 40143000 / 22650007 Fax : 91 33 22650006 Email: inlogardrash.com Website : www.mitrash.com

At/P.O. BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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W : www.mitrask.com

Report No. MSKGL/ED/20		Date: 19.07.2024
ANALYSIS REPORT OF SURFACE WATER		2 100 1707.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)		
Date of sampling	06.07.2024 (WIMM)	
Location	Baitarni River Kandra Village (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		2000
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	6
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	200	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G		4
6	Electrical conductivity	us/cm		***	5.8
7	Iron (as Fe)		APHA (24th Edition), 25108		96
8		mg/l	APHA (24th Edition), 3500 Fe B	3	7.9
100	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	4.7
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 55208	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	0.05
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		7.8
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		24
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	***	60
17	Total Suspended Solid (as TSS)			***	35
18		mg/l	APHA (24th Edition),2540D	50/100	273
77	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.56

Checked by:

For 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





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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### TEST REPORT

Report No.:

MSKPL/FD/2024-25/PZ5FAR\_1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/AUA508\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance: Reference No. & Date :

08/07/2024 - 19/07/2024

3000156017/056, Date - 16/09/2023

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	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
	06/07/2024
5. Place of sampling	Sona River Near Mahanadi Guest House JWIMM
6. Environmental conditions during sampling & Transport	(2) Fides C.O. Mananagi Guest House JWMM
7. Sampling Plan & Method used	(2 - 5)deg C Cold chain maintained
8. Identification of the assessment of the	IS 17614 (P - 23): 2021
8. Identification of the personnel performing sampling by MSK	D.Pradhan

Report No.: MSKPL/FD/2024-25/PZ5FAR\_1

Lab Sample Id.: MSK/KOL/2024-25/105

#### RESULT

Chemical				
\$1 No.	Parameter	UOM	Method	-
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	Result BDL(DL:1.0)
2	Boron as B	microgram/l	date; 20/01 TPM/MSK/INST/93; Issue No. 1 Issue	BDL(DL:1.0)
3	Cadmium as Cd	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
4	Colour	Hazen	date: 20/01 IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	microgram/l	TPM/MSK/INST/93, Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9		mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
	Lead as Pb	microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/t	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	2.1
11	Mercury as Hg	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
12	Nitrate as NO3	mg/l	date: 20/01 APHA (24th EDITION) 4500-NO3- B	
13	Zinc as Zn	microgram/1	TPM/MSK/INST./93; Issue No. 1 Issue date; 20/01	1.02 BDL(DL:1.0)

Reviewed by

Signature.

Mr. Arragon Sahn Mr. Pioli Gar

Designation

+ Sr. Executive Chemist

Authorized Signatory:

Signature

Designation

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kelkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion :

END ----

Reviewed By:

Signature

Name

Designation

Aboutes Sound P. your 8r. Executive Chamist

Authorized Signetory:

Sgratue

Name

Designation

Lab In-charge

The results of black only to the Benego tended.
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The secenced part of semplety for telecobal legical analysis gives - perfectable carrying | Food, Septed Plates, Septed front plant to one the Text Report.
The secence of the Text Report.

Head Office:

Shrache Centre (Sin Floor), 74B, A.J.C. Boole Roset, Kolkate - 700016, West Bengel, India. 191-33-4014/3000 / 22950007 Fax: 91-33-22050008 Email: Info@minask.com Wideate: www.minask.com

Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/PZ5FAR 1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/AUA508\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance:

08/07/2024 - 10/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	06/07/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Sona River Near Mahanadi Guest House JWIMM (2 - 5)deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P - 25): 2022
8. Identification of the personnel performing sampling by MSK	D.Pradhan

Report No.: MSKPL/FD/2024-25/PZ5FAR\_1

Lab Sample Id. MSK/KOL/2024-25/105

#### RESULT

ficro Biology				
SI No.	Parameter	UOM	Method	Result
t.	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 92218	<1.8

Opinion:

- END ---

Reviewed By Signature

Designation

Mis. Matheyee Chalustionty Executive Microbiologist

Authorized Signatory

Name

Designation : Technical in charge

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The reserved part of sample(s) for chemical enabyes (Non - perisheble sample(s) Food. Weter) shall be retained for 15 days from the date of issue of the Test Report. Parishable sample(s) shall be retained 2 days.

tents are date of some from respons.

The received pain of semple(s) for cherskes energies (Soll, 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 received pain of sample(s) for Microbiological analysis (Non - pershable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shrachi Centre (6th Floor), 748, A.J.C. Sose Road, Kolkola - 700016, Wast Sergal, India. Tel.: 91 33 40143000 / 20650007 Fax: 91 33 20650000 Email: orlogommass.com Webste : www.märsek.com

At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com



Report No. MSKGL/ED/2024-25/002781		Date: 19.07.202	
	ANALYSIS REPORT OF SURFACE WATER		
Name of the Client M/s. TATA STEEL LIMITED			
Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)			
Date of sampling	06.07.2024		
Location	Sona River Near Mahanadi Guest House (JWIMM)		

#### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B	244	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		4.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		99
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	2.8
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.05
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		5.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 52108		32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		62
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	43
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.82

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonihar, Odisha - 758034 India

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Report No. :

MSKPL/FD/2024-25/YH5FA5 1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/03Y4FY\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance:

08/07/2024 - 19/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	
Unique Identification of sample(if any)	SURFACE WATER	
4, Date of sampling	06/07/2024	
5. Place of sampling	Sona River before Comfluence with baltami River Kandra Village (JWMM)	
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	D.Pradhan	

Report No.: MSKPL/FD/2024-25/YH5FA5\_1 Lab Sample Id. : MSK/KQL/2024-25/104

### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	1.2
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	10.1
3	Cadmium as Cd	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
11	Mercury as Hg	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.80
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; issue No. 1 issue date: 20/01	BOL(DL:1.0)

Reviewed By:

Signature

Name

Atrage Sala P. Gonzaly

- Sr. Executive Chemist Designation

Authorized Signatory

Biometune

Nome

Designation

Lab In-charge

#### Address of Laboratory:

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion: NA.

END ---

Reviewed By:

Signature

Arrayeesawa P. Gr Me. Arrayon Saha, Me. Piwi Garguty

Designation

: Sr. Executive Chemist

Authorized Signatory:

Signature Name

Dr. Soymyb

Dissignation

Lab in-charge

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#### Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Ab/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel: +91 7044036120

Emait udayanlab@mitrask.com





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/YH5FA5\_1

Date:

19/07/2024

Sample No.:

MSKNB/FD/2024-25/07/03Y4FY\_1

Date of receipt of sample:

08/07/2024

Date(s) of performance:

08/07/2024 - 10/07/2024

Reference No. & Date:

3000156017/056, Date - 16/09/2023

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
Unique identification of sample(if any)	SURFACE WATER
4. Date of sampling	06/07/2024
5. Place of sampling	Sona River before Comfluence with baltami River Kandra Village (JWIMM)
6. Environmental conditions during sampling & Transport	(2 - 5)deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P - 25): 2022
8. Identification of the personnel performing sampling by MSK	D.Pradhan

Report No.: MSKPL/FD/2024-25/YH5FA5 1

Lab Sample id. MSK/KOL/2024-25/104

#### RESULT

Micro Biology					
Si No.	Parameter	UOM	Method	Result	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 92218	<1.8	

Opinion:

NA.

- END ---

Reviewed fly

Signature

Ms. Moltreyse Chakraborty

Designation : Executive Microbiologist

Authorized Skingson

Signature

Norno

Mr. Sukonta Palui

Designation : Technical in charge

This results relate only to the itserits) teatest.
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The reserved part of sample(s) for chemical prolysis (Non - perishetile 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.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Weste) shall be reterred for 15 days as per CPCB guideline & (Air) 1 month from the date of sesses of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perbitable sample(s) Food, Soiled Wester, Sealed food) shall be retained for 15 days from the date of sesses of the Test Report.

Head Office:

Shrechi Centre (Sh Floor), 748, A J.C. Bose Road, Kolum - 700016, West Bengal, India Tel : 91 33 40143000 / 22650007 Fax : 91 33 22660008

Ernel : info@mitrask.com Website : sww.mitrask.com

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Report No. MSKGL/ED/20	Date: 10 pg ae
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.07.2024 (JWIMM)
Location	Sona River Kandra Village before confluence with Baitarni River (JWIM

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l		***	17
4	Chloride (as CI )	-	APHA (24th Edition), 5220B	250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CLB		10
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	6.2
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	750	174
-	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.13
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		
9	Odour	mg/l	APHA (24th Edition), 2150B		8.5
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	100000	(Chloroform Extraction)	1	< 0.001
13	Sulphate (as SO4 )	PSU	APHA (24th Edition), 2520B		0.08
14	POPULATION PROCESSION AND ADDRESS OF THE POPULATION AND ADDRESS OF	mg/l	APHA (24th Edition), 4500 SO42-E	777	20.6
15	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		59
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		109
	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	82
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5,5-9.0	6.84

Checked by:

For 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





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### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonihar, Odisha - 758034 India

Report No.:

Date:

MSKPL/FD/2024-25/3U5EEV\_1 10/07/2024

MSKNB/FD/2024-25/07/SRD37M\_1

Sample No.: Date of receipt of sample:

04/07/2024

Date(s) of performance: Reference No. & Date :

04/07/2024 - 10/07/2024

3000156017/056, Date - 16/09/2023

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

1. Group	Water 8 Residue in Water	
2. Description of sample	Surface Water	
3. Unique Identification of sample(if any)	Surface Water	
4. Date of sampling	03/07/2024	
5. Place of sampling	Pond Inside Bichakundi vegetables garden	
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	Pranab Sethi, Dharmaprakash Pradhan	

Report No.: MSKPL/FD/2024-25/3U5EEV\_1

Lab Sample Id.: MSK/KOL/2024-25/39

#### RESULT

Si No.	Parameter	MOM	Method	Result
1	Arsenic as As	microgram/t	TPM/MSK/INST,/93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
2	Boron as B	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	6.2
3	Cedmium as Cd	microgram/l	TPM/MSK/INST,/93; Issue No. 1 Issue dete: 20/01	BDL(DL:1.0)
	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02
7	Fluoride as F	mg/i	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	microgram/f	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	11.1
11	Mercury as Hg	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
	Nitrate as NO3	mg/l	IS 3025 (Part 34)	1.09
13	Zinc as Zn	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	8.5

Royalessed Dur

Signature Namo

Ms. Allayee Saha, Ms. Plati Ganguly

Designation

Sr. Executive Chemist

Authorized Signatory:

Signature

Designation

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion: NA

END ---

Reviewed By:

Signature

Name

Designation.

Sr. Executive Chemist

Atrayer Sam P. J

Ma. Atropos Saha, Ms. Piel Genguly

Authorized Signatory:

Signature

Name

Designmen Lab in charge

The means relate and as represented according in this, williams the permission of Mex. S. K. Hovels Limited,
The received part of semploys the derivated according in this, williams the permission of Mex. S. K. Hovels Limited,
The received part of semploys the chronical analysis (lose, percentation semploys) Freed. Wears) dust be retained the 13 days than the disease of the Top Report.
The received part of semploys the chronical analysis (lose, Soid 6 i, iquid Vibrariy shall be retained the 15 days as per CPCS) quideline & (All) 1 months from the data of losses of the Test Report.
The received part of semploys the selection of the Test Report.
The Report of the Test Report.

Head Office:

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Page 2 of 2

## Address of Laboratory :

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Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India





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## TEST REPORT

Report No.:

MSKPL/FD/2024-25/3U5EEV\_1

Date:

10/07/2024

Sample No. :

MSKNB/FD/2024-25/07/SRD37M\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 09/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
5. Place of sampling	03/07/2024
6. Environmental conditions during sampling & Transport	Pond inside Bichakundi vegetables garden
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
B. Identification of the personnel posts	IS 17814(P-25) 2022
Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/3U5EEV\_1

Lab Sample Id. MSK/KOL/2024-25/39

#### RESULT

Micro Biology		RESOLI		
SI No.	Parameter	UOM	Method	
1	Total coliform	12,000,000	Standard methods for the examination	Result
	rotal collors	MPN/100ml	of water & waste water, 24th ledtin, 9221B	33000

Opinion:

NA.

- END ---

Reviewed by

Ms. West-Type Chakraborty

Designation Executive Microbiologist Authorized Signatory

Signature

Name

Designation : Yechnical in charge

The results relets only to the Rem(s) tested.

The results residently to the Rem(s) tested.

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The reserved pert of serrigings for chemical analysis (Non - pershable 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 served of the Test Report.

The reserved part of sample(s) for chemical analysis (Non - pershable sample(s) 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 - pershable sample(s) Food, Sealed Visitor, Sealed food) shall be reserved for 15 days from the date of issue of the Test Report. Streets Centra (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India, Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008 Errest: Info@mitrask.com Webello : www.mitrask.com

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Report No. MSKGL/ED/2024-25/002762		Date: 17.07.2024
Name of the Cit	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client Name of the Mines	M/s, TATA STEEL LIMITED	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 03.07.2024	
Location	Bichakundi Vegetable Garden Pond (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SL No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l		***	8.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO	-	APHA (24th Edition), 4500 -C1B		8.0
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-0-C/G		5.2
7	The state of the s	us/cm	APHA (24th Edition), 2510B		83
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.24
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.8
241	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeabl
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	nen	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU ma/l	APHA (24th Edition), 2520B	***	0.04
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	***	7.2
15			APHA (24th Edition), 5210B		24
16	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		52
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		35
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	13
0	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.27

Checked by: 176

For Mitra S. K. Private Limited

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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## **TEST REPORT**

Report No.:

MSKPL/FD/2024-25/2Y5EET\_1

10/07/2024

Date : Sample No. :

MSKNB/FD/2024-25/07/MYS36F\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 10/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(If any)	Surface Water
Date of sampling	Surface Water
5. Place of sampling	03/07/2024
Equipmental and the	Sona river near Pichlaghat Pump House (downstream)
Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained
. Sampling Plan & Method used	IS: 17614(P-23) 2021
Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/2Y5EET\_1

Lab Sample Id.: MSK/KOL/2024-25/38

### RESULT

Chemical				
Si No.	Parameter	UOM	Method	2000
1	Arsenic as As	microgram/i	TPM/MSK/INST./93; Issue No. 1 Issue	Result
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
3	Cadmium as Cd		date: 20/01	6.6
4	Colour	microgram/t	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
5		Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	microgram/I	TPM/MSK/INST/B3; Issue No. 1 Issue date: 20/01	2.4
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
	Lead as Pb	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date; 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date; 20/01	36.8
11	Mercury as Hg	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	0.000,000
12	Nitrate as NO3	/Nom	date: 20/01	BDL(DL:1.0)
13			IS 3025 (Part 34)	4.68
	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	12.3

Reviewed By

Signature

Marrie

Abrayee Sana F. Grynle

Designation

Sr. Executive Chemist

Authorized Signatory:

Signature

Namo

Designation /

Lab in charge

Address of Laboratory:

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West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion:

END ----

Reviewed by:

Signature

Name

Designation

Sr. Executive Charmet

Atrayer Sana P.

Ms. Atrageo Saha, Ms. Flat Ganguly

Authorized Signatory:

Signature

Name

Designation Lab in charge

The results ration only to the larged speed.
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This sharkward part of sample(s) for disminist analysis (Mon. - poralisation currently) Food, Weber; shall be presented for 15 days from the date of trace of the Tool Report. Portshable sample(s) shall be retained 2 days from the date of trace of the Tool Report.
The reserved part of sample(s) for disministration currently analysis (Non. - portshable sample(s) Food, Weber; shall be retained for 15 days as per CPCB guidaline in parts from the date of trace of the Tool Report.
The reserved part of sample(s) for Milandological analysis (Non. - portshable sample(s) Food, Sested Water, Sested Moder, Sested Rout) and to retained for 15 days from the date of issue of the Tool Report.

Reserved to the Tool Report.

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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odishe - 758034 India

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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## TEST REPORT

Report No.:

MSKPL/FD/2024-25/2Y5EET\_1

Date:

10/07/2024

Sample No. :

MSKNB/FD/2024-25/07/MYS36F\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 09/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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)	Surface Water
4. Date of sampling	03/07/2024
5. Place of sampling	ACTION CONTROL OF THE
8. Environmental conditions during sampling & Transport	Sona river near Pichlaghat Pump House (downstream) (2 - 5) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS: 17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Predhan

Report No.: MSKPL/FD/2024-25/2Y5EET 1

Lab Sample Id. MSK/KOL/2024-25/38

### RESULT

Micro Biology					
SI No.	Parameter	UOM	Method	Result	
1.	Total coliform	MPN/100mf	Standard methods for the examination of water 8 waste water, 24th edth, 92218	2100	

Opinion: NA

END ---

Forweed by:

Signature

Ms. Matroyee Chakraborty

Designation | Executive Microbiologist

Authorized Signate

Sirerah ne

Name

Mr. Sukenta Palul

Designation : Technical in charge

The results relate only to the item (s) tested.
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 16 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.
The date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sos, Solid & Liquid Waste) shall be retained for 15 days as per CPCS guideline & (Art) 1 month from the date of sissue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - periohable sample(s) Food, Socied Weter, Sected food) shall be retained for 15 days from the date of issue of the Test Report.

Shradri Centra (3th Floor), 748, A.J.C. Bose Road, Kolketa - 700016, West Bengal, India. Tel.: 91 33 40143000 / 2050007 Fax: 91 33 22500006 Email: info@mitrask.com Websete ; www.mitrask.com Head Office:

Page 1 of 1

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Report No. MSKGL/ED/202	4-25/002761 Date: 17.07.2024
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.07.2024
Location	Sona river near Pichlaghat Pump House Down Stream (JWIMM)

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	100	19
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B		2.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		112
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	3.8
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chleroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.06
13	Sulphate ( as SQ4 )	mg/l	APHA (24th Edition), 4500 S042-E		12
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B	722	36
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		
16	Total Hardness (as CaCO3)	mg/1	APHA (24th Edition), 2340 C		70
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	51
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.29

Checked by:

For Mitra S. K. Private Limited

**Authorized Signatory** 

-50

H. O.: Shrachi Centre (5th Floor), 74B, Acharya Jagadish Chandra Bose Road, Kolkata – 700 016, West Bengal, India T: 91 33 22172249 / 4014 3000 / 2265 0006 / 2265 0007 F: 91 33 2265 0008 E info@mitrask.com W: www.mitrask.com

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel, : +91 7044038120 Emeit udayanlab@mitrask.com





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## TEST REPORT

Name & Address of Customer: Report No. :

> Date: Sample No.:

MSKPL/FD/2024-25/9D5EEJ\_1

10/07/2024

Date of receipt of sample:

MSKNB/FD/2024-25/07/J3C33S\_1

04/07/2024

Date(s) of performance:

04/07/2024 - 10/07/2024

Reference No. & Date: 3000156017/056, Date - 16/09/2023

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)	Surface Water
4. Date of sampling	1.1000 TO 1000
5. Place of sampling	03/07/2024
6. Environmental conditions during sampling & Transport	Sons river near Pichlaghat Pump House(upstream)
7. Sampling Plan & Method used	(2 - 5) deg C Cold Chain Maintained
	IS: 17614(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/9D5EEJ 1

Lab Sample Id.: MSK/KOL/2024-25/37

#### RESULT

SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/I	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
2	Boron as B	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	7.0
3	Cadmium as Cd	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
4	Colour	Hazen	IS 3025 (Part 4)	BOL(DL:1.0)
5	Copper as Cu	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	2.2
6	Dyanide as CN	mg/ī	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date; 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	36.9
11	Mercury as Hg	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date; 20/01	BDL(DL:1.0)
12	Nitrate as NC3	mg/l	IS 3025 (Part 34)	3.2
13	Zinc as Zn	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date; 20/01	15.2

Reviewed By:

Signature Nemo Dissignation

Ms. Alreyou Salta, Mo. Pieti Ganguly

Sr. Esscutive Chemia:

Authorized Signatory:

Sepature

Designation

Lab in charge

Head Office:

Shradhi Centre (5th Floot), 748, A.J.C. Bose Road, Kolluta -700016, (West Bangal, India. Tell.: 91 33 40140000 / 23560007 flax: 91 33 2356000s Small : Info@mtrask.com Website : www.mitrask.com

Page 1 of 2

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion:

END ----

Reviewed By:

Signature

Marse.

Designation

Sr. Executive Chemist

Atrayer Sama

Ms. Alrayam Saha, Ms. Padi Go

Authorized Signatory

Schitture

Name

Designation

The results relate only to the bango pelant.
The Term Report shall not be reproduced except in fast, without the perceisons of Mars G.K. Private Limited.
The reserved part of company to interaction analysis, then - penalsolide remptop) Food, Mariny shall be interested for 15 days from the date of lease of the Test Report.
The reserved part of company to describe analysis (of described salations) (5od, Solid & Lideat Visite) shall be interested for 15 days as per CPCS politicis & (4o) 1 ments from the date of lease of the Test Report.
The reserved per of company to the Microbiological analysis (Acc - politicatic samples) Food. Social Matter, Seeled Social shall be interested for 15 days from the date of lease of the Test Report.

Sees of the Test Report.

Head Office:

Shrischi Centre (Stit Flour), 748, A.J.G. Bose Ruset, Kotkata - 700016, West Bengal, India. Tel. : 91 30 40143000 / 22550007 Fax: 91 33 22850008 Email: info@mitsask.com Websito : www.mitrask.com

Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AUPo. - Joda, Dist. - Keonihar, Odisha - 758034 India

Tel.: +91 7044036120

Email: udayonlab@mitrask.com





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## TEST REPORT

Report No. :

MSKPL/FD/2024-25/9D5EEJ\_1

Date:

10/07/2024

Sample No.:

MSKNB/FD/2024-25/07/J3C33S\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 09/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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)	The state of the s
4. Date of sampling	Surface Water
5. Place of sampling	03/07/2024
	Sona river near Pichlaghat Pump House(upstream)
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS: 17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	
the state of the s	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/9D5EEJ 1

Lab Sample Id. MSK/KOL/2024-25/37

#### RESULT

Micro Biology		1110021		
SI No.	Parameter	NOM	Method	0
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth,	Result
	Calcard .	74007.000.0017	92218	22000

Opinion: NA

- END ---

Reviewed By

Signature

Name

Designation : Executive Microbiologist Authorized Signatory

Signature

Name

Designation : Technical In charge

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The results retain only to the Heritis based.
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The Ideas of the Test Report.
The Ideas record part of sample(a) for chemical analysis (Non - periodicals) shall be retained for 15 days are per CPCB guideline 8. (Air.) 1 month from the date of issue of the Test Report.
The Ideas record part of sample(a) for discribinishing analysis (Non - periodicals sample(a) Food, Sealed Woter, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Streets Centre (Sin Floor), 745, A.J.C. Bose Roset, Kolkata - 700015, West Bengel, India. Tel: 91 33 40143000 / 23650007 Fax: 91 33 22650008 Email: Info@minusk.com Website: www.mbrask.com

yee Chakraborty

Page 1 of 1

Al/P.O.:BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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E : barbil@mitrask.co.in W : www.mitrask.com

	ANALYSIS REPORT OF SURFACE WATER  Date: 17.07.2024
Name of the Client Name of the Mines	M/s. TATA STEEL LIMITED
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 03.07.2024
Location	Sona river near Pichlaghat Pump House Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Result
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		16
4	Chloride (as CI )	mg/I		250	<4.0
5	DO		APHA (24th Edition), 4500 -CI B		6
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G		7.1
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B		144
8	The state of the s	mg/l	APHA (24th Edition), 3500 Fe B	3	7.8
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	-	10.0
***	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	100000
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeabl
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	< 0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.07
14	Total Alkalinity			***	14
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 5210B	***	28
16	Total Hardness (as CaCO3 )	33377	APHA (24th Edition), 2540C	***	90
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C	***	82
8	pH value at 19.8 deg C	mg/l	APHA (24th Edition),25400	50/100	106
	but value at 13'9 del C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.32

Checked by:

For Mitra S. K. Private Limited

## Address of Laboratory:

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West Bengsl

Tel: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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## TEST REPORT

Report No.:

MSKPL/FD/2024-25/W65EEC\_1

Date:

10/07/2024

Sample No.:

MSKNB/FD/2024-25/07/6QT35Q\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 10/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
Unique identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
5. Place of sampling	03/07/2024
6. Environmental conditions during sampling & Transport	Keth Hutting after H-QUARRRY (downstream)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-23) 2021
sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-26/W65EEC\_1

Lab Sample Id.: MSK/KOL/2024-25/36

## RESULT

SI No.	Parameter	UOM	1000	
1	Arsenic as As		Method	Result
	reserve up M8	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
2	Boron as B	microgram/1	TPM/MSK/INST/93; Issue No. 1 Issue	200(00.1.0)
3	Cadmium as Cd	The regional	date: 20/01	5.9
4		microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
	Colour	Hazen	IS 3025 (Part 4)	
5	Copper as Cu	microgram/I	TPM/MSK/INST/93; Issue No. 1 Issue	BDL(DL:1.0)
6	Cyanide as CN		date: 20/01	1.7
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+8)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9		mg/l	IS 3025 (Part 52) Sec2	BOL(OL:0.01)
100	Lead as Pb	microgram/t	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL-1.0)
10	Manganese as Mn	microgram/i	TPM/MSK/INST,/93; Issue No. 1 Issue	000,01.1.0)
11	Married	macogramm.	date: 20/01	29.6
12	Mercury as Hg	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue	BDI/DI-t m
-	Nitrate as NO3	mg/l	date; 20/01	BDL(DL:1.0)
13	Zinc as Zn	Contract of the Contract of th	IS 3025 (Part 34)	3.11
	2000 H 2000 H	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	20.5

Reviewed By:

Bigneture

Atrager San P. G Ms. Atrayee Sahe, Ms. Pleti Garguty

Designation : Sr. Executive Charmint Authorized Signatury:

Designation

Lag 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





Sean for Portal

Opinion:

END ---

Parviewed By:

Signature

Dissignation

Atoayees and P. Gonzal : Ms. Arrayum Saho, Ms. Paul Gonguly

: Sr. Executive Charming

Authorized Signatory:

Signature

Name

Designation Lab In charge

The Preside native (bity to the Bency) scaled.
The Test Report shall not be represented enough in 8.6, without the personness of May 6, K. Private Limited.
The reserved pert of company place of common enough in 8.6, without the personness of May 6, K. Private Limited.
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Head Office:

Shrechs Centro (Str. Floor), 749. A.J.C. Bose Road, Kollusie - 700016, West Bergal, India. Tel.: 91.33.40143000 / 22650007 Fex: 91.33.22530008 Email: info@mitrask.com Website: www.mitrask.com

Page 2 of 2

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagledanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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## TEST REPORT

Report No. :

MSKPL/FD/2024-25/W65EEC 1

Date:

10/07/2024

Sample No.:

MSKNB/FD/2024-25/07/6QT36Q\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 09/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Meter 9 Deald of the
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(If any)	Surface Water
Date of sampling	Surface Water
5. Place of sampling	03/07/2024
5. Environmental conditions duri	Keth Hutling after H-QUARRRRY (downstream)
Environmental conditions during sampling & Transport     Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
B. Identification of the assessment	IS: 17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/W65EEC\_1

Lab Sample Id. MSK/KOL/2024-25/36

#### RESULT

Micro Biology		THEODET		
SI No.	Parameter	UOM	Method	
1	Total coliform	The state of the s	Standard methods for the examination	Result
	Total Collons	MPN/100ml	of water & waste water, 24th edtn, 9221B	3500

Opinion:

- END ----

Reviewed By

Ms. Matraygo Chekraborty Executive Microbiologist

Authorized Signatur

Signature

Mame

Designation : Technical in charge

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The reserved part of semple(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.
The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wester) shall be retained for 15 days as per CPCB guideline & (Art) 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, Soaled Water, Soaled food) shall be retained for 15 days from the date of issue of the Test Report.

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED/2024-25/002759

ANALYSIS REPORT OF SURFACE WATER

Name of the Client
Name of the Mines
JODA WEST IRON & MANGANESE MINES (JWIMM)

Date of sampling
03.07.2024

Location

Keth-Hutting after H- Quarry Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	CPCB 30	2.2.2
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	77.53	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		9
4	Chloride (as Cl )	mg/l		250	<4.0
5	DO		APHA (24th Edition), 4500 -Cl B	Make	4
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.8
7		us/cm	APHA (24th Edition), 2510B		122
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	3.2
100	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 MgB		
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	11
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	100000	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 25208	-	0.06
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	===	14
15		mg/l	APHA (24th Edition), 5210B		36
16	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		76
	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		71
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	
18	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.35

Checked by:

For Mitra S. K. Private Limited

## Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

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





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## TEST REPORT

Report No.:

MSKPL/FD/2024-25/VW6EEM\_1

10/07/2024

Date: Sample No.:

MSKNB/FD/2024-25/07/15Q34B\_1

Date of receipt of sample:

04/07/2024

Date(s) of performance:

04/07/2024 - 10/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
Unique Identification of sample(If any)	Surface Water
Date of sampling	Surface Water
5. Place of sampling	03/07/2024
6. Environmental conditions during sampling & Transport	keth Hutting before H-Quarrrry (upstream)
7, Sampling Plan & Method used	(2 - 5) deg C Cold Chain Maintained
8. Identification of the namenant and	IS: 17614(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan

Report No.: MSKPL/FD/2024-25/VW5EEM\_1

Lab Sample Id.: MSK/KOL/2024-25/35

#### RESULT

Chemical				
SI No.	Parameter	UOM		
1	Arsenic as As		Method	Result
22	Proting 88 AS	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1:0)
2	Boron as B	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue	BBC(DC, 1.0)
3	Carrie		date: 20/01	7.3
4	Cadmium as Cd	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
	Colour	Hazen	date: 20/01 IS 3025 (Part 4)	
5	Copper as Cu	microgram/ TPM/MSK/INST/93; Issue No. 1 Issue		BDL(DL:1.0)
6	Cyanide as CN		date: 20/01	
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9		mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
-	Load as Pb	microgram/1	TPM/MSK/INST/93; Issue No. 1 Issue	
10	Manganese as Mn		TPM/MSK/INST /02 Januar No. 4	BDL(DL:1.0)
11		microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	43.0
	Mercury as Hg	microgram/t	TPM/MSK/INST/93; Issue No. 1 Issue	
12	Nitrate as NO3		date: 20/01	BDL(DL:1.0)
13	Zinc as Zn	mg/l	IS 3025 (Part 34)	4.52
	ZINC 88 ZII	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	29.0

Reviewed By: Signature.

Name

Atrayee Sam P. goy Ms. Atrayee Saha, Mk. Ploti Garguly

Destruction Sr. Executive Chemist Authorized Signatory

Signature

Designation

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagiadanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion: NA

END -

Reviewed By:

Signature. Marrie

Designation

Atragee Sam P.

Ms. Alrayee Suha, Ms. Pieli Gengi : Sr. Executive Charset

Authorized Signatory

Signature

Name

Designation

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#### Address of Laboratory:

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At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Name & Address of Customer: Report No.:

Date:

MSKPL/FD/2024-25/VW5EEM 1

10/07/2024

Sample No.:

MSKNB/FD/2024-25/07/15Q34B\_1

04/07/2024

Date of receipt of sample: Date(s) of performance:

04/07/2024 - 09/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	03/07/2024	
5. Place of sampling	keth Hutting before H-Quarmy (upstream)	
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained	
7. Sampling Plan & Method used	IS: 17614(P-25) 2022	
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Dharmaprakash Pradhan	

Report No.: MSKPL/FD/2024-25/VW5EEM\_1

Lab Sample Id. MSK/KOL/2024-25/35

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	2800

Opinion: NA.

--- END ----

Reviewed By:

Signature:

Name Ms. Maltreyee Chalcaborty

Designation : Executive Microbiologist

**Authorized Signatory** 

Signature

Name

Designation Technical in charge

The results retens only to the item(s) bested.

This Test Report shall not be recorduced escent in full, without the permission of Mitra S.K. Private Licebook

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

The reserved part of sample(s) for chemical analysis (Soil, Solid & Uquid Wasse) 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. Seeled Water, Seeled Wat

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AVP.O. BARBIL Ward No-6 Dist.: Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037



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	4-25/002753 Date: 17.07.20
	ANALYSIS REPORT OF SURFACE WATER
or the cheff	M/s. TATA STEEL LIMITED
Name of the Mines	IODA WEST IRON & MANGANISM
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 03.07.2024
Location	
- Control	Keth -Hutting before H-Quarry Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l			11
4	Chloride (as CI )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO		APHA (24th Edition), 4500 -Cl B		2
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-0-C/G		4.8
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B		99
8	- Anna Change and Chan	mg/l	APHA (24th Edition), 3500 Fe B	3	2.5
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	7004	4.7
-	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/l			0.05
14	Total Alkalinity	-	APHA (24th Edition), 4500 SO42-E	***	14
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 5210B	***	28
6	Total Hardness (as CaCO3 )	1	APHA (24th Edition), 2540C		62
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C		47
8		mg/l	APHA (24th Edition),2540D	50/100	15
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.38

Checked by:

For Mitra S. K. Private Limited

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	ANALYSIS REPORT OF Surface Water  Date: 30.08.202
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANEGE ASSESSMENT
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 23.08.2024
Location	Bichakundi VegetableGarden pond (JWIMM)

## CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Result
2	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
-117	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		11
4	Chloride (as CI)	mg/I		250	<4.0
5	DO	4	APHA (24th Edition), 4500 -Cl B	-	8
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G	15000	4.4
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	117
2	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	77.000
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		1.27
9	Odour	mg/l	APHA (24th Edition), 2150B		2.8
10	Oil and Grease	mg/l		Agreeable	Agreeabl
11			APHA (24th Edition), 5520B	10	<5.0
35	Phenolic Compounds (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		~0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	4570 L	0.06 PSU
4	Total Alkalinity	mg/l			8.6
15		-	APHA (24th Edition), 5210B		30
6	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		62
8	Total Hardness (as CaCO3 )	mg/I	APHA (24th Edition), 2340 C		39
7	Total Suspended Solid (as TSS)	mg/I	APHA (24th Edition),2540D	50/100	77200
8	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	50,000,000	24
_				5.5-9.0	6.66

Checked by:- />

For Mitra S. K. Private

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	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	23.08.2024
Location	Bichakundi VegetableGarden pond (JWIMM)

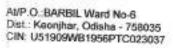
## CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	m=/I		
2	Boron as B	mg/l	0.2	<1.0
3	Cadmium as Cd	mg/l		5.8
4	The state of the s	mg/l	2	<1.0
5	Colour	Hazen	5	<1.0
	Copper as Cu	mg/l	3	
6	Cyanide as CN	mg/l	0.2	<1.0
7	Fluoride as F	mg/I	2	< 0.02
8	Hexavalent Chromium (as Cr+6)	mg/l		<0.2
9	Lead as Pb		0.1	< 0.01
10	Mercury as Hg	mg/l	0.1	<1.0
11	Manganese as Mn	mg/l	0.01	<1.0
12		mg/l	2	10.4
13	Nitrate as NO3	mg/l	10	223333
1003	Zinc as Zn	mg/l	5	0.98
14	Total coliform			8.2
	10000000000000000000000000000000000000	/100ml		Present

Checked by: Saukel

For Mitra S. K. Private Limited

-skel **Authorized Signatory** 





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Report No. MSKGL/ED/202	4-25/003402	D / 10 00 000
	ANALYSIS REPORT OF Surface Water	Date: 30.08.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of he Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	23.08.2024	
Location	Pichlaghat pump house (downstream) (JWIMM)	

## CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
2	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
21212	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		6.3
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	
4	Chloride (as CI)	mg/l	APHA (24th Edition), 4500 -CI B	230	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	Pers .	88
7	Iron (as Fe)	mg/I	APHA (24th Edition), 3500 Fe B	3	
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.49
9	Odour	mg/I	APHA (24th Edition), 2150B		3.8
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeabl
11				10	<5.0
12	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
0	Salinity	PSU	APHA (24th Edition), 2520B		0.04 PSL
13	Sulphate (as SO4)	mg/I	APHA (24th Edition), 4500 SO42-E		3.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		27
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		52
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		31
8	pH value at 26.3 deg C	None		50/100	27
	provide at 20.5 deg C	24000	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.26

Checked by:-

For Mitra S. K. Private

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Report No. MSKGL/I	Date: 50.08,202		
	ANALYSIS REPORT OF SURFACE WATER		
Name of the Client	M/s. TATA STEEL LIMITED		
Name of he Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)		
Date of sampling	23.08.2024		
Location	Pichlaghat pump house (downstream) (JWIMM)		

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l		100000
2	Boron as B		0.2	<1.0
3	Cadmium as Cd	mg/l		6.2
4		mg/l	2	<1.0
5	Colour	Hazen	5	<1.0
77.7	Copper as Cu	mg/l	3	
6	Cyanide as CN	mg/l	0.2	2.2 <0.02
7	Fluoride as F	mg/l	2	
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.2
9	Lead as Pb			<0.01
10	Mercury as Hg	mg/l	0.1	<1.0
11	Manganese as Mn	mg/I	0.01	<1.0
12	The state of the s	mg/l	2	36.4
13	Nitrate as NO3	mg/l	10	4.27
	Zinc as Zn	mg/l	5	
14	Total coliform	/100ml		13.2 Present

Checked by: Sandede

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/2024-25/003403

ANALYSIS REPORT OF Surface Water

Name of the Client

M/s. TATA STEEL LIMITED

Name of the Mines

JODA WEST IRON & MANGANESE MINES (JWIMM)

Date of sampling

23.08.2024

Location

Pichalaghat pump house (upstream) (JWIMM)

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite mg/l	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)		APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	9.4
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI )	mg/I	APHA (24th Edition), 4500 -CI B		4.9
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.3
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	-	94
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.9
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		4.7
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	Mass.	0.05 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	_	5.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	38
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		59
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	***	43
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	115
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.46

Checked by:--

For Mitra S. K. Private

**Authorized Signatory** 

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Report No. MSRGL/E	Report No. MSKGL/ED/2024-25/003403	
	ANALYSIS REPORT OF SURFACE WA	TER
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MI	INES (JWIMM)
Date of sampling	23.08.2024	
Location	Pichalaghat pump house (upstream) (JWIM)	M

#### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	<1.0
2	Boron as B	mg/l	544	6.4
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	2
6	Cyanide as CN	mg/l	0.2	< 0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	
12	Nitrate as NO3	mg/l	10	35.8
13	Zinc as Zn		5	20000
14		mg/l	3	14.8
11872	Total coliform	/100ml		Present

Checked by: - Sendent

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 MSK TESTING INSPECTION

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Report No. MSKGL/ED/2024	4-25/003404	Date: 31.08.2024
Name of the Client	ANALYSIS REPORT OF Surface Water M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	Keth hutting before H-Quarry (upstream) (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	Biochemical Oxygen Demand (as BOD) mg/l APHA (24th Edition), 5210B		30	<2.0
2	Calcium (as CaCo3) mg/l APHA (24th Edition), 2340 C		_	6.3	
3	Chemical Oxygen Demand (COD) mg/l APHA (24th Edition), 5220B		250	<4.0	
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B		3
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	_	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		75
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.07
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	_	4.7
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	0.05 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		23
15	Total Dissolved Solids (as TDS)	mg/i	APHA (24th Edition), 2540C	_	47
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		35
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	19
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.14

Checked by:-/>

For Mitra S. K. Private



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Report No. MSKGL	/ED/2024-25/003404	Date: 31.08.2024
	ANALYSIS REPORT OF SURFACE WATER	1
Name of the Client	M/s, TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES	(JWIMM)
Date of sampling	24.08.2024	THE PARTY OF THE P
Location	Keth hutting before H-Quarry (upstream) (JWIM	M)

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/I	0.2	<1.0
2	Boron as B	mg/l		7.1
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	2
6	Cyanide as CN	mg/l	0.2	< 0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	41
12	Nitrate as NO3	mg/l	10	4.28
13	Zinc as Zn	mg/l	5	26
14	Total coliform	/100ml	***	Present

Checked by: - Sendale

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/2024-25/003405 Date: 31.08.2024

ANALYSIS REPORT OF Surface Water

Name of the Client M/s. TATA STEEL LIMITED

Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)

Date of sampling 24.08.2024

Location Keth hutting after H-Quarry (downstream) (JWIMM)

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	777	9.4
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B	-	5.9
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		6.3
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	_	79
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.13
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	1440	0.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agrecable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	eter.	0.04 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	6.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	19
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	-	45
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		25
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	26
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.07

Checked by:

For Mitra S. K. Private



At/P.O.:BARBIL Ward No-6 Dist.: Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037

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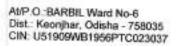
Report No. MSKGL/	50/2024-25/003405	Date: 31,08,2024
	ANALYSIS REPORT OF SURFACE WAT	ER
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MIN	ES (JWIMM)
Date of sampling	24.08.2024	
Location	Keth hutting after H-Quarry (downstream)	(JWIMM)

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	<1.0
2	Boron as B	mg/I		5.6
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	1.8
6	Cyanide as CN	mg/l	0.2	< 0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	28.4
12	Nitrate as NO3	mg/l	10	
13	Zinc as Zn	mg/l	5	3.04
14	Total coliform	/100ml		21.4 Present

Checked by: - Control

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/202	4-25/003406 Date: 31	1.08.2024
	ANALYSIS REPORT OF Surface Water	1.00.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	Sona river near Mahanadi guest house (JWIMM)	_

## CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
-	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		9.4
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B		4
5	DO	mg/i	APHA 24th Edition, 2023 4500-O-C/G	-	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		78
7	Iron (as Fe)	mg/I	APHA (24th Edition), 3500 Fe B	3	1.73
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.04 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	7.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		27
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		51
16	Total Hardness (as CaCO3 )	mg/I	APHA (24th Edition), 2340 C		39
17	Total Suspended Solid (as TSS)	mg/I	APHA (24th Edition),2540D	50/100	15
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.9

Checked by:-

For Mitra S. K. Private



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Report No. MSKGL/I	Report No. MSKGL/ED/2024-25/003406			
	ANALYSIS REPORT OF SURFACE WATER	R		
Name of the Client	M/s. TATA STEEL LIMITED	alla .		
Name of the Mines				
Date of sampling	24.08.2024	(o mining)		
Location	Sona river near Mahanadi guest house (JWIM	(M)		

#### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	<1.0
2	Boron as B	mg/l	0.2	
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	<1.0
6	Cyanide as CN	mg/l	0.2	<0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	
12	Nitrate as NO3	mg/I	10	2
13	Zinc as Zn			0.96
14		mg/l	5	<1.0
1950	Total coliform	/100ml	***	Present

Checked by: Soulate

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/20	24-25/003408	Date: 31.08.2024
	ANALYSIS REPORT OF Surface Water	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	Baitarani River Kandara Village (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		7.8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B	-	12
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		116
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	4.2
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	12.2	5.6
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agrecabl
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.06 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	17
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	27
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		74
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		43
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	248
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.86

Checked by:-

For Mitra S. K. Private

MSK TESTING - INSPECTION

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Report No. MSKGI	/ED/2024-25/003408	Date: 31.08.202	
	ANALYSIS REPORT OF SURFACE WATER		
Name of the Client	M/s. TATA STEEL LIMITED		
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JW	IMM)	
Date of sampling	24.08.2024		
Location	Baitarani River Kandara Village (JWIMM)		

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	2.2
2	Boron as B	mg/l		
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	11
6	Cyanide as CN	mg/l	0.2	15.2 <0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.2
9	Lead as Pb	mg/l	0.1	2.6
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	III Section
12	Nitrate as NO3	mg/l	10	61
13	Zinc as Zn	mg/l	5	1.28
14	Total coliform	/100ml		22.1 Present

Checked by: - Suchale

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/20	24-25/003407
	ANALYSIS REPORT OF Surface Water
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.08.2024
Location	Sona River before confluence with Baitarani River (JWIMM)

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Avening	Max. Tolerance Limit as per CPCB	Results
2	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	18
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B	230	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		16
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		6.1
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	174
8	Magnesium (as Mg)	mg/l		3	1.3
9	Odour	-	APHA (24th Edition), 3500 Mg B	***	8.5
10	DOMANTO.	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeabl
-	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.09 PSI
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	19
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		71771
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		49
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		101
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		82
8	pH value at 19.2 deg C	None		50/100	5.6
	per value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.86

Checked by:-

For Mitra S. K. Private

Authorized Signatory

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Report No. MSKGL	Report No. MSKGL/ED/2024-25/003407			
	ANALYSIS REPORT OF SURFACE WATER			
Name of the Client	M/s. TATA STEEL LIMITED			
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JW	/IMM\		
Date of sampling	24.08.2024	in i		
Location	Sona River before confluence with Baitarani River	r (TWDMM)		

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	
2	Boron as B	mg/l	0.2	1
3	Cadmium as Cd	mg/l	2	9.4
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/t	3	
6	Cyanide as CN	mg/l	0.2	<1.0
7	Fluoride as F	mg/l	2	100000
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.2
9	Lead as Pb	mg/l	0.1	<0.01
10	Mercury as Hg	mg/l	0.01	<1.0 <1.0
11	Manganese as Mn	mg/l	2	
12	Nitrate as NO3	mg/l	10	<1.0
13	Zinc as Zn			1.64
14		mg/l	5	<1.0
14	Total coliform	/100ml		Present

Checked by: - Sulat

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/20	24-25/003409	D
	ANALYSIS REPORT OF Surface Water	Date: 31.08.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024 (JWIMM)	
Location	Bhuia Roida Village Pond Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Michiod	Max. Tolerance Limit as per CPCB	Results
2	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
3	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		13
-	Chemical Oxygen Demand (COD)	mg/I	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B		6.3
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	3
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		97
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	-
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.23
9	Odour	mg/l	APHA (24th Edition), 2150B		3
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeabl
П	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	Α Ι	<0.001
13	Sulphate (as SO4)	mg/l	APHA (24th Edition), 4500 SO42-E	1 2 7 7	0.05 PSI
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	7.6
15	Total Dissolved Solids (as TDS)	mg/l		1.000	34
16	Total Hardness (as CaCO3 )		APHA (24th Edition), 2540C		59
17		mg/l	APHA (24th Edition), 2340 C		43
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	59
7	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.71

Checked by:--

For Mitra S. K. Private

**Authorized Signatory** 

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	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.08.2024
Location	Bhuia Roida Village Pond Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	1.0
2	Boron as B	mg/l		1.8
3	Cadmium as Cd	mg/l	2	4.8
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	<1.0
6	Cyanide as CN	mg/l	0.2	2.2 <0.02
7	Fluoride as F	mg/l	2	
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.2
9	Lead as Pb	mg/I	0.1	<0.01
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	<1.0
12	Nitrate as NO3	mg/l	10	34.8
13	Zinc as Zn			1.64
13		mg/l	5	<1.0
14	Total coliform	/100ml		Present

Checked by: - Gustato

For Mitra S. K. Private Limited

MSK

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Report No. MSKGL/ED/2024-25/003999		Date: 30.09,2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	16.09.2024	
Location	Bichakundi Vegetable Garden Pond (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		15
3	Chemical Oxygen Demand (COD)	mg/I	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	***	10
5	DO	mg/I	APHA 24th Edition, 2023 4500-O- C/G		6.3
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	777	140
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.17
8	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B		5.8
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.07 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	11.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	55
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	86
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		61
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	19
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	7.1

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/	2024-25/003999 Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Bichakundi Vegetable Garden Pond (JWIMM)

#### CHEMICAL ANALYSIS OF WATER

SI.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	10
2,	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	8.9
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	1.12
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	5.2
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
8.	Cyanide (as CN) in mg/I	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	-	6.3
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B	<del></del> 3	<1.8

Checked by:-

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING INSPECTION

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Report No. MSKGL/ED/202	4-25/003995 Date: 3	0.09.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s, TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	16.09.2024	
Location	Sona river near Pichlaghat pump house (downstream) (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		11
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B		2
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G	224	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	-	115
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	5.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agrecable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	***	0.06 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	12.2
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		42
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	70
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	9.3
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	7.18

Checked by:

For Mitra S. K. Private Limited

TESTING + INSPECTION

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Report No. MSKGL/ED/2	2024-25/003995 Date: 30.09,202
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Sona river near Pichlaghat pump house (downstream) (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	10
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	4.8
5.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.66
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	5.4
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
8.	Cyanide (as CN) in mg/l	IS 3025 (Part 27); 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/I	IS 3025 (Part 47): 1994 (RA 2019)	0,1	<0.01
10.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in mg/I	IS 13428-2005(Annex L); RA:2018	_	3.5
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		1800

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For Mitra S. K. Private Limited

MSK TESTING INSPECTION

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Report No. MSKGL/ED/202	Date: 30.09.2024	
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	y .
Date of sampling	16.09.2024	
Location	Sona river near Pichlaghat pump house (upstream) (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B	_	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G		5.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	-	136
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	6.7
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.9
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.07 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		18.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	38
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		82
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	***	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	14
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	7.11

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/2024	4-25/004145	Date: 03.10.2024
	ANALYSIS REPORT OF DRINKING WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	18.09.2024	
Location	Bichakundi Admin Office RO (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.No	Test Parameter Colour in Hazen Units	Test Method	Limit As Per I RA: 2018	Result	
1.			AcceptableLimit	Permissible Limit	
2	The state of the s	IS 3025 (Part 4): 2021	5	15	<5
	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992 ; RA 2019	0.05	1.5	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	1.0	1.5	1777
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59); 2023	0.1	0.3	<0.1
5,	Nitrate (as NO <sub>5</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	YES C	0.74
6.	Selenium(as Se) in mg/l	IS 15303-2003; RA: 2018	0.01	No Relaxation	0.69
7.	Silver (as Ag) in mg/l	IS 13428:2005 Annex J. (RA: 2018)		No Relaxation	< 0.03
8.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA; 2019	0.1	No Relaxation	<0.1
9.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	5	15	< 0.02
10.	Cyanide (as CN) in mg/I	The state of the s	0.003	No Relaxation	<0.007
11.	Lead (as Pb) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.05	No Relaxation	< 0.02
12.	Mercury (as Hg) in mg/I	IS 3025 (Part 47): 1994 (RA 2019)	0.01	No Relaxation	< 0.01
13.	Nickel (as Ni) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.001	No Relaxation	< 0.001
14.		IS 3025(Part 54):2003 (RA 2019)	0.02	No Relaxation	<0.02
10000	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.01	No Relaxation	< 0.01
15.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2003 (RA 2019)	0.05	No Relaxation	<0.05
16.	Silica (SiO <sub>2</sub> ) in mg/l	APHA 24th Edition-2023, 4500 SiO <sub>2</sub> C		THE THE MANAGEMENT	
17.	Total coliform in /100ml	IS 15185	Absent	Absent	<0.1
18.	E. coli in /100ml	IS 15185	Absent	Absent	Present

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/202	4-25/004157	Date: 03.10.2024
	ANALYSIS REPORT OF DRINKING WATER	D W.C. 05.10.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Joda Project Camp Canteen Aquaguard (JWIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
1	Ammonical Nitrogen	11111112		Desirable Limit	Permissible Limit	Results
	The state of the s	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	-
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	21
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable		9.9
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	- ABreedible	Agreeable	Agreeable
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B			96
7	Magnesium (as Mg)			0.3	No Relaxation	< 0.05
-0.0		mg/I	APHA (24th Edition), 3500 Mg B	30	100	4.8
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Caloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	-		
10	Salinity	PSU	APHA (24th Edition), 2520B	_		<1.0
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B			0.05 PSU
12	Sulphate ( as SO4 )			****		2.06
13	Taste	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
000		None	IS 3025 (Part 8)-1983 Rffm:2012_(O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	17
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200		59
17	Total Suspended Solid (as TSS)	mg/l			600	73
18	Turbidity		APHA (24th Edition),2540D			<2.5
19	The state of the s	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
3	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.72

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/	2024-25/003994 Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Sona river near Pichlaghat pump house (upstream) (JWIMM)

#### CHEMICAL ANALYSIS OF WATER

SI.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	5
2.	Copper(as Cu) in mg/l IS 3025 (Part 42): 1992; RA 3.0 2019		<0.02	
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F	2.0	<0.1
4.	Manganese (as Mn) in mg/l	I5 3025 (Part 59): 2023	2.0	5.1
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.61
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	3.8
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	<0.002
8.	Cyanide (as CN) in mg/I	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	***	2.5
13.	Rexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		<1.8

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/202	4-25/003996	ate: 30.09.2024
Name of the Client	ANALYSIS REPORT OF SURFACE WATER M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	16.09.2024	
Location	Keth hutting before H-Quarry (upstream) (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
-	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	6.5
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl.)	mg/l	APHA (24th Edition), 4500 -CI B		4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G		6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	90
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	3.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	_	2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	27786
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0
12	Salinity	PSU	APHA (24th Edition), 2520B		0.05 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		13.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		21
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C		54
16	Total Hardness (as CaCO3 )	mg/I	APHA (24th Edition), 2340 C	***	28
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	7.09

Checked by:- N

For Mitra S. K. Private Limited

Authorized Signator

& Baudhan

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Report No. MSKGL/ED/	2024-25/003996
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Keth hutting before H-Quarry (upstream) (JWIMM)

### CHEMICAL ANALYSIS OF WATER

SI.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	<5
2.	Copper(as Cu) in mg/l IS 3025 (Part 42): 1992; RA 3.0 2019			<0.02
3.	Fluoride(as F) in mg/)	APHA 24th Edition 2023, 4500 F	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	6.1
5.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.72
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	4.1
7.	Cadmium (as Cd) in mg/I	IS 3025 (Part 41): 2023	2.0	<0.002
8.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018		3.2
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B	***	2400

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For Mitra S. K. Private Limited

3/2

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Report No. MSKGL/ED/2024-25/003997		Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)		
Date of sampling	16.09.2024	
Location	Keth hutting after H-Quarry (downstream) (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as C1 )	mg/I	APHA (24th Edition), 4500 -Cl B	-	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G		6.2
6	Electrical conductivity	us/em	APHA (24th Edition), 2510B	***	98
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	4
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agrecable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.05 PSU
13	Sulphate (as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	12.2
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		29
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	61
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	33
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500 H+B	5.5-9.0	7.26

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/	2024-25/003997 Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Keth hutting after H-Quarry (downstream) (JWIMM)

#### CHEMICAL ANALYSIS OF WATER

Si.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	5
2,	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	4.1
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.57
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	3.2
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
8.	Cyanide (as CN) in mg/I	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/1	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	-	2.4
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B	***	3000

Checked by:-

For Mitra S. K. Private Limited

TESTING . INSPECTION



At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2024-25/003998		Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client M/s. TATA STEEL LIMITED		
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	16.09.2024	
Location	Sona river near Mahanadi guest house (JWIMM)	

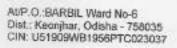
### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	175	18
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl.)	mg/l	APHA (24th Edition), 4500 -CI B		6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G	-	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	+4+	142
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.4
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	****	4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.07 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		10.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		59
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		87
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		65
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	14
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	6.94

Checked by:

For Mitra S. K. Private Limited

TESTING INSPECTION



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Report No. MSKGL/ED/	2024-25/003998 Date: 30.09.2
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Sona river near Mahanadi guest house (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sł.No	Test Parameter	Test Method	Umit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	<5
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/I	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	5.6
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.77
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	5.9
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	<0.002
8.	Cyanide (as CN) in mg/I	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47); 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/I	IS 3025 (Part 37): 2022	0.2	< 0.01
12.	Boron(as B) in rng/l	IS 13428-2005(Annex L); RA:2018	-	7.8
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr 8	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		<1.8

Checked by:

For Mitra S. K. Private Limited



AtrP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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 Report No. MSKGL/ED/2024-25/004042
 Date: 30.09.2024

 ANALYSIS REPORT OF SURFACE WATER

 Name of the Client
 M/s. TATA STEEL LIMITED

 Name of the Mines
 JODA WEST IRON & MANGANESE MINES (JWIMM)

 Date of sampling
 16.09.2024

 Location
 Baitarani River Kandara Village (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	11
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	4.8
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B.	-	2
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G	-	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		89
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.01
8	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B		2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agrecable	Agreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.04 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		5.4
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		34
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		53
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		40
17	Total Suspended Solid (as TSS)	mg/I	APHA (24th Edition),2540D	50/100	12
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500 H+B	5.5-9.0	6.61

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory

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At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING . INSPECTION

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Report No. MSKGL/ED		Date: 30.09.2024
	ANALYSIS REPORT OF SURFACE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	16.09.2024	
Location	Baitarani River Kandara Village (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	5
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	10.2
5.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.98
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	9.5
7.	Cadmium (as Cd) in mg/I	IS 3025 (Part 41): 2023	2.0	<0.002
8.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/I	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
10.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	<0.01
12.	Boron(as B) in mg/I	IS 13428-2005(Annex L); RA:2018		8.1
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edin, 9221B	***	<1.8

Checked by:-(BG

For Mitra S. K. Private Limited

AUP O: BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 MSK TESTING INSPECTION

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Report No. MSKGL/ED/2024-25/003994  ANALYSIS REPORT OF SURFACE WATER		Date: 30.09.2024
Name of the Client	M/s, TATA STEEL LIMITED	
Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)		
Date of sampling	16.09,2024	
Location	Sona River before confluence with Baitarani River (JWIMM	)

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	3344104	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		21
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/I	APHA (24th Edition), 4500 -CI B		10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	-	5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		153
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.14
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		4.8
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.08 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		14.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		63
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	444	92
16	Total Hardness (as CaCO3 )	mg/I	APHA (24th Edition), 2340 C	***	-
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	73
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	6.9

Checked by:

For Mitra S. K. Private Limited

Excuelly

Authorized Signatory

At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51809WB1956PTC023037 TESTING INSPECTION

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Report No. MSKGL/EI	0/2024-25/003994 Date: 30.09.202
	ANALYSIS REPORT OF SURFACE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	16.09.2024
Location	Sona River before confluence with Baitarani River (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto inland Surface Water	Resul
15.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	10
16.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
17.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
18.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	8.2
19.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.86
20.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	6.1
21.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	<0.007
22.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
23.	<ol> <li>Lead (as Pb) in mg/l</li> <li>Lead (as Pb) in mg/l</li> <li>15 3025 (Part 47): 194</li> <li>2019)</li> </ol>		0.1	<0.01
24.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
25.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
26,	Boron(as B) in mg/I	IS 13428-2005(Annex L); RA:2018	- 1	4.4
27.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
28.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		<1.8

Checked by:

For Mitra S. K. Private Limited

AUP O: BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING . INSPECTION

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Report No. MSKGL/ED/20	Report No. MSKGL/ED/2024-25/004000			
	ANALYSIS REPORT OF SURFACE WATER			
Name of the Client				
Name of the Mines	Control of the Contro			
Date of sampling	16.09.2024			
Location	ocation Bhuia Roida Village Pond Water (JWIMM)			

#### CHEMICAL ANALYSIS OF WATER

St. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	_	23
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	6.8
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B		18
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		4.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		160
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.21
8	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B		4.8
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/i	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.08 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		6.2
14	Total Alkalinity	mg/I	APHA (24th Edition), \$210B		76
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		100
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		77
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	23
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	7.01

Checked by:

For Mitra S. K. Private Limited



At/P.O. BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED	Report No. MSKGL/ED/2024-25/004000		
	ANALYSIS REPORT OF SURFACE WATER		
Name of the Client M/s. TATA STEEL LIMITED			
Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)			
Date of sampling	16.09.2024		
Location Bhuin Roida Village Pond Water (JWIMM)			

#### CHEMICAL ANALYSIS OF WATER

SI.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	15
2.	Copper(as Cu) in mg/I	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	11.4
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	1.52
6.	Zinc(as Zn) in mg/I	IS 3025(Part 49)-1994;RA: 2019	5.0	8.6
7.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
8.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
9.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0,1	<0.01
10.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
11.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	<0.01
12.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	-	7.5
13.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		<1.8

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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





### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Sample No.:

Date:

MSKPL/FD/2024-25/8R5379 1

25/08/2024

MSKNB/FD/2024-25/06/G0U3FC\_1

Date of receipt of sample:

06/06/2024

Date(s) of performance:

06/06/2024 - 25/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	Ground Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	05/08/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Bichakundi Borewell No-3 Micro activity Centre (JWIMM) (2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/6R5379\_1

Sample No.: MSKNB/FD/2024-25/06/G0U3FC\_1

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/i	IS 3025 (Part 2)	
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:0.001)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
10	Nickel (as Ni)	mg/i	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.003)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Atrayer Sam P. Genyndy Me. Alrayon Saha, Ms. Plat Conguly

Designation Sr. Executive Chemist Authorized Signatory

Designation

Head Office:

Shrachi Centre (Stri Ploor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22850007 Fax: 91 33 22650008 Email: info@minask.com Website: www.mitrask.com

Page 1 of 2

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The reserved part of sample(s) for charmost analysis (Non. - permission sample(s)) Food, Waterly shall be retained by 15 days from the date of source of the Test Report. Pertainable sample(s) and be retained 2 days from the date of source of the Test Report.

The reserved part of sample(s) for observed analysis (Non. - pertainable sample(s) shall be retained by 15 days as per CPCD guideline & (Air) 1 records from the date of boxes of the Test Report.

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

Perfainable sample(s) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Sheach Centre (5th Floor), 74B. A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22550007 Fax: 91 33 22950006 Ernet : info@mitresk.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





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#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AbPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

MSKPL/FD/2024-25/6R5379\_1

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/G0U3FC\_1

06/06/2024

Date of receipt of sample: Date(s) of performance:

06/06/2024 - 08/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	Ground Water
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	05/06/2024
5. Place of sampling	Bichakundi Borewell No-3 Micro activity Centre (JWMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25)2022
8. Identification of the personnel performing sampling by MSK	Lokneth Maharita

Report No.: MSKPL/FD/2024-25/6R5379\_1

Sample No.: MSKNB/FD/2024-25/06/G0U3FC\_1

#### RESULT

Micro Biology				
Si No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Detected

Opinion:

NA

END -

Reviewed By

Signature

vee Chekraborty

Designation : Executive Microbiologist Authorized Signatory

Signature

Marse

Designation | Technical In charge

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

The results valide city to the itemps) tested.

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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 a form the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soid & Liquid Weste) shall be retained for 15 days as per CPCS guidaline & (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, Seated Water, Seated food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shrechi Centre (Sth Floor), 748, A.J.C. Bose Road, Kellutts -700016, West Bergal, India Twl.: 91 33 40143000 / 22550007 Fax: 91 33 22650008 Errell: info@mirask.com Website: www.mirask.com

Page 1 of 1

AbP.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



T:+91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	Date: 21 06 202	
	ANALYSIS REPORT OF GROUND WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	05.06.2024 MANGANESE MINES (JWIMM)	
Location	Bichakundi Borewell No-3 Micro activity Centre (JWIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
1	Ammonical Nitrogen	0.00000000	615537 <del>377 H</del>	Desirable Limit	Permissible Limit	Results
_ []]	Control of the Contro	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	<0.1
3	Chloride (as CI)	mg/l	APHA (24th Edition),4500 -Cl B	250		27
4	Odour	- 0.00		430	1000	22
5	Electrical conductivity	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
	Iron (as Fe)	us/cm	APHA (24th Edition),2510B	104	***	152
6	1	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	0.06
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	Assass
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/I	APHA (24th Edition), 3500 K B	Dres.	750000	-0.001
10	Salinity	PSU	APHA (24th Edition), 2520B	1850		<1.0
11	Sodium (as Na)	mg/l		***	***	0.08
12	Sulphate (as SO4)	0.00	APHA (24th Edition), 3500 Na B	***	- <del> </del>	10
13		mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
7040	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	Agreeable
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	100000	30
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	1110000.11	2000	94
17	Total Suspended Solid (as TSS)	1000000		200	600	87
18	Turbidity	mg/l	APHA (24th Edition),2540D			<2.5
100		N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.76

Checked by -

For Mitra S. K. Private Limited

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Report No.:

MSKPL/FD/2024-25/5C537X\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/NB4406\_1

Date of receipt of sample:

06/06/2024

Date(s) of performance:

06/06/2024 - 25/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	Ground Water
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	05/06/2024
5. Place of sampling	Bichakundi Borewell No-1 (Near Community Toilet) (JWIMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/5C537X 1

Sample No.: MSKNB/FD/2024-25/06/NB4406\_1

### RESULT

hemical				
Si No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.006)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/t	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/I	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Atrospe Same P. Genynly: Mr Arapon Sama Mr Prisi Cargay

Designation

Sr. Executive Chemist

Authorized Signatory

Designation : Lab in charge

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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Opinion: NA

- END ----

Reviewed By:

Signature

Nane

Designation

Albayor Sana P. Gonzuly
Ms. Albayor Sana, Ms. Piki Gangaly Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Lab in charge

The results retire only to the iteratic leaded.
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The reserved part of sample(s) for character analysis (Mon - persistance complete) Privat. Water) shall be estimated for 15 days from the State of leave of the Test Report. Perishable sample(s) for character analysis (Social S.E.) shall be retired by the retired for 15 days are per CPCB guideline S. (As) 1 records from the State of leave of the Test Report.
The reserved part of sample(s) for Miles disclogical analysis (Non - perishable sample(s) Food. Scaled Water, Scaled Scot) statilize of the Test Report.
The reserved part of sample(s) for Miles disclogical analysis (Non - perishable sample(s) Food. Scaled Water, Scaled Scot) statilize of the Test Report.
The reserved part of sample(s) for Miles disclogical analysis (Non - perishable sample(s) Food. Scaled Water, Scaled Scot) statilize of the Test Report.
The reserved part of sample(s) for Miles disclogical analysis (Non - perishable sample(s) Food. Scaled Water, Scaled Scot) statilized for 15 days from the date of issue of the Test Report.

Head Office:

Strachi Centre (5th Floor), 748, A.J.C. Bose Rosd, Kolkets - 700016, West Bengal, India. Tel.: 91 33 40143000 / 23550007 Fax: 91 33 23500006 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

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Name & Address of Customer: Report No. :

MSKPL/FD/2024-25/5C537X\_1

Date:

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/NB4406\_1

Date of receipt of sample:

06/06/2024

Date(s) of performance:

06/06/2024 - 08/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	1 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
3. Unique Identification of sample(if any)	Ground Water
4. Date of sampling	NA .
5. Place of sampling	05/06/2024
	Bichakundi Borewell No-1 (Near Community Toilet) (JWIMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25)2022
8. Identification of the personnel performing sampling by MSK	Loknath Mahanta

Report No.: MSKPL/FD/2024-25/5C537X\_1

Sample No.: MSKNB/FD/2024-25/05/NB4408\_1

#### RESULT

Micro Biology				
Method	Percit			
IS 15185	Result			
	Not Detected Detected			
	IS 15185			

Opinion:

END -

Reviewed By

Signature

Designation

eyee Chakraborty

Executive Microbiologist

Authorized Signatory

Signature Name

Designation : Technical in charge

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

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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.

The reserved part of sample(s) for chemical analysis (Soli, Solid & Liquid Weste) 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 - parishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kalkata - 700016, West Bengal, India Tel.: 91 53 40143000 / 22950007 Fax: 91 33 22950006 Email info@mitrask.com Website www.mitrask.com

Page 1 of 1

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T :+91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com



Report No. MSKGL/ED/202	4-25/002059
	ANALYSIS REPORT OF GROUND WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	05.06.2024 WINES (WIMM)
Location	Bichakundi Borewell No-1 (Near Community Toilet) (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
1	Ammonical Nitrogen	300000	100400000	Desirable Limit	Permissible Limit	Results
	The state of the s	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	-0.1
3	Chloride (as CI)	mg/l	APHA (24th Edition),4500 -CI B	250	1000	3
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012		-3/2/5	8
5	Electrical conductivity	us/cm		Agreeable	Agreeable	Agreeable
6	Iron (as Fe)	-	APHA (24th Edition),2510B	***	***	45
		mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	< 0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	
8	Phenolic Compound (asC6H5OH)	mg/I	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	***		- ASSESSMENT
10	Salinity	PSU	APHA (24th Edition), 2520B		1000	<1.0
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B		****	0.02
12	Sulphate (as SO4)			***	+++	4.7
13	Taste	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
		None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	4
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200		27
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		600	12
18	Turbidity			. 1000	-	<2.5
19	The state of the s	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
.,	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.84

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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### TEST REPORT

Report No.:

MSKPL/FD/2024-25/K1538N\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/08/13L3FU\_1

Date of receipt of sample:

06/06/2024

Date(s) of performance:

06/06/2024 - 25/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Minter & Berild of Maria
2. Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Ground Water
4. Date of sampling	NA NA
	05/06/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Bichakundi Borewell No-3 Micro activity Centre (JWIMM)
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained
P. Identification of the control used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Akash Ku. Sethy

Report No.: MSKPL/FD/2024-25/K1538N\_1

Sample No.: MSKNB/FD/2024-25/06/13L3FU\_1

### RESULT

hemical				
SI No.	Parameter	UOM	Method	
1	Arsenic as As		The state of the s	Result
2	Cadmium as Cd	mg/t	IS 3025 (Part 2)	BDL(DL:0.005)
3		mg/f	IS 3025 (Part 2)	BDL(DL:0.001)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)
4	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	
5	Iron as Fe	mg/l		BDL(DL:0.01)
6	Lead as Pb		IS 3025 (Part 2)	BDL(DL:0.05)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	The state of the s	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
-	Selenium as Se	mg/l	IS 3025 (Part 2)	The state of the s
10	Zinc as Zn	mg/l	The state of the s	BDL(DL:0.005)
APPENDING TO SERVICE T		I iiigii	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

- END -----

Reviewed By

Signature

Africagee Scale P. Gaynly: Mr. Abbove Sona Mr. Plat Gargury

Name Designation

Sr. Executive Chemist

**Authorized Signatory** 

Lab to ober

Head Office:

Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata -700016, West Bengal, India. Tel.: 91.33.40143000 / 23650007 Fax: 91.33.23650008 Email: Info@mitrask.com Website: www.mitrask.com

Designation

Page 1 of 2

Signature

Altrayor Salar P. Garynly: Mr. Alleron Salar Mr. Pieri Gangay

Designation

Sr. Executive Chemist

Authorized Signatory

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Of the reproduced concept in fell, swite & Liquid Waster) should be retained for 16 does no per CPCS garbeline & (Art) 1 month from the date of bases of the Test Report.

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Head Office:

Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkala - 700016, West Bengal, India. Tel.: 91.33.40143000 / 22550007 Fax: 91.33.22550006 Email: info@minist.com Website: www.minask.com

Page 2 of 2

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

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





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/Q3538G\_1

Date:

25/06/2024

Sample No.:

MSKNB/FD/2024-25/06/EJ840F\_1

Date of receipt of sample:

06/06/2024

Date(s) of performance:

06/06/2024 - 25/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Water & Residue in Water Ground Water NA 05/06/2024
NA 05/06/2024
05/06/2024
Dishelandi Daniel H.M. 4 04
Bichakundi Borewell No-1 (Near Community Toilet) (JWIMM)
(2-5) deg C Cold chain maintained
IS: 13969 (P-11) 2018 Alkash Ku. Sethy

Report No.:

MSKPL/FD/2024-25/Q3538G 1

Sample No.: MSKNB/FD/2024-25/06/EJ840F\_1

#### RESULT

Chemical				
SI No.	Parameter	NOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Copper as Cu	mg/l	The state of the s	BDL(DL:0.001)
4	Hexavalent Chromium (as Cr+6)		IS 3025 (Part 2)	BDL(DL:0.02)
5	Iron as Fe	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Selenium as Se	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10		mg/l	IS 3025 (Part 2)	BOL(DL:0.005)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

END -

Reviewed By:

Signature

Atropyce Saha P. Garynly Mr. Armyros Sono. Mr. Pier Cargaly

Designation

Sr. Executive Charries

Authorized Signatory

Signature

Designation

Name

Lab In charge

Head Office:

Shrachi Centre (Str Floor), 748, A.J.C. Bose Road, Kolkata -700016. Wast Bengal, India. Tel.: 91 33 40143000 / 22650007 flax: 91 33 22550008 Email: Info@mitrask.com Website: www.mitrask.com

Page 1 of 2

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West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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Reviewed By:

Signature Nome

Atraya Saha P. Genyely Mr. Mr. Anthrew Saha Mr. Price Ganguar

Designation

: Sr. Executive Chemist

Authorized Signatory:

Signature

Dosignation

Lab In charge

The results relate only to the flaming bested.
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The Depart shall not be reproduced orders in fall, without the permission of May 6.F. Private Limiter.
The observed part of sample(s) for observed part of sampl

Head Office:

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Page 2 of 2

MSK TESTING INSPECTION

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/202	Date: 30.09.2024	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Bichakundi Borewell No-3 Micro activity Centre (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
No.				Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	3.2
3	Chloride (as CI)	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	14
4	Odour	Hazen	3025 (Part-5)-1983;Rffin:2012	Agreeable	Agreeable	Agrecable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	***		64
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	< 0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	< 0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B			<1.0
10	Salimity	PSU	APHA (24th Edition), 2520B	777		0.03 PSU
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	***	-	3.6
12	Sulphate (as SO4)	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	2.2
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(O)	Agreeable	Agreeable	Agreeable
14:	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	13
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	39
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	16
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D			<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24 <sup>th</sup> Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.48

Checked by:-

For Mitra S. K. Private Limited

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At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/202	4-25/003986 Date: 30.09	.2024
	ANALYSIS REPORT OF GROUND WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	-
Location	Bichakundi Borewell No-3 Micro activity Centre (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.No	Test Parameter	Test Method	Limit As Per I RA: 2018	Result	
100			Acceptable Limit	Permissible Limit	1000000
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	5	15	<5
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	0.05	1.5	< 0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	1.0	1.5	0.13
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	0.1	0.3	0.06
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	No Relaxation	0.58
6.	Selenium(as Se) in mg/I	IS 15303-2003; RA: 2018	0.01	No Relaxation	<0.01
7.	Silver (as Ag) in mg/l	IS 13428:2005 Annex J., (RA: 2018)	0.1	No Relaxation	<0.1
8.	Zinc(as Zri) in mg/1	IS 3025(Part 49)-1994;RA: 2019	5	15	<0.02
9.	Cadmium (as Cd) in mg/I	IS 3025 (Part 41); 2023	0.003	No Relaxation	<0.002
10.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.05	No Relaxation	<0.02
11.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.01	No Relaxation	<0.01
12	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.001	No Relaxation	<0.001
13.	Nickel (as Ni) in mg/l	IS 3025(Part 54):2003 (RA 2019)	0.02	No Relaxation	<0.001
14.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.01	No Relaxation	<0.01
15.	Total Chromium (as Cr) in mg/I	IS 3025 (Part 52): 2003 (RA 2019)	0.05	No Relaxation	< 0.05
16.	Silica (SiO <sub>2</sub> ) in mg/l	APHA 24th Edition-2023, 4500 SiO <sub>2</sub> C		110 INCHARACION	<0.1
17.	Total coliform in /100ml	IS 1518S	Absent	Absent	-
18.	E. coli in /100ml	15 15185	Absent	Absent	Present Absent

Checked by: (L)

For Mitra S. K. Private Limited

AVP.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1958PTC023037

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Report No. MSKGL/ED/202	4-25/003991	Date: 30.09.2024
	ANALYSIS REPORT OF GROUND WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Bichakundi Borewell No-1 (Near Community Toilet) (JWIMM	)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SL No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		Description
				Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	4.8
3	Chloride (as CI)	mg/l	APHA (24th Edition),4500 -CI B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983;Rffin:2012	Agreeable	Agreeable	Agrecable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B		***	60
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	< 0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	7444		<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	8277	277	0.03 PSU
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	2577.6	***	3.52
12	Sulphate (as SO4)	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(O)	Agreeable	Agreeable	Agrecable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	13
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	40
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	16
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		***	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.7

Checked by:

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/202	4-25/003991 Date: 30.09,202
	ANALYSIS REPORT OF GROUND WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	17.09.2024
Location	Bichakundi Borewell No-I (Near Community Toilet) (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl.No	Test Parameter	Test Method	Limit As Per II RA: 2018	Result	
-			Acceptable Limit	Permissible Limit	resuit
19.	Colour In Hazen Units	IS 3025 (Part 4): 2021	5	15	<5
20.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992 ; RA 2019	0.05	1.5	<0.02
21.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	1.0	1.5	0.19
22.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	0.1	0.3	0.13
23.	Nitrate (as NO <sub>5</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	No Relaxation	<0.5
24.	Selenium(as Se) in mg/l	IS 15303-2003; RA: 2018	0.01	No Relaxation	<0.01
25.	Silver (as Ag) in mg/l	IS 13428:2005 Annex J., (RA: 2018)	0.1	No Relaxation	<0.1
26.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	15	<0.02
27.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	0.003	No Relaxation	<0.002
28.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.05	No Relaxation	<0.02
29.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.01	No Relaxation	<0.02
30.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.001	No Relaxation	< 0.001
31.	Nickel (as Ni) in mg/l	IS 3025(Part 54):2003 (RA 2019)	0.02	No Relaxation	<0.02
32.	Total Arsenic (as As) in mg/l	I5 3025 (Part 37): 2022	0.01	No Relaxation	<0.01
33.	Total Chromium (as Cr) in mg/l	(S 3025 (Part S2): 2003 (RA 2019)	0.05	No Relaxation	
34.	Silica (SiO <sub>2</sub> ) in mg/l	APHA 24th Edition-2023, 4500 SiO <sub>2</sub> C	0.00	HO MERIZADON	<0.05
35.	Total coliform in /100ml	IS 15185	Absent	Absent	Present
36.	E. coli in /100ml	IS 15185	Absent	Absent	Absent

Checked by:-

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/202	3-24/003992	Date: 30.09.2024
	ANALYSIS REPORT OF GROUND WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Bichakundi Borewell No-2 Near WTP	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.	Test Parameters	Unite	Method		per IS: 10500- 2012	
No.		Come	Method	Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	4.8
3	Chloride (as Cl)	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	12
4	Odour	Hazen	3025 (Part-5)-1983;Rffin:2012	Agreeable	Agreeable	Agreeabl
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B			70
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	< 0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B			<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	***	-	0.04 PSt
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	777	***	2.4
12	Sulphate (as SO4)	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	2.6
13	Taste	None	IS 3025 (Part 8)-1983Rffm:2012_(O)	Agreeable	Agreeable	Agreeabl
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	17
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	44
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	20
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	-	-	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24 <sup>th</sup> Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.54

Checked by:

For Mitra S. K. Private Limited

AND O. BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED/202	3-24/003992 Date: 30.09.20
	ANALYSIS REPORT OF GROUND WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	17.09.2024
Location	Bichakundi Borewell No-2 Near WTP

# CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.Na	Test Parameter	Test Parameter Test Method		Limit As Per IS 10500 :2012, RA: 2018 Amd. 1 & 2		
1.	Colour in Hazen Units		Acceptable Limit	Permissible Limit	Result	
2.	The state of the s	IS 3025 (Part 4): 2021	5	15	- 5	
3.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992 ; RA 2019	0.05	1.5	<0.02	
	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	1.0	1.5	0.28	
4.	Manganese (as Mn) in mg/l	15 3025 (Part 59): 2023	0.1	0.3	-	
5.	Nitrate (as NO <sub>2</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	No Relaxation	0.43	
6.	Selenium(as Se) in mg/l	IS 15303-2003; RA : 2018	0.01		0.76	
7.	Silver (as Ag) in mg/l	IS 13428:2005 Annex J. (RA: 2018)	0.1	No Relaxation	< 0.01	
8.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	No Relaxation	<0.1	
9.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023		15	0.15	
10.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.003	No Relaxation	<0.002	
11.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.05	No Relaxation	< 0.02	
12.	Mercury (as Hg) in mg/l		0.01	No Relaxation	<0.01	
13.	Nickel (as Ni) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.001	No Relaxation	< 0.001	
14.	Total Arsenic (as As) in mg/l	IS 3025(Part 54):2003 (RA 2019)	0.02	No Relaxation	< 0.02	
15.	Total Chromium (as Cr) in mg/1	IS 3025 (Part 37): 2022	0.01	No Relaxation	< 0.01	
16.	Silica (SiO <sub>2</sub> ) in mg/l	IS 3025 (Part 52): 2003 (RA 2019)	0.05	No Relaxation	< 0.05	
17.		APHA 24th Edition-2023, 4500 SIO <sub>2</sub> C		_	<0.1	
18.	Total coliform in /100ml	IS 15185	Absent	Absent	Present	
20,	E. coli in /100ml	15 15185	Absent	Absent	Absent	

Checked by:

For Mitra S. K. Private Limited

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Report No. MSKGL/ED/202	3-24/003987	Date: 30.09.2024
	ANALYSIS REPORT OF GROUND WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Borewell inside 5T school Roida	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SL No.	Test Parameters	Unite	Method		per IS: 10500- 2012	
	10 40 45 40 40 40 40 40 40 40 40 40 40 40 40 40			Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	31
3	Chloride (as CI)	mg/I	APHA (24th Edition),4500 -Cl B	250	1000	22
4	Electrical conductivity	us/cm	APHA (24th Edition),2510B		- Alexander	Agreeable
5	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	245
6	Odour	None	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	< 0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	17
8	pH value at 23 deg C	None	APHA 24 <sup>th</sup> Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	<0.001
9	Potassium (as K)	mg/I	APHA (24th Edition), 3500 K B	***	***	<1.0
10	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	0.12 PSU
11	Salinity	PSU	APHA (24th Edition), 2520B		***	12.2
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	-		11.4
13	Sulphate ( as SO4 )	mg/I	APHA (24th Edition) 4500 SO42-E	200	400	Agreeable
14	Taste	None	IS 3025 (Part 8)-1983Rffm:2012 (O)	Agreeable	Agrecable	97
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	153
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	149
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D			₹.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0 6.52

Checked by:

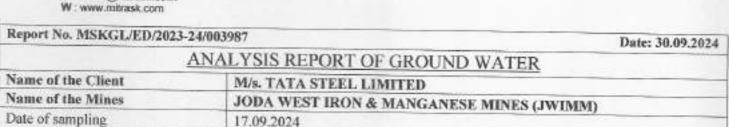
For Mitra S. K. Private Limited

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Location



Borewell inside 5T school Roida

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI.No	Test Parameter	Test Method	Limit As Per IS 10500 :2012, RA: 2018 Amd. 1 & 2		Result
_			Acceptable Limit	Permissible Limit	1000
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	5	15	<5
2	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992 ; RA 2019	0.05	1.5	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	1.0	1.5	0.15
4.	Manganese (as Mn) in mg/l	15 3025 (Part 59): 2023	0.1	0.3	0.07
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	No Relaxation	<0.5
6.	Selenium(as Se) in mg/l	I5 15303-2003; RA: 2018	0.01	No Relaxation	<0.01
7.	Silver (as Ag) in mg/l	IS 13428:2005 Annex J , (RA: 2018)	0.1	No Relaxation	<0.1
8,	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	15	0.09
9,	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	0.003	No Relaxation	<0.002
10.	Cyanide (as CN) in mg/l	15 3025 (Part 27): 1986(RA 2019)	0.05	No Relaxation	<0.002
11.	Lead (as Pb) in mg/l	(5 3025 (Part 47): 1994 (RA 2019)	0.01	No Relaxation	<0.01
12.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.001	No Relaxation	<0.001
13.	Nickel (as Ni) in mg/l	IS 3025(Part 54):2003 (RA 2019)	0.02	No Relaxation	<0.001
14.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.01	No Relaxation	
15.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2003 (RA 2019)	0.05	No Relaxation	<0.01
16.	Silica (SiO <sub>2</sub> ) in mg/l	APHA 24th Edition-2023, 4500 SiO <sub>2</sub> C	0.03	NO REMOVED ON	<0.05
17.	Total coliform in /100ml	15 15185	Absent	Absent	<0.1
18.	E. coli in /100ml	IS 15185	Absent	Absent	Absent Absent

Checked by:

For Mitra S. K. Private Limited

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Name & Address of Customer:

Report No. :

MSKGL/ED/2024-25/004051

Tata Steel Ltd.(MGM)\_Joda West

Date:

30/09/2024

At/Po. - Joda, Dist. - Kaonjhar, Odisha - 758034 India Pin

Sample No.:

MSKGL/ED/2024-25/09/01567

Drawn/Submitted on:

16/09/2024

Reference No. & Date: 3000158017, Date - 28/09/2023

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

Description of sample (As declared by customer)	Ground Water (Trace Metal)
2. Sample Mark (if any, given by the customer)	Joda West Iron & Mn Mine
3. Date of sampling	16/09/2024
4. Place of sampling	Bichakundi Borewell No-1 Near Community Toilet
5. Environmental conditions during sampling	Rainy
6. Sampling Plan & Procedures used	NA NA

Report No.:

MSKGL/ED/2024-25/084051

Sample No.:

MSKGL/ED/2024-25/09/01567

#### **ANALYSIS RESULT**

SI No.	Test Parameters	Unit	Test Method	Result
1	Copper (as Cu)	mg/l	IS 3025 (Part 2)	< 0.02
2	Iron (as Fe)	mg/t	IS 3025 (Part 2)	< 0.05
3	Manganese (as Mn)	mg/t	IS 3025 (Part 2)	<0.02
4	Selenium (as Sa)	mg/l	IS 3025 (Part 2)	<0.005
5	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	<0.001
6	Lead (as Pb.)	mg/l	18 3025 (Part 2)	<0.005
7	Mercury (as Hg.)	mg/l	IS 3025 (Part 48)	<0.0002
8	Arsenio( as As)	mg/l	IS 3025 (Pert 2)	<0.005
9	Zinc (as Zn)	mg/l	15 3025 (Part 2)	<0.02
10	Hexavalent Chromium (as Cr+6)	ng/i	(S 3025 (Part 52)	<0.01

DL: Detection Limit

BDL : Below Detection Limit

Opinion: All the parameters are analysed in NABL accredited laboratory.

Report Verified By (88

For Mitra S. K. Private Limited

**Authorised Signatory** 

\* This results relate only to the Bam(s) tested.

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Shrechi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tol.: 91 33 40143000 / 22650007 Fax: 91 33 22650008

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



Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odishs - 758034 India Pin

Report No.:

MSKGL/ED/2024-25/004054

Date:

30/09/2024

Sample No.:

MSKGL/ED/2024-25/09/01568

Drawn/Submitted on:

16/09/2024

Reference No. & Date: 3000156017, Date - 28/09/2023

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

Description of sample (As declared by customer)	Ground Water (Trace Metal)
2. Sample Mark (if any, given by the customer)	Joda West Iron & Mn Mine
3. Date of sampling	16/09/2024
4. Place of sampling	Bichakundi Borewell No-2 Near WTP
5. Environmental conditions during sampling	Rainy
6. Sampling Plan & Procedures used	NA NA

Report No.:

MSKGL/ED/2024-25/004054

Sample No.:

M\$KGL/ED/2024-25/09/01668

#### ANALYSIS RESULT

SI No.	Test Parameters	Unit	Test Method	Result
1	Copper (as Cu)	mg/l	IS 3025 (Part 2)	< 0.02
2	iron (as Fe)	mg/t	IS 3025 (Part 2)	<0.05
3	Manganese (as Mri)	mg/l	IS 3025 (Part 2)	<0.02
4	Selenium (as Se)	mg/i	IS 3025 (Part 2)	<0.005
5	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	<0.001
6	Lead (as Pb.)	mg/f	IS 3025 (Part 2)	<0.005
7	Mercury (as Fig.)	mg#	IS 3025 (Part 48)	< 0.0002
8	Arsenic( as As)	mg/l	IS 3025 (Part 2)	<0.005
9	Zinc (as Zn)	mg/l	IS 3025 (Part 2)	<0.02
10	Hexavalent Chromium (as Cr+6)	mgrt	IS 3025 (Part 52)	<0.01

DL: Detection Limit

BDL: Below Detection Limit

Opinion: All the parameters are analysed in NABL accredited laboratory.

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolketa - 700016, West Bengal, India. Tel.: 91 33 40143090 / 22650007 Fax: 91 33 22650008

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

This results relate only to the Rem(s) tested.

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Name & Address of Gustomer:

Report No.:

MSKGL/ED/2024-25/004056

Tata Steel Ltd.(MGM)\_Joda West

Date:

30/09/2024

At/Po. - Jods, Dist. - Keonjhar, Odisha - 758834 India Pin

Sample No.:

MSKGL/ED/2024-25/09/01569

Drawn/Submitted on :

16/09/2024

Reference No. & Date: 3000156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us / submitted by the customer has been analyzed with the following

Description of sample (As declared by customer)	Ground Water (Trace Metal)
2. Sample Mark (if any, given by the customer)	Joda West Iron & Mn Mine
3. Date of sampling	16/09/2024
4. Place of sampling	Bichakundi Borewell No-3 Near Micro Activity Centre
5. Environmental conditions during sampling	Rainy
6. Sampling Plan & Procedures used	NA NA

Report No. :

MSKGL/ED/2024-25/004056

Sample No. :

MSKGL/ED/2024-25/09/01569

#### ANALYSIS RESULT

SI No.	Test Parameters	Unit	Test Method	Result
1	Copper (as Cu)	mg/	IS 3025 (Part 2)	<0.02
2	Iron (as Fe)	mgA	IS 3025 (Part 2)	<0.05
3	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	<0.02
4	Selenium (as Se)	mg/l	IS 3025 (Part 2)	<0.005
5	Cadmium (as Cd)	mg/l	IS 3025 (Part 2)	< 0.001
6	Lead (as Pb )	mg/l	IS 3025 (Part 2)	<0.005
7	Mercury (as Hg )	mg/l	IS 3025 (Part 48)	<0.0002
8	Arsenic( as As)	mg/l	IS 3025 (Part 2)	<0.005
9	Zinc (as Zn)	mg/l	15 3025 (Part 2)	< 0.02
10	Hexavalent Chromium (as Cr+6)	mg/l	15 3025 (Part 52)	<0.01

DL: Detection Limit

**BOL** : Below Detection Limit

Opinion: All the parameters are analysed in NABL accredited laboratory.

Report Verified By

For Mitra S. K. Private Limited

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

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Name & Address of Customer:

Report No.:

MSKGL/ED/2024-25/004058

Tata Steel Ltd.(MGM)\_Joda West

Date:

30/09/2024

At/Po. - Joda, Dist. - Koonjhar, Odisha - 758024 India Pin

Sample No.:

MSKGL/ED/2024-25/09/01570

Drawn/Submitted on:

16/09/2024

Reference No. & Date: 3000156017, Date - 28/09/2023

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

<ol> <li>Description of sample (As declared by customer)</li> </ol>	Ground Water (Trace Metal)	
2. Sample Mark (if any, given by the customer)	Jida West Iron & Mn Mine	
3. Date of sampling	16/09/2024	
4. Place of sampling	Borewell inside 5t school Roida	-
5. Environmental conditions during sampling	Rainy	_
6. Sampling Plan & Procedures used	NA NA	

Report No.:

MSKGL/ED/2024-25/004058

Sample No.:

MSKGL/ED/2024-25/09/01570

#### ANALYSIS RESULT

SI No.	Test Parameters	Unit	Test Method	Result
-1	Copper (as Cu)	mg/l	IS 3025 (Part 2)	<0.02
2	Iron (as Fe)	mg/l	IS 3025 (Part 2)	<0.05
3	Manganese (as Mn)	mg/l	IS 3025 (Part 2)	<0.02
4	Selenium (as Se)	mgs	IS 3025 (Part 2)	< 0.005
5	Cadmium (as Cd)	mgs	IS 3025 (Part 2)	<0.001
- 6	Lead (as Pb )	mgil	IS 3025 (Part 2)	<0.005
7	Mercury (as Hg )	mg/	15 3025 (Part 48)	<0.0002
8	Arsenio( as As)	mg/r	15 3025 (Part 2)	<0.005
9	Zinc (as Zn)	mg/	IS 3025 (Part 2)	<0.02
10	Hexavalent Chromium (as Cr+6)	mg#	IS 3025 (Part 52)	<0.01

DL: Detection Limit

**BDL** : Below Detection Limit

Opinion: All the parameters are analysed in NABL accredited laboratory.

Report Verified By

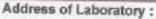
For Mitra S. K. Private Limited

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

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Doc No.: MBK/GEN/19/07





Building No. P. 48, Udayan Industrial Estate, 3, Pagiadanga Road, Kolkata 700015 West Bengat

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000008386F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/Q5206D

13/05/2024

MSKNB/FD/2024-25/04/H0UADX

17/04/2024

17/04/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

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)	NA NA
f. Date of sampling	16/04/2024
5, Place of sampling	H-Quarry Seepage Water (JWIMM)
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 personnal performing sampling by MSK	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/Q5206D

Sample No.: MSKNB/FD/2024-25/04/H0UADX

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	24.75
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Biochemical Oxygen Demand (BOD)	mg/i	IS 3025 (Part 44)	4.7
4	Boron as B	thg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Cadmium as Cd	mg/t	IS 3025 (Part 2)	BDL(DL:0.001
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	10.10
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	24.0
8	Chloride as Cl	mg/I	IS 3025 (Part 32)	4.90
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/om	IS 3025 (Part 14)	75
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.1
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.28
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	fron as Fe	l\pm	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	3.64
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	5.04 BDL(DL:0.02)

Rovinsed by:

Signatura | Name Atocape Scha P. Gargany

Designation

: Sr. Exe. Chamist, Executive Chemist

Authorized Signatory:

Signature

Designation

None

Eab In charge

Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Report No.: MSKPL/FD/2024-25/Q5206D

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19807

ULR: TC-695024000008385F

Sample No.: MSKNB/FD/2024-25/04/H0UADX

RESULT

Chemical				
SI No.	Parameter	UOM	Method	
20	Mercury as Hg		10000000	Result
21	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
22	100100	mg/l	APHA (24th EDITION) 4500-NO3- B	0.85
23	Odour	None	IS 3025 (Part 5)	AGREEABLE
	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C8H5OH	mg/l	IS 3025 (Part 43) Sec1	The second secon
25	Sulphate as SO4	l/mg/l	IS 3025 (Part 24) Sec1	BDL(DL:0.001)
26	Total Dissolved Solids		The state of the s	5.20
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 16)	58
28	Total Suspended Solids	mg/l	IS 3025 (Part 21)	40.40
29		mg/i	IS 3025 (Part 17)	38.2
-	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.72 AT 24 DEG C

Opinion:

NA

Statement of Conformity

--- END ----

Reviewed By:

Signature

Name

Atompee Guna : Mr. Ahoyoo Saha, Mr. Pint Genguly

Designation

St. Exe. Chemist, Executive Chemist

Authorized Signatory.

Bionature

Designation:

: Lab in charge

The results related only to the terrorial tendent.

The Test Report shall not be improduced except in Suit, without the paradicular of Mary S.S. Preside Carding.

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Head Office:

Stracts Cere's (5th Floor), 74B, A.J.C. Sose Road, Kollasta - 700016, West Bengel, India, Tel. 91 39 40143000 / 23650007 Fax: 91 33 23500008 Email: Info@mitrask.com Website: www.mitresk.com

Page 2 of 2

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel.: +91 7044036120

Email: udayaniab@mitrask.com





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### TEST REPORT

Name & Address of Customer: Report No.:

Date:

MSKPL/FD/2024-25/Q5206D 1

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/H0UADX\_1

Date of receipt of sample:

17/04/2024

Date(s) of performance:

17/04/2024 - 13/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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 NA
4. Date of sampling	16/04/2024
5. Place of sampling	H-Quarry Sespage Water (JWMM)
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	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/Q5206D\_1

Sample No.: MSKNB/FD/2024-25/04/H0UADX 1

#### RESULT

hemical	THU THE			
SI No.	Parameter	NOM	Method	Result
1	Salinity	mg/l	By Calculation	25.30

Opinion:

-- END ----

Raylewed By:

Signature Marrie

Arbaijee Caus · Ms Attayee Sahe, Mr. Pieli Ganguly

Designation

St. Ess. Chemist, Executive Chemist

Authorized Signatory

Signature

Dr. Sout

Designation Lab in charge

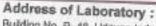
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The resulted part of assembly in the interaction analysis (for a personal sample) in the contract the personal sample) in the contract sample) in the retained of the contract of the Test Report.
The resulted part of assembly in the retained analysis (Soil S. Libjet Woods) shad be retained by 15 days on per CPCB qualities 6. (Asy 1 month form the same of tensor of the Test Report.
The retained part of assembly) for Missobilinging and part Plan - period (the contract of the C

Head Office:

Stracht Centre (Sri Floor), 748, A.J.C. Bose Road, Kokata –700016, West Bergel, India. Tel.: 91 33 40143000 / 23650007 Fax: 91 33 23550000 Email: info@nanal.com Websile: were mitrain.com

Doc No.: MSK/GEW19/07





Building No. P- 48, Udayan Industrial Estate, Pagladangs Road, Kolkats 700015 West Bengal

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





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ULR: TC-695024000008385F

# Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 768034 India

TEST REPORT

Report No. : Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/Q5206D

13/05/2024

MSKNB/FD/2024-25/04/H0UADX

17/04/2024

17/04/2024 - 22/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
Date of sampling	NA NA
5. Place of sampling	16/04/2024
Environmental conditions during sampling & Transport	H-Quarry Seepage Water (JWIMM)
Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
l. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
or the personnel performing sampling by MSK	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/Q5206D

Sample No.: MSKNB/FD/2024-25/04/H0UADX

### RESULT

ficro Biology		KEOOLI		
Si No.	Parameter	UOM	Method	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn.	Result
			92218	40

Opinion:

NA

Statement of Conformity

END -

Rovinwed By:

Signature

Ms. Matreyee Chalcaborty Designation : Executive Microbiologist

Authorized Signatory

Signer ee

Name

Designation

Technical In charge

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

The results reste only to the next(s) tested.
The results reste only to the next(s) tested.
The results reste only to the next(s) tested in fail, without the permission of Mitra S.K. Private Limited.
The results part of sample(s) for observational enalysis (Non - perishable comple(s) Foot, Vibilar) shall be retained for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for characteristical gradysis (Soit, Soit & Liquid Vibilar) shall be retained for 16 days as per CPCS guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microteological analysis (Non - perishable sample(s) Food, Seeled Vibilar, Seeled food) shall be retained for 15 days from the date of issue of the Test Report. Shrachi Cerina (Sh Floor), 748, A.J.C. Bose Road, Kolkete - 700018, Wast Berger, India. Tel: 31 33 40143000 / 22550007 Fax: 91 33 22550008 Errari Info@mirrark,com Wastedte : www.mirrark.com





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel : +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000008384F

## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/HS205C

13/05/2024

MSKNB/FD/2024-25/04/E2AABY

17/04/2024

17/04/2024 - 12/05/2024 Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

Water & Residue in Water
Surface Water
NA NA
16/04/2024
Ganguiguda Seepage Water (JWIMM)
(2 -5) deg C Cold chain maintained
IS:17614( P-23) 2021
Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/HS206C

Sample No.: MSKNB/FD/2024-25/04/E2AABY

#### RESULT

Chemical				
SI No.	Parameter	NOM	Method	Result
1	Alkalinity as CaCO3	mg/l	IS 3025 (Part 23)	54.45
2	Arsenic as As	mg/t	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	ng/l	IS 3025 (Part 44)	6.1
4	Boron as B	Nom	IS 3025 (Part 2)	
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
6	Calcium as Ca	mg/i	IS 3025 (Part 40)	BDL(DL:0.001
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16.16
8	Chloride as Ci	mg/l	IS 3025 (Part 32)	36.0 7.35
9	Colour	Hazen	IS 3025 (Part 4)	-
10	Conductivity	micro S/cm	IS 3025 (Part 14)	BDL(DL:1.0) 90
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/I	IS 3025 (Part 38)	5.8
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.35
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
17	Load as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	BDL(DL:0.005)
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	6.06 BDL(DL:0.02)

Reviewed By

Signature Name About Same P. Gryndy Mr. Mr. Ardyres Some Mr. Mr. Some Some Mr. Mr. Prot Some Mr.

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatury:

Signature

Name

Designation

Dr. Koursendere Minisco Marying

MSKPL/FD/2024-25/HS206C

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagiadanga Road, Kolkata 700015

Report No.:

West Bengal Tel.: +91 7044038120

Email: udayanlab@mitrask.com







Sean for Portal

ULR: TC-695024000008384F

Doc No.: MSIGGEN/19/07

Sample No.: MSKNB/FD/2024-25/D4/E2AABY

RESULT

hemical				
SI No.	Parameter	UOM		
20	Mercury as Hg		Method	Result
21	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
22	Odpur	mg/i	APHA (24th EDITION) 4500-NO3- B	1.48
23		None	IS 3025 (Part 5)	AGREEABLE
24	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
1000	Phenolic Compounds as C6H5OH	mg/t	IS 3025 (Part 43) Sec1	The second secon
25	Sulphate as SO4	Ngm	IS 3025 (Part 24) Sect	BDL(DL:0.001)
26	Total Dissolved Solids	mg/l		6.20
27	Total Hardness as CeCO3		IS 3025 (Part 16)	80
28	Total Suspended Solids	mg/l	IS 3025 (Part 21)	65.65
29	Zinc as Zn	mg/l	IS 3025 (Part 17)	40.2
30		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	pH	None	IS 3025 (Part 11)	6.7 AT 28 DEG C

Opinion:

NA.

Statement of Conformity

- END ---

Reviewed by:

Signature

Designation

Ma. Alrayoe Satis, Ms. Parl Garguly Sr. Exe. Chamist, Executive Chemist

Aboyee Sam

Authorized Signatory:

Signature

Name

Designation

The eposits relate only to the itemps leased.
This Tried Report shall fell fire interestanced except in fall, without the permission of Mitha S.H. Provide Limited.
This anisotron dynal of sample(s) for identical except in fall, without the permission of Mitha S.H. Provide Limited.
The mission of an identical except in fall, without the permission of Mitha S.H. Provide Limited.
The mission of an identical except in fall except in fall except in the mission of the Text Report.
The mission of sample(s) for identical except (s), Solid 5 Limited Mixed (s) is also do relatived for 15 days from the date of those of the Text Report.
The mission of sample(s) for Microticioglani excepts(s) (for - pertinable sample(s), Proof, Sealed Weller, Sealed Good, Solid 5 Limited S.H. (s) is seen the date of same of the Text Report.

Issue of the Text Report.

Head Office:

Shrachi Centre (5th Floor), 745, A.J.C. Bose Roed, Kolkotta - 70001ff, West Bergal, India. Tel.: 91 33 40143000 / 22950007 Fax: 91 33 22950000 Emell: Info@mitmek.com Vikibells: www.mktask.com

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladangs Road, Kolkats 700015 West Bengal

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tel.: +91 7044036120

Empil: udayanlab@mitrask.com





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### TEST REPORT

Name & Address of Customer: Report No.:

Date:

MSKPL/FD/2024-25/HS208C\_1

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/E2AABY\_1

Date of receipt of sample:

17/04/2024

Date(s) of performance:

17/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Minter & Besides Is Man
2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of semillar	NA NA
4. Date of sampling	16/04/2024
5. Place of sempling	
6. Environmental conditions during sampling & Transport	Ganguiguda Seepage Water (JWIMM)
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained
	IS:17614( P-23) 2021
8. Identification of the personnal performing sampling by MSK	Akash Sethy, Praneb Sethi

Report No.: MSKPL/FD/2024-25/HS208C\_1

Sample No.: MSKNB/FD/2024-25/04/E2AABY\_1

### RESULT

hemical				
SI No.	Parameter	UOM	Method	2000
1	Salinity			Result
	Comity	mg/l	By Calculation	47.45

Opinion:

END -

Reviewed By

Signature

Marrie Designation About Same P. garyert

- Ms. Atralysic Sand, Ms. Plett Genguly

: Sr. East Cherrist, Executive Chomist

Authorized Signatory

Signature

Designation

The retails neigh cette of the items of the

Head Office:

Shrachi Carere (Sin Picor), 748, A.J.C. Bote Road, Kolona - 700018, West Bengal, India. Tet.: 91-33-40143000 / 22600007 Fax: 91-33-22650005 Email: Info@prikussi.com Website : www.mitrost.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





Doo No.: MSK/GEN/19/07

TESTING + INSPECTION

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MSKPL/FD/2024-25/HS206C

MSKNB/FD/2024-25/04/E2AABY

ULR: TC-695024000008384F

# TEST REPORT

Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.: Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

17/04/2024 17/04/2024 - 22/04/2024

13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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
Unique Identification of sample(if any)	200
4. Date of sampling	NA NA
5. Place of sampling	16/04/2024
6. Environmental conditions during	Ganguiguda Seepage Water (JWIMM)
Environmental conditions during sampling & Transport     Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
I Identification of the	IS:17614( P-24) 2022
<ol><li>identification of the personnel performing sampling by MSK</li></ol>	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/HS205C

Sample No.: MSKNB/FD/2024-25/04/E2AABY

#### RESULT

Micro Biology		1120021		
SI No.	Parameter	UOM	Method	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th adtn,	Result
	10000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9221B	33

Opinion:

NA

Statement of Conformity

END ---

Reviewed By

Signature

Ms. Mattreyee Chalumborty

Designation | Executive Microbiologist

Authorized Signatory

Signature

Namo

Designation

Technical in charge

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

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

The results relate only to the item(s) factor inputation of Miles S.K. Private Limited.

The reserved part of semile(s) for chemical analysis (Non - parameter sample(s) Food. Wilder) shall be retained for 15 days from the date of insue of the Test Report. Perishable sample(s) shall be retained 2 days. The reserved part of sample(s) for chemical analysis (Soil, Bolic & Liquid Wilder) shall be retained for 15 days as per CPCS (published & (Air) 1 month from the date of insue of the Test Report.

The reserved part of sample(s) for Alicobtological analysis (Non - perishable sample(s) Floor, Sealed Wilder, Sealed faced) shall be retained for 15 days from the date of insue of the Test Report.

Stracts Contra (5th Floor), 748, A.J.C. Scale Road, Kolkets –700016, West Sengel, India. Tol. : 91 33 40143000 / 23650007 Fax: 91 33 23650006 Email: info@minisk.com Widoute: www.mitreek.com







ULR: TC-695024000008383F

# Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odishe - 758034 India

Tata Steel Lid.(MGM), Joda West

West Bengai

Tel.: +91 7044036120

Emait udayanlab@mitrask.com



# TEST REPORT

Report No. :

MSKPL/FD/2024-25/3K206M

Date:

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/AC4AC0

Date of receipt of sample: Date(s) of performance:

17/04/2024

Location of performance of

17/04/2024 - 12/05/2024

Permanent Facility

Reference No. & Date :

3000156017/056; Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	18/04/2024
	D-Quarry Seepage D-Quarry Seepage Water (JWIMM)
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold show a visit (JWIMM)
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021
MSK personnel performing sampling by MSK	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/3K208M

Sample No.: MSKNB/FD/2024-25/04/AC4AC0

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	
1	Alkalinity as GaCO3	mg/l		Result
2	Arsenic as As	mg/l	IS 3025 (Part 23)	19.8
3	Biochemical Oxygen Demand (BOD)		IS 3025 (Part 2)	BDL(DL:0,005
4	Boron es B	mg/l	IS 3025 (Part 44)	BDL(DL:2.0)
5	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
6	Calcium as Ca	mg/l	18 3025 (Part 2)	BDL(DL:0.001
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 40)	8.08
8	Chloride as CI	mg/l	IS 3025 (Part 58)	16.0
9	The state of the s	mg/l	IS 3025 (Part 32)	9.80
10	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
11	Conductivity	micro S/cm	IS 3025 (Part 14)	68
12	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
13	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	
14	Fluoride as F	rng/l	IS 3025 (Part 60)	5.9
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	0.28
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
17	Lead as Pb	mg/I		BDL(DL:0.05)
18	Magnesium as Mg	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
19	Manganese as Mn	Ngri	IS 3025 (Part 46)	1.21
	Transition Committee	riigii	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature Atrayee Saw P. G

Mx. Atra too Saha, Ma Pinti Clares

Sr. Exe. Chamiet, Executive Chemist

Authorized Signatory

Signature

Name

to Marcad you

Lab in charge

Designation

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Report No.: MSKPL/FD/2024-25/3K206M

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







Doc No.: MSK/GEN/19/07

Senn for Portal

ULR: TC-695024000008383F

Sample No.: MSKNB/FD/2024-25/04/AC4AC0

#### RESULT

Chemical			**	
SI No.	Parameter	UOM	45000	
20	Mercury as Hg		Method	Result
21	Nitrate as NO3	mg/li	IS 3025 (Part 48)	BDL(DL:0.0002)
22	Odpur	mg/ī	APHA (24th EDITION) 4500-NO3- B	0.98
23	100	None	IS 3025 (Part 5)	AGREEABLE
24	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
25	Phenolic Compounds as OSH5OH	mg/l	IS 3025 (Part 43) Sec1	
	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	BDL(DL:0.001)
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	5.20
27	Total Hardness as CaCO3	mg/l		60
28	Total Suspended Solids		IS 3025 (Part 21)	30.3
29	Zinc as Zn	mg/l	IS 3025 (Part 17)	5.8
30		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	pH	None	IS 3025 (Part 11)	6.58 AT 25.2 DEG 0

Opinion:

Statement of Conformity

- END ----

Designation

Abayer Com P. Jey

Ms. Armyse Saha, No. Pieli Ganguly 8r. Exe. Chemist, Executive Chemist Authorized Signatory:

Signiture

Name

Designation Leb in charge

The contable only to the decapt locate.

The Test Popular shall not be represented except to the service of Merc S.K. Private Limited.

The Test Popular shall not be represented except to the service of Merc S.K. Private Limited.

The reserved part of sample(s) for observable except to the first positive of the service of the Test Report.

The reserved part of sample(s) for observable analysis (Sect. Solid & Liquid Mean) shall be retained for 15 days on par CPCR quasiente & (Air) 1 month from the date of the Test Report.

The reserved part of sample(s) for Microphological analysis (Nos - periodicity contributes complete); Freed, Guided Water, Resided box(s) shall be retained for 15 days from the date of insure of the Test Report.

The Test Popular of the Test Report.

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Emait udayanlab@mitrask.com





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# **TEST REPORT**

Report No. :

M\$KPL/FD/2024-25/3K206M\_1

Date:

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/AC4AC0\_1

Date of receipt of sample:

17/04/2024

Date(s) of performance:

17/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Curfore Many
Unique Identification of sample(if any)	Surface Water
Date of sampling	NA .
5. Place of sampling	16/04/2024
E Employment of the Control of the C	D-Quarry Seepage D-Quarry Seepage Water (JWIMM)
Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
. Sampling Plan & Method used	IS:17614( P-23) 2021
, Identification of the personnel performing sampling by MSK	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/3K205M 1

Sample No.: MSKNB/FD/2024-25/04/AC4AC0 1

#### RESULT

hemical				
SI No.	Parameter	UOM		
1	Salinity		Method	Result
		mg/I	By Calculation	35.85

Opinion:

NA

- END ----

Reviewed By

Storestero

Name

Designation 8r. Exa. Chemist, Executive Chemist Authorized Signatory

Signature

Nama Dosignation

This measure units not the frampoleosed review, in fall, without the permission of Mitter Eux. Provate Limited.
This Teel Report about set the respectation of the transport of the Eux. Provate Limited.
This reserved part of company, the coverage of the transport of the reserved part of company, the coverage of the transport of the reserved part of company, the coverage of the transport of the reserved part of company, the coverage of the transport of the reserved part of company, the discoverage of the transport of the transpor

Head Office:

Shrachi Carere (Sth Floor), 746; A.J.C. Bose Rosd, Kolkata - 700016, West Bengal, India. Tel. 91 33 40140000 / 22650007 Fax ; 91 33 23950008 [Imall : Info@mitrask.com Website : www.mitrask.com

Page 1 of 1

Multicpactiyay

### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700016

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Tata Steel Ltd (MGM)\_Joda West



TC-6950



Doc No.: MSK/BEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000008383F

## TEST REPORT

Report No. :

MSKPL/FD/2024-25/3K206M

Date:

13/05/2024

Sample No.:

MSKNB/FD/2024-25/04/AC4AC0

Date of receipt of sample: Date(s) of performance:

17/04/2024

Location of performance of

17/04/2024 - 22/04/2024

Reference No. & Date :

Permanent Facility

Discipline:

3000156017/056, Date - 16/09/2023

Biological

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

Group     Description of sample	Water & Residue in Water
. Unique Identification of sample(if any)	Surface Water
. Date of sampling	NA NA
. Place of sampling	16/04/2024
Environmental conditions during sampling & Transport	D-Quarry Seepage D-Quarry Seepage Water (JWIMM)
. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
Identification of the nemanal	IS:17614( P-25) 2022
Identification of the personnel performing sampling by MSK	Akash Sethy, Pranab Sethi

Report No.: MSKPL/FD/2024-25/3K206M

Sample No.: MSKNB/FD/2024-25/04/AC4AC0

### RESULT

-		
UOM	Method	Discours
MPN/100ml	Standard methods for the examination of water & waste water, 24th edth.	Result
	N. Santa	Standard methods for the examination

Opinion:

NA

Statement of Conformity

NA

- END ----

Reviewed By

Signoture

Norre: Ms. Metrayon Chalasborty Designation : Executive Microbiologiei

Authorized Signatory

Signature

Nome

Designation : Technical In charge

The results relate drift to the Remot lesied.
The Test Report shall not be reacculated except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of asymptotic for chemical analysis (Non - perishable sample(s) Food, Weter) shall be retained for 15 days from the date of issue of the Test Report. Parametric 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, Soild & Liquid Weste) 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 - pershable sample(s) Fond, Sealed Wester, Sealed food) shall be retained for 18 days from the date of issue of the Test Report.

Streethi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkete - 700016, West Bergel, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22950006 Crost: Into@mitrosk.com Website: www.mitrosk.com

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kokata 700015 West Bengal

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





Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION

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ULR: TC-695024000009117F

# **TEST REPORT**

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/9R46C0

22/05/2024

MSKNB/FD/2024-25/05/2RN78T

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

Group     Description of sample	Water & Residue in Water
3. Unique Manuffication	Surface water
Unique Identification of sample(if any)     Date of sampling	NA NA
5. Place of sampling	07/05/2024
E Environmental and the	D-Quarry Pit Water (JWIMM)
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	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/9R46C0

Sample No.: MSKNB/FD/2024-25/05/2RN78T

### RESULT

Chemical			Unique de la companya del companya de la companya del companya de la companya de	
SI No.	Parameter	UOM	T	
1	Arsenic as As		Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Pert 2)	BDL(DL:0.001)
5	TO SECURITY OF THE PARTY OF THE	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BOL(DL:0.01)
10	Lead as Pb	mg/l	IS 3025 (Part 2)	The second secon
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.0002)
13.	Zinc as Zn	mg/l		BDL(DL:0,4)
		- mgps	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity NA

---- END -----

Reviewed By:

Signature

Designation

Alloayer Sana

Sr. Executive Chamist

Authorized Signatory

Signature

Name

Designation

in Soughouser State Confirmed

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pegladange Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSKOGEN/19/07

Scan for Portal

ULR: TC-895024000009117F

Fordewed By:

Sgnates

-Aboute Sale P. G. Na. Afores Sale Ton Fill Gar Designation St. Executive Chemist.

Authorized Signatory:

Signature

Designation | Lab to charge

The results saids only to the lienting basis.
This Test Report shall not be represented accept in full, without the patricipion of Altin R.K. Private Limited.
This Test Report shall not be represented for districted acceptant (All and the patricipion of Altin R.K. Private Limited.
This Test Report shall not presented for districted acceptance (All and All and All

Head Office:

Shrachi Centre (Sth Picot), 748, A.J.C. Sose Ricad, Kolkata - 709010, West Bengal, India. Tel.: \$1.32.40143000 / 22500007 Fax: \$1.33.2555000 Email: info@mthtsk.com Website: www.mthtsk.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







ULR: TC-695024000009117F

DIONS, MSKIGEN/1967

TESTING \* INSPECTION

# TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM): Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/9R48C0

22/05/2024

MSKNB/FD/2024-25/05/2/RN78T

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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 NA	
4. Date of sampling	07/05/2024	
5. Place of sampling	D-Quarry Pit Water (JWIMM)	
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained	
7. Sampling Plan & Method used	IS:17614( P-25) 2022	
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi	

Report No.: MSKPL/FD/2024-25/9R46C0

Sample No.: MSKNB/FD/2024-25/05/2RN78T

### RESULT

Micro Biology					
Si No.	Parameter	UOM	Method	Result	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th adtn, 9221B	9.3	

Opinion:

NA. NA

Statement of Conformity

END -

Reviewed Dy.

Ms. Neibuyee Chakralsorty

Authorized Signatury

Designation : Technical in charge

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

Designation | Executive Microbiologist

This Test Report shall not be reproduced except in full, without the permission of Mike S.K. Private Limited.
The reserved part of sample(c) for obersical analysis (Non - portshable sample(c) Food, Water) shall be retained for 15 days from the data of issue of the Test Report. Perishable sample(c) shall be retained 2 days.

The reserved part of sample(s) for comman analysis (Not. Solid & Liquid Wester) shall be retained for 15 days se per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

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

The reserved part of sample(s) for Mesotiological analysis (Non - perishelials sample(s)) Food, Soulid Wester, Seeled Good) shall be retained for 15 days from the date of issue of the Test Report.

Shrade Cartin (Sti Floor), 745; A.J.C. Bose Road, Nokate - 750016, West Bengal, India. Tel. 91:33:40143000 / 22500007 Fax: 91:33:23550038 Email: Info@esthosic.com Website: www.infoask.com

At/P O BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING - INSPECTION

T +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/2024-25/001423		Date: 22.05.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	07.05.2024	
Location	D-Quarry Seepage Water (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

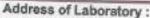
SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), S210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	710	
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		8
4	Chloride (as Cl.)	mg/l	APHA (24th Edition), 4500 -Cl B	250	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	770	10
6	Electrical conductivity	us/cm		- Sec-	5.9
7	Iron (as Fe)	100000	APHA (24th Edition), 2510B	Mest.	75
8	A CONTRACTOR OF THE PARTY OF TH	mg/l	APHA (24th Edition), 3500 Fe B	3	0.11
	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	794	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0
12	Salinity	PSU	APHA (24th Edition), 2520B		72-31
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.04
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		4
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	277	16
16	Total Hardness (as CaCO3 )	mg/l		200	46
17	Total Suspended Solid (as TSS)	-	APHA (24th Edition), 2340 C	T (max	28
18		mg/l	APHA (24th Edition),2540D	50/100	2.8
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.0

Checked by:

For Mitra S. K. Private Limited

Dec No.: MGK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkate 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000009118F

## TEST REPORT

Name & Address of Customer:

Teta Steel Ltd.(MGM)\_Joda West Date:

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No.:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date : Discipline:

MSKPL/FD/2024-25/F146C0

22/05/2024

MSKNB/FD/2024-25/05/4DL77H

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

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)	NA NA	
4. Date of eampling		
5. Place of sampling	07/05/2024	
5. Environmental conditions during sampling & Transport	Gangeiguda Pit Water (JWIMM)	
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained	
5. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021	
MSK personal personal personal sampling by MSK	Pranab Ku Sethi	

Report No.: MSKPL/FD/2024-25/F146C0

Sample No.: MSKNB/FD/2024-25/05/4DL77H

### RESULT

Chemical				
SI No.	Parameter	UOM	Method	
1	Arsenic as As	mg/l		Result
2	Boron as B	1000000	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4		mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluorida as F	mg/l	IS 3025 (Part 60)	THE PART OF THE PARTY OF THE PA
8	Hexavalent Chromium (as Cr+6)	mg/l		BDL(DL:0.2)
9	Lead as Pb		18 3025 (Part 52) Sec2	BDL(DL:0.01)
10	The state of the s	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	BDL(DL:0.4)
13	Zinc as Zn	ng/t	IS 3025 (Part 2)	
			re outer (Fall 2)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity

- END -

Reviewed By

Signature

Aparke Same : Ma. Atrigree Sotte, Mo. PS

5r. Executive Charest

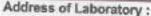
Authorized Signatory.

Signature

Lab to charge

Dac No.: MBK/GEN/19/07





Email: udayanlab@mitrask.com

Building No. P- 48, Udayan Industrial Estate, 3, Pagledenga Road, Kolkata 700015 West Bengal Tel.: +91 7044036120







ULR: TC-695024000009118F

Reviewed By:

dianeture

- Ms. Alterno Satte, Ms. Plat Gorgoty Designation | Br Concurse Charate

Atraya Camp Gry

Authorized Signatory

: Lab in charge

They results related owing by the family) sected.

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Head Office:

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#### Address of Laboratory :

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

Email: udayanlab@mitrask.com









Doo No.: MISKUGEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000009118F

### TEST REPORT

Name & Address of Customer:

Teta Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034. India Pin

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/F146C0

22/05/2024

MSKNB/FD/2024-25/05/4DL77H

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility.

3000156017/056, Date - 16/09/2023

Biological

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 NA	
4. Date of sampling	The Property of the Control of the C	
5. Place of sampling	07/06/2024	
6. Environmental conditions during sampling & Transport	Gangeiguda Pit Water (JWIMM)	
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022	
an instrumental of the personnel performing sampling by MSK	Pransti Ku Sethi	

Report No.: MSKPL/FD/2024-25/F146C0

Sample No.: MSKNB/FD/2024-25/05/4DL77H

### RESULT

licro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin, 92218	11

Opinion:

NA

Statement of Conformity

NA

END ---

Reviewed By:

Signature

Ms Malreyee Chalmborty

Authorized Signatory

Signature

Designation

Technical in chargo

The results relate only to the item(a) leated.

Designation | Ecocutive Microbiologist

The results retain only so the Remini teases.
The result shall not be reproduced except in full, without the permission of Mira S.K. Private Limbed.
The results have been of except accept another acceptance of Mira S.K. Private Limbed.
The results 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 except(s) for chamical enabysis (Sed. 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 except(s) for Microbiological analysis (Non - panishable sample(s) Food, Saulted Water, Scaled food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Strechi Certre (Str Ricor), 74B, A.J.C. Bose Road, Kokutar - 709015, West Bangel, India. Tel.: 91 33 40143000 / 22550907 Fax: 91 33 22590008 Email: infa@mitrack.com Westerlar: sww/mitrack.com

AbP O.:BARBIL Ward No-5 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202		Date: 22.05.2024
No.	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANCANDOD SOME	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 07.05.2024	
Location	Ganguiguda Seepage Water (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		14
4	Chloride (as CI )	mg/l		250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CI B		10
6	Electrical conductivity		APHA 24th Edition, 2023 4500-O-C/G	***	4.9
7		us/cm	APHA (24th Edition), 2510B		120
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.18
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	Pin Pin	8.6
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity		(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU mad	APHA (24th Edition), 2520B		0.06
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	222	3.5
15		mg/l	APHA (24th Edition), 5210B	***	51
6	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	100	75
7	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		71
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	
0	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5,5-9.0	6.2

Checked by:- Checked

For 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





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ULR: TC-695024000009119F

Dec No.: MSK/GEW/19/07

# TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/JB46CJ

22/05/2024

MSKNB/FD/2024-25/05/8L3799

08/05/2024

08/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

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)	NA NA
4. Date of sampling	07/05/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	H-Quarry Pit Water (JWIMM)
7. Sampling Plan & Method used	(2-5) dog C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS:17614( P-23) 2021 Praneb Ku Sethi

Report No.: MSKPL/FD/2024-25/JB46CJ

Sample No.: MSKNB/FD/2024-25/05/8L3789

### RESULT

hemical				
SI No.	Parameter	UOM	Method	M
1	Arsenic as As	mg/l	IS 3025 (Part 2)	Result
2	Boron as B	mg/l	The state of the s	BDL(DL:0.005)
3	Cadmium as Cd	-	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	The state of the s	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Cyanide ss CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
1	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	rngA	IS 3025 (Part 52) Sec2	The second secon
9	Lead as Pb	figer	IS 3025 (Part 2)	BDL(DL:0.01)
10	Menganese as Mn	mg/l	Control of the Contro	BDL(DL:0.005)
11	Mercury as Hg	-	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
13		mg/l	APHA (24th EDITION) 4500-NO3-B	BDL(DL:0.4)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

Statement of Conformity

NA

- END -----

Reviewed By:

Signature

Afraya Saw P. g Me. Alteryon Soha, Ms. Plati Gong

Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation : Lab in charge

Head Office:

Shrachi Centru (Sh Floor), 748, A.J.C. Bose Rose, Kolkata - 700016, West Bengel, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22450006 Ermill: info@nelosak.com Watefie: were refrask.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Emell: udayanlab@mitrask.com







Dec No.: MSK/GEN/19/07

TESTING . INSPECTION

ULR: TC-695024000009119F

Reviewed By:

Signeture

Hosepe San P- y : No. Abupen Sato, Mc. Plus Garguy

Designation : Sr. Executive Chemist

Authorized Signatory

Signature

Designation

: Lab In charge

The results relate only to the heavily bester.

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The results relate only to the heavily bester.

The results of surgicinal for international description for the results of the results

DOC NO.: MISKIGEN/19/07



Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate, 3, Pagladenga Road, Kolkata 700015 West Bengal

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







ULR: TC-695024000009119F

# TEST REPORT

Name & Address of Customer:

Tata Steef Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 759034 India Pin

Report No. :

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/JB46CJ

22/05/2024

MSKNB/FD/2024-25/05/8L3799

08/05/2024

08/05/2024 - 13/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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 NA
4. Date of sampling	07/06/2024
5. Place of sampling	The state of the s
5. Environmental conditions during sampling & Transport	H-Quarry PIt Water (JWIMM)
7. Sempling Plan & Method used	(2-5) deg C Cold chain maintained
	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Ku Sethi

Report No.: MSKPL/FD/2024-25/JB46CJ

Sample No.: MSKNB/FD/2024-25/05/8L3799

#### RESULT

	NEO O E I		
Parameter	UOM	Method	Result
Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edin,	4,5
		Total colle	Parameter UOM Method  Total conference Standard methods for the examination

Opinion:

NA

Statement of Conformity

NA

- END -

Reviewed By:

Name:

Ms. Militrayee Chalcaborty Designation : Executive Microbiologist

Authorized Signatory

Designation

Technical in charge

The results relate only to the sere(s) besied.

The results relate only to the terrips bested.

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

The reserved part of semploin) for chemisel enalysis (Non - perishable samplois) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable samplo(s) shall be retained for 15 days or per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

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

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

Shrecht Centre (Sti-Floor), 746, A.J.C. Base Road, Koloses - 700016, West Bengel, India. Tel. ; 91.33.40143000 / 22850007 Fax : 91.33.22850008 Erest : Info@mihask.com Website : www.mibask.com

At/P.O. BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269

E ; barbil@mitrask.co.in W ; www.mitrask.com

Report No. MSKGL/ED/202	Date: 22.0	5.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	_
Date of sampling	07.05.2024	
Location	H-Quarry Seepage Water (JWIMM)	

# CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		5
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CLB		10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	63
8	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B	2011	0.22
9	Odour	mg/l	APHA (24th Edition), 21508	Acceptable	2.9
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0
12	Salinity	PSU	APHA (24th Edition), 2520B		0.03
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		12
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	***	
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		39
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	20
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	18 5,81

Checked by:

For Mitra S. K. Private Limited

TESTING \* INSPECTION

**Authorized Signatory** 

H. O.: Shrachi Centre (5th Floor), 74B, Acharya Jagadish Chandra Bose Road, Kolkata – 700 016, West Bengal, India T: 91 33 22172249 / 4014 3000 / 2265 0006 / 2265 0007 F: 91 33 2265 0008 E.info@mitrask.com W: www.mitrask.com



At/P.O. BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	24-25/002105 Date: 22.06.20
AN.	ALYSIS REPORT OF WASTE/EFFLUENT WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.06.2024
Location	Near Joda West BS Mining Garage Oil Separation Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	6
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	29
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	21
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	-	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	614	5.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	174
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.63
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		4
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	***	0.09
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	2.63	37
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		108
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		87
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	18
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.78

Checked by

For Mitra S. K. Private Limited

**Authorized Signatory** 

H. O.: Shrachi Centre (5th Floor), 74B, Acharya Jagadish Chandra Bose Road, Kolkata – 700 016, West Bengal, India T. 91 33 22172249 / 4014 3000 / 2265 0006 / 2265 0007 F: 91 33 2265 0008 E:info@mitrask.com W: www.mitrask.com

#### Address of Laboratory:

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West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No.:

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Reference No. & Date :

MSKPL/FD/2024-25/L054CE 1

27/06/2024

MSKNB/FD/2024-25/06/UFR82C\_1

12/06/2024

12/08/2024 - 27/08/2024

3000156017/056, Date - 16/09/2023

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 (Mine Water)	
3. Unique Identification of sample(if any)	NA .	
4. Date of sampling	11/06/2024	
5. Place of sampling	Ganguiguda Mine Water (JWIMM)	
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	Dhambrudhar Das	

Report No.: MSKPL/FD/2024-25/L054CE 1

Sample No.: MSKNB/FD/2024-25/06/UFR82C\_1

### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/i	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.81
13	Zinc as Zn	mg/f	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

- END -

Reviewed By

Signature

Horayee Sana Ms. Almyso Saha, Ms. Pie

Designation

Sr. Executive Chemist.

Authorized Signatory

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





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Reviewed By:

Signeture

Atraja Casa P. Jonguy

Designation

8r. Executive Chemist

Authorized Signatory

Name

Dr. Soughyadanip Mu

Designation

Lab in charge

The visuals notate only to the Brings (restant.)
This Tool Report shall not be approximated except in fault, without the permission of Miss S.K. Private Limited.
The nearwork past of sample(s) for characters analysis (find - perhibition sample(s)) Food, Walley shall be retained for 15 days from the date of taxon of the Text Report. Perhibition sample(s) chall be retained 2 days from the date of more of the Text Report.
The nearwork past of sample(s) for discretizing leading to the perhibition of the Text Report.
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The reserved past of sample(s) for discretizing leading to the perhibition of the Text Report.
The reserved past of sample(s) for discretizing leading to the perhibition of the Text Report.
The Report Report Report Report Research analysis place - perhibition sample(s) Food, Seeled Water, Seeled food) shall be reserved for 15 days from the date of tissue of the Text Report.

Pediphatic sample(s) shall be retained 2 days from the date of the Text Report.

Head Office:

Shradhi Cartro (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91.33.40143000 / 23550007 Fax: 91.33.2350006 Email: Info@mitrask.com Webste: www.mitrask.com

Page 2 of 2

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





### TEST REPORT

Report No.:

MSKPL/FD/2024-25/L054CE\_1

Date:

27/08/2024

Sample No.:

MSKNB/FD/2024-25/06/UFR82C 1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 15/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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 (Mine Water)	
3. Unique Identification of sample(if any)	NA	
4. Date of sampling	11/06/2024	
5, Place of sampling	Ganguiguda Mine Water (JWIMM)	
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold Chain Maintained	
7. Sampling Plan & Method used	IS: 17614(P-25) 2022	
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das	

Report No.: MSKPL/FD/2024-25/L054CE\_1

Sample No.: MSKNB/FD/2024-25/06/UFR82C\_1

#### RESULT

Micro Biology				
SI No.	Parameter	NOM	Method	Result
1.	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth, 9221B	<1.8

Opinion:

MA

- END -----

Reviewed By:

Signature

Name

Mr. Maltrevee Chakraborty

Designation

Executive Microbiologist

Authorized Signators

Designation : Technical in charge

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

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The recorved part of semple(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.

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

Head Office:

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At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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W: www.mitrask.com

Report No. MSKGL/ED/202		Date: 22.06.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IRON & MANCANDON	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 11.06.2024	
Location	Ganguiguda Seepage Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l			16
4			APHA (24th Edition), 5220B	250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -Cl B	***	2
6	Electrical conductivity	-	APHA 24th Edition, 2023 4500-O-C/G	***	5
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B	794	112
8		mg/l	APHA (24th Edition), 3500 Fe B	3	0.17
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	5
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction) APHA (24th Edition), 2520B	1	<0.001
13	Sulphate ( as SO4 )	mg/l			0.06
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E		<1.0
15	Total Dissolved Solids (as TDS)		APHA (24th Edition), 5210B	-	60
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2540C	***	70
17		mg/l	APHA (24th Edition), 2340 C	-	59
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	23
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.2

Checked by:

For 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





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#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AbPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date:

MSKPL/FD/2024-25/3454CX\_1

27/06/2024

Sample No.:

MSKNB/FD/2024-25/06/7YX81W\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance: Reference No. & Date :

12/06/2024 - 27/06/2024

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water (Mine Water)
4. Date of sampling	NA NA
5. Place of sampling	11/06/2024
6. Environmental conditions during sampling & Transport	D-Quarry Mine Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-23) 2021
or the personnel performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/3454CX\_1

Sample No.: MSKNB/FD/2024-25/06/7YX81W\_1

#### RESULT

SI No.	420000000000000000000000000000000000000			
or No.	Parameter	MON	Method	
1	Arsenic as As	mg/l		Result
2	Boron as B		IS 3025 (Part 2)	8DL(DL:0.005
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Copper as Cu	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7		mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	The second secon
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.2)
10	Load as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
-	Manganese as Mn	mg/I		BDL(DL:0.005)
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3		IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3-B	BDL(DL:0.4)
	and the	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

- END -

Reviewed By:

Signature Name

Designation

YOU BE COME Ms. Atrayon Saha, Ms. Piak Gare

Sr. Executive Channel

Authorized Signatory

Signature

Name

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





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Reviewed By:

Signature

Ms. Airalese Saha, Ms. Plati Ganguly

Name Designation

Sr. Executive Chemist

Authorized Signatory

Signature

Name

Designation

Lab In charge

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Page 2 of 2

#### Address of Laboratory:

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West Bengal

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





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#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date:

MSKPL/FD/2024-25/3454CX\_1

27/06/2024

Sample No.:

MSKNB/FD/2024-25/08/7YX81W\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance: Reference No. & Date :

12/06/2024 - 17/06/2024

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water (Mine Water)
4. Date of sampling	NA .
5. Place of sampling	11/06/2024
8. Environmental conditions during sampling & Transport	D-Quarry Mine Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-25) 2022
and personnel performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/3454CX\_1

Sample No.: MSKNB/FD/2024-25/06/7YX81W\_1

#### RESULT

icro Biology		RESULT		
SI No.	Parameter	UOM		
		0.000	Method	Result
9_11	Total coliform	MPN/100mi	Standard methods for the examination of water & waste water, 24th edth, 92218	6.8

Opinion:

NA

--- END ---

Reviewed By:

Signature

Ms. Maitreyee Chalcrabony

Designation : Executive Microbiologist

Authorized Signator

Name

Technical In charge

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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 Text Report. Perishable sample(s) shall be retained 2 days.

The reserved part of sample(s) for distributed analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days as per CPCB guideline & (Air) 1 moreh 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. Shradhi-Centre (5th Floor), 74B, A.J.C. Bose Road, Kokata - 700015, West Bengal, India, 761–33 40143000 / 22650007 Fax: 91-33 22650008

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

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E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202		Date: 22.06.2024
	ANALYSIS REPORT OF MINE WATER	22.00.2029
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANGANTON	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 11.06.2024	
Location	D-Quarry Seepage Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30 CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		10
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	250	4.2
5	DO	mg/l		500	6
6	Electrical conductivity		APHA 24th Edition, 2023 4500-0-C/G	****	5.2
7	Iron (as Fe)	us/cm	APHA (24th Edition), 25108		78
8		mg/l	APHA (24th Edition), 3500 Fe B	3	1.53
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	***	2
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 2520B		0.04
14	Total Alkalinity	10.8868	APHA (24th Edition), 4500 SO42-E	***	2
15		mg/l	APHA (24th Edition), 5210B		28
6	Total Hardness (as Cocca)	mg/l	APHA (24th Edition), 2540C		49
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		32
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	76
u	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.46

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Name & Address of Customer: Report No. : Tata Steel Ltd.(MGM)\_Joda West

MSKPL/FD/2024-25/RF54CA\_1 Date: 27/06/2024

Sample No. :

MSKNB/FD/2024-25/06/979806\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance: Reference No. & Date :

12/06/2024 - 27/06/2024

3000156017/056, Date - 16/09/2023

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 (Mine Water)
3. Unique Identification of sample(if any)	
4. Date of sampling	NA.
5. Place of sampling	11/08/2024
6. Environmental conditions during sampling & Transport	H-Quarry Mine Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5) deg C Cold Chain Maintained
I Identification of the	IS: 17614(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/RF54CA\_1

Sample No.: MSKNB/FD/2024-25/06/979806\_1

#### RESULT

SI No.	Parameter	1 - 1000	1	
1	TO THE OWNER OF THE PARTY OF TH	UOM	Method	Result
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
3	Boron as B	Ngm /	IS 3025 (Part 2)	
4	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:0.001)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:1.0)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
	Fluoride as F	mg/l		BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Lead as Pb	-	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	1.02
	Caro as All	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

-- END -----

Rannewed By

Signature Name

Atrayer Same P. J.J Ms. Arrayon Saha, Ms. Plat Gorguly

Designation Sr. Executive Chemist Authorized Signatory.

Signature

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





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Reverwed By:

Signature

Atrager Same P. Joyny Name

Ms. Atrogeo Sana, Ms. Plati Garguly

Designation

: Sr Executive Chemist

Authorized Signatory

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The reserved part of sample(s) for following annipsis place permission of the Vestor shall be retained for 15 days on per CPCH guideline 6 (Au) 5 month from the date of issue of the Teel Report.
The reserved part of sample(s) for following annipsis given - perishable sample(s) Food, Seeled Wester, Seeled food; shall be estained for 15 days from the date of issue of the Teel Report.

In the reserved part of sample(s) annipsis given - perishable sample(s) Food, Seeled Wester, Seeled food; shall be estained for 15 days from the date of issue of the Teel Report.

In the reserved part of sample(s) annipsis given - perishable sample(s) Food, Seeled Wester, Seeled food; shall be estained for 15 days from the date of issue of the Teel Report.

Shrachi Centru (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengel, India. Tel.: 91 33 40143000 / 23650007 Fax: 91 33 23650008 Email: Info@mitrask.com Website: www.mbrask.com Head Office:

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

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India





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#### TEST REPORT

Report No. :

MSKPL/FD/2024-25/RF54CA\_1

Date:

27/06/2024

Sample No. :

MSKNB/FD/2024-25/06/979806\_1

Date of receipt of sample:

12/06/2024

Date(s) of performance:

12/06/2024 - 17/06/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water (Mine Water)
. Date of sampling	NA .
5. Place of sampling	11/06/2024
Environmental conditions during sampling & Transport	H-Quarry Mine Water (JWIMM)
Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
Identification of the personnel performing sampling by MSK	IS: 17614(P-25) 2022
of the personnel performing sampling by MSK	Dhambrudhar Das

Report No.: MSKPL/FD/2024-25/RF54CA\_1

Sample No.: MSKNB/FD/2024-25/06/979806\_1

#### RESULT

ficro Biology		RESULT		
SI No.	Parameter	UOM	Method	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn,	Result
		100000000000000000000000000000000000000	9221B	39

Opinion:

- END -----

Reviewed By:

Signature None

Ms. Maltreyee Chekraborty

Designation : Executive Microbiologist

Designation : Technical in charge

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

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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 (Soit, Solid & Liquid Waste) shall be relained for 15 days as per CPCB guideline & (Air) 1 month flore 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. Bhrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008

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At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



T: +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/202	Date: 22 oc no
V	ANALYSIS REPORT OF MINE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	11.06.2024 MANGANESE MINES (JWIMM)
Location	H-Quarry Seepage Water (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l			38
4	Chloride (as CI )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO		APHA (24th Edition), 4500 -Cl B	***	20
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-O-C/G	160	6.1
7	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B	***	305
8		mg/l	APHA (24th Edition), 3500 Fe B	3	2.2
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		19
	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	-
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeabl
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 2520B		0.15
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E		12
15	Total Dissolved Solids (as TDS)	-	APHA (24th Edition), 5210B	***	140
6	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2540C	994	190
7		mg/l	APHA (24th Edition), 2340 C	***	174
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	26
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.12

Checked by:

For Mitra S. K. Private Limited

Address of Laboratory :

Building No. P-48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonihar, Odisha - 758034 India

West Bengal

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





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#### TEST REPORT

Name & Address of Customer: Report No. :

Date:

MSKPL/FD/2024-25/WY5EE0\_1

09/07/2024

Sample No.:

MSKNB/FD/2024-25/07/E25A1L\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance:

02/07/2024 - 09/07/2024

Reference No. & Date : 3000156017/056, Date - 16/09/2023

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

Material
Water
(JWMMV)
Chain Maintained
a .
0.

Report No.: MSKPL/FD/2024-25/WY5EE0\_1

Lab Sample Id.: MSK/KOL/2024-25/17

#### RESULT

Si No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	7.1
3	Cadmium as Cd	microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BOL(DL:1.0)
	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1,0)
6	Copper as Cu	microgram/l	TPM/MSK/INST:/93; issue No. 1 Issue date: 20/01	10.5
	Cyanide as CN	mg/f	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
10	Manganese as Mn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date; 20/01	26
11	Mercury as Hg	microgram/i	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
14	Nitrate as NO3	mg/l	15 3025 (Part 34)	1.52
13	Zinc as Zn	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	4.3

Reviewed By

Signature Name

Atoquei Sana 1 Ms. Atrayee Sets, Mr. Plot Gorg

Designation Sr. Executive Chemist Authorized Signatory

Signature

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





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Opinion:

END ---

Reviewed By:

Signature

Nemo

Designation

St. Executive Chansel

Atrajec Sam 1 &

Mr. Atropee Salus, Mr. Plaii Ganguly

Authorized Signatory:

Signature

Designation Lab In charge

The results relate only to the large) borned.
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Page 2 of 2

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AMPo. - Joda, Dist. - Kecnjhar, Odisha - 758034 India

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





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### TEST REPORT

Report No. :

MSKPL/FD/2024-25/WY5EE0\_1

Date:

09/07/2024

Sample No. :

MSKNB/FD/2024-25/07/E25A1L\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance:

02/07/2024 - 04/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
5. Place of sampling	01/07/2024
6. Environmental conditions during sampling & Transport	H Quarry Pit Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
I. Identification of the neground and	IS: 17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Ku. Sethi

Report No.: MSKPL/FD/2024-25/WY5EE0\_1

Lab Sample Id. MSK/KOL/2024-25/17

#### RESULT

licro Biology		KESULI		
SI No.	Parameter	UOM	Manual	
1	Total coliform	17.57.00 (18.00	Method Standard methods for the examination	Result
	Total collorm	MPN/100ml	of water & waste water, 24th edin, 92218	<1.8

Opinion:

NA

- END ---

Reviewed By:

Name

Mis. Mailreyee Chalvabory

Designation Executive Microbiologies **Authorized Signatory** 

Scorture

Name

Designation : Technical in charge

The results relate only to the riem(s) liested.

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The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Seeled Water, Seeled food) shall be retained for 16 days from the date of issue of the Test Report.

Head Office: Shrachi Centre (6th Floor), 748, A.J.C. Bose Road, Kolkets - 700016, West Bargal, India. Tel.; 91 33 401436007 22550007 Fax: 91 33 22550008 Email: integrationals.com Website: www.mirass.com

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AI/P.O. BARBIL Ward No-6 Dist: Keonjher, Odisha - 758035 CIN: U51909WB1956PTC023037



T: +91 94370 09815,94370 09820,94370 75269

E : barbi@mitrask.co.in W : www.mitrask.com

Report No. MSKGL/ED/2024		Date: 16.07.2024
Santa Sa		
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANGANDON	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 01.07.2024	
Location	H-Quarry Seepage Water (JWIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER 15: 2490

SI. No.		Unite	Method	Max. Tolerance Limit as per	Result
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	30 30	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		16
4	Chloride (as Cl ) mg/l APHA (24th Edition), 4500 -Cl B		250	<4.0	
5	DO	mg/l		-	6
6	Electrical conductivity	us/cm	APHA 24th Edition, 2023 4500-0-C/G	1944	5.6
7	Iron (as Fe)	State Off	APHA (24th Edition), 2510B	900	93
8		mg/l	APHA (24th Edition), 3500 Fe B	3	3.9
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.9
72	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeabl
10	Oll and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 25208	-	255000
.3	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.04
4	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		7.2
.5	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		20
6	Total Hardness (as CaCO3)	mg/l			98
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2340 C	****	43
8	pH value at 23.7 deg C		APHA (24th Edition),2540D	50/100	143
	pri value at 23,7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.43

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory

=50

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Jods, Dist. - Keonjhar, Odisha - 758034 India

#### TEST REPORT

Report No.:

Date:

MSKPL/FD/2024-25/7M5EE0\_1

09/07/2024

Sample No. :

MSKNB/FD/2024-25/07/E0FX3P\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance: Reference No. & Date:

02/07/2024 - 09/07/2024

3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
. Unique Identification of sample(if any)	Surface Water
i. Date of sampling	Surface Water
5. Place of sampling	01/07/2024
Environmental conditions due to	Ganguiguda Pit Water (JWIMM)
5. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
Identification of the same	IS: 17614(P-23) 2021
Identification of the personnel performing sampling by MSK	Pranab Ku, Sethi

Report No.: MSKPL/FD/2024-25/7M5EE0\_1

Lab Sample Id.: MSK/KOL/2024-25/16

#### RESULT

Chemical				
SI No.	Parameter	NOM	Method	
1	Arsenic as As	microgram/I	TPM/MSK/INST/93; Issue No. 1 Issue	Result
2		morogramii	date: 20/01	BDL(DL:1.0)
-	Boron as B	microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue	102
3	Cadmium as Cd		TRANSPORTED TO THE PROPERTY OF	8.2
4		microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
	Colour	Hazen	IS 3025 (Part 4)	
5	Copper as Cu	microgram/i	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
6	Cyanide as CN		date: 20/01	BDL(DL:1.0)
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Parameter and the second secon	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
	Lead as Pb	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue	TO SERVICE TO LLAND
10	Manganese as Mn	-	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
44		microgram/t	date: 20/01	41.7
11	Mercury as Hg	microgram/l	TPM/MSK/INST/93; Issue No. 1 Issue	.11-0-0-0-0-
12	Nitrate as NO3		date: 20/01	BDL(DL:1.0)
13	125 C C C C C C C C C C C C C C C C C C C	mg/l	IS 3025 (Part 34)	3.96
17	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	1.7

Reviewed By:

Signeture

Nierrei

Ms. Altrayee Sano, Ma. Plat Gano

Designation Sr. Executive Chemist Authorized Signalary:

Signature

Designation.

Lab In cheroe

Address of Laboratory :

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Email: udayanlab@mitrask.com





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Opinion:

- END ---

Reviewed By:

Signature

Name:

Designation

Ms. Almeree Saha, Mr. Piel Ganguly : Sr. Executive Charriet

Altroyce saw 1

Authorized Signetory:

Signature

Lab in phage

The results reason very to the iterapy broket.
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The received part of samplesty for character energials (Non-personner energials) when it is to be returned for 16 days are CPCS guideline 6. (All) 1 month from the case of the Personner energials (Non-personner energials) Private energials (Non-personner energials) Private energials (Non-personner energials) Private energials) Private (Non-personner energials) P

feed Office:

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Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolketa 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044038120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Report No.:

MSKPL/FD/2024-25/7M5EE0 1

Date:

09/07/2024

Sample No.:

MSKNB/FD/2024-25/07/E0FX3P\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance:

02/07/2024 - 04/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	01/07/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Ganguiguda Pit Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS: 17614(P-25) 2022 Pranab Ku, Sethi

Report No.: MSKPL/FD/2024-25/7M5EE0\_1

Lab Sample Id. MSK/KOL/2024-25/16

#### RESULT

flicro Biology				
SI No.	Parameter	UOM	Method	Result
30	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 92218	<1.8

Opinion:

- END ---

Reviewed By

Signature Ms. Matreyee Chairsbody

Designation: 1 Executive Microbiologist Authorized Signatory

Wr. Sukenta Palui

Designation : Technical in charge

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The reserved part of sample(s) for character analysis (Non - parishable 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.

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

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

Strech Centre (Sh Floor), 745, A.J.C. Bose Road, Xallate - 700015, West Bengal, India. Tel. 31:33-40143000 / 22650007 Fax: 91:33-22650008 Enter: Info@mitrask.com Websits: www.mitrask.com. Head Office:

AUP.O.:BARBIL Ward No-6 Dist : Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



T : +91 94370 09815,94370 09820,94370 75269

E : barbil@mitrask.co.in W: www.mitrask.com

	ANALYSIS REPORT OF MINE WATER	Date: 16.07.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	IODA WEST IDON & MANGANIPON	
Date of sampling	JODA WEST IRON & MANGANESE MINES (JWIMM) 01.07.2024	
Location	Ganguiguda Seepage Water (JWIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l		30	<2.0
3	Chemical Oxygen Demand (COD)	- Countrality Country		***	22
4	Chlorida (see Ct.)		250	<4.0	
5	DO	-	APHA (24th Edition), 4500 -Cl B		8
6	Electrical conductivity	mg/l	APHA 24th Edition, 2023 4500-0-C/G	*	6
7	Iron (as Fe)	us/cm	APHA (24th Edition), 25108	-	205
8	Magnesium (as Mg) mg/l APHA (24th Edition), 3500 Fe B		APHA (24th Edition), 3500 Fe B	3	2.2
9			APHA (24th Edition), 3500 Mg B		
	Odour	mg/l APHA (24th Edition), 2150B		Agreeable	16
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	Agreeable
11.	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C		<5.0
12	Salinity	PSU	(Chloroform Extraction)	1	<0.001
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 2520B	964	0.1
14	Total Alkalinity	-	APHA (24th Edition), 4500 SO42-E	***	6
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 5210B	***	95
16		mg/l	APHA (24th Edition), 2540C		128
7	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		122
-	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	1053
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.25

Checked by

For 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





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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India

### TEST REPORT

Report No.:

MSKPL/FD/2024-25/Z55EE0\_1

09/07/2024

Sample No. :

Date:

MSKNB/FD/2024-25/07/K8RT2A\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance:

02/07/2024 - 09/07/2024

Reference No. & Date : 3000156017/056, Date - 16/09/2023

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

Group     Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
5. Place of sampling	01/07/2024
6. Environmental conditions during sampling & Transport	D Quarry Pit Water (JWIMM)
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
B. Identification of the personnel performing sampling by MSK	IS: 17614(P-23) 2021
MSK personner performing sampling by MSK	Pranab Ku. Sethi

Report No.: MSKPL/FD/2024-25/Z55EE0\_1

Lab Sample Id.: MSK/KOL/2024-25/18

#### RESULT

hemical				
SI No.	Parameter	UOM		
3	Arsenic as As		Method	Result
	Alsellic as As	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue	DDL/DL-4 &
2	Boron as B	mioranea a	TPM/MSK/INST./93; Issue No. 1 Issue	BDL(DL:1.0)
3	400000000000000000000000000000000000000	microgram/l	date: 20/01	5.3
00	Cadmium as Cd	microgram/I	TPM/MSK/INST./93; Issue No. 1 Issue	7/2010/07
4	Colour	Hazen	date: 20/01	BDL(DL:1.0)
5	Copper as Cu		IS 3025 (Part 4)	BDL(DL:1.0)
6		microgram/l	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sect	111111111111111111111111111111111111111
8	Fluoride as F	mg/l		BDL(DL:0.02)
0	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Lead as Pb	The second second second	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10		microgram/i	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BOL(DL:1.0)
(14)	Manganese as Mn	microgram/l	TPM/MSK/INST,/93; Issue No. 1 Issue	
11	Mercury as Hg		date: 20/01	11.7
12		microgram/i	TPM/MSK/INST /93; Issue No. 1 Issue date: 20/01	BDL(DL:1.0)
	Nitrate as NO3	mg/i	IS 3025 (Part 34)	
13	Zinc as Zn		TPM/MSK/INST./93; Issue No. 1 Issue	1.66
	- CANTROLOGY,	microgram/I	date: 20/01	BDL(DL:1.0)

Reviewed By:

Signature

Atompre Sana & young Ms. Arrayce Sehs, Ms. Pieli Ganguly

Designation

: St. Executive Cheeriga

**Authorized Signatory** 

Signature

Name

Designation

: Lab In charge

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengst

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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Opinion:

END ---

Reviewed By:

Signature

Namo

Ma. Atraveo Suhu, Ms. Pldii Garguly

Designation

- Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Atrager Sam P. Gazzel

The results orbits only to the livering tested.

The Test Report shall not be expected except to till. Although the permission of Miles S.K. Private Limited.

The results part of semplegy to dismonstrational analysis (Mon. - possibility warping) Freed, Wester) oftest to dispose from the date of laune of the Test Report. Pertainable samplegy that the estates 2 days from the date of laune of the Test Report.

The results part of semplegy to dismonstration analysis (Soc. Saids 5, Liquid Vitatio) oftest be retained for 15 days as per CPCIS palaries 6, (All) 1 month than the date of taxas of the Test Report.

The results of the Test Report.

The Report of the Test Report.

Head Office:

Stracts Centre (5th Floor), 748, A.J.C. Bose Road, Koksta - 700016, West Bengal, India. 31 33 40143000 ( 22950007 Pax: 91 33 72650008 Email: Info@mitrask.com Wataste: www.mitrask.com

Page 2 of 2

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Pp. - Joda, Dist. - Keonjhar, Odisha - 758034 India

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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#### TEST REPORT

Report No. :

MSKPL/FD/2024-25/Z55EE0\_1

09/07/2024

Date: Sample No. :

MSKNB/FD/2024-25/07/K8RT2A\_1

Date of receipt of sample:

02/07/2024

Date(s) of performance:

02/07/2024 - 04/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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	Average at Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	Surface Water
5. Place of sampling	01/07/2024
6. Environmental conditions during	D Quarry Pit Water (JWMM)
Environmental conditions during sampling & Transport     Sampling Plan & Method used	(2 - 5 ) deg C Cold Chain Maintained
8. Identification of the seasons I	IS: 17614(P-25) 2022
8, Identification of the personnel performing sampling by MSK	Pranab Ku, Sethi

Report No.: MSKPL/FD/2024-25/255EE0\_1

Lab Sample Id. MSK/KOL/2024-25/18

#### RESULT

Micro Biology		THEODE		
SI No.	Parameter	UOM	Method	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth,	Result
		110.000000	9221B	<1.8

Opinion: NA.

- END -

Reviewed By

Signature

Designation

**Executive Microbiologist** 

reyoe Chakraborty

Authorized Signer

Struture

Name

Designation : Technical in charge

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

This Test Report is the fronts) basted.
This Test Report is the fronts in produced except in full, without the permission of Milm S.K. Private Limbed.
This reserved part of sample(s) for charmost enalysis (Non--parishable 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 for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for charmost graphs; (Soit, Soit & Liquid Water) shall be retained for 15 days as per CPCS guideline & (Airt 1 month from the class of issue of the Test Report.
The reserved part of sample(s) for Microbiological simplets (Non--perishable sample(s) Froot, Seeled Water, Seeled Water, Seeled Food) shall be retained for 15 days from the class of issue of the Test Report.

Shradhi Centre (Sth Floor), 748, A.J.C. Bose Roset, Kokata – 700016, Weet Bengel, India. Tot. 191 33 40143000 / 22550007 Fax: 91 33 22650009 Email: info@mänsk.com Website: www.mitrask.com

Page 1 of 1

AUP.O.:BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037



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W: www.mitrask.com

Report No. MSKGL/ED/2024	Date: 15.07.2024	
	ANALYSIS REPORT OF MINE WATER	-
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	01.07.2024	
Location	D-Quarry Seepage Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 52108	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	14
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	200	<4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		10
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		6.4
7	Iron (as Fe)	mg/i	APHA (24th Edition), 3500 Fe B	3	102
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		<0.05
9	Odour	mg/I	APHA (24th Edition), 2150B		3.8
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	, ig. couote	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<5.0 <0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	***	0.05
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	4.8
14	Total Alkalinity	mg/I	APHA (24th Edition), 5210B	944	32
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	***	64
16	Total Hardness (as CaCO3)	mg/I	APHA (24th Edition), 2340 C		51
17	Total Suspended Solid (as TSS)	mg/I	APHA (24th Edition),2540D	50/100	7.4
8	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.38

Checked by;

For Mitra S. K. Private Limited

AMP O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING INSPECTION

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Report No. MSKGL/ED/2024	-25/003425	Date: 31.08.2024
	ANALYSIS REPORT OF MINE WATER	51.00.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	D Quarry Pit Water (JWIMM)	

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	THE INCHOOL		Max. Tolerance Limit as per CPCB	Results
	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		6.3
3	Chemical Oxygen Demand (COD) mg/l APHA		APHA (24th Edition), 5220B	250	
4	Chloride (as Cl ) m		APHA (24th Edition), 4500 -Cl B	250	<4.0
5	DO		APHA 24th Edition, 2023 4500-O-C/G		9.9
6	m) and the second secon		APHA (24th Edition), 2510B	-	6.2
7	Iron (as Fe) mg/l APHA (24th Edition), 3500 Fe B		3	71	
8	Magnesium (as Mg)	A		30	0.06
9	Odour		APHA (24th Edition), 3500 Mg B	-	1.9
10	District Control of the Control of t	mg/l	APHA (24th Edition), 2150B	Agrecable	Agreeable
250	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.04 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	1.8
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	1200	15
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		42
7	Total Suspended Solid (as TSS)	mg/l		3.775	24
8		7.070	APHA (24th Edition),2540D	50/100	8.9
	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.46

Checked by:-

For Mitra S. K. Private Limited

MSK TESTING INSPECTION

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2	Date: 31.08.2024
	ANALYSIS REPORT OF MINE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.08.2024
Location	D Quarry Pit Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	
2	Boron as B	mg/l	0.2	<1.0
3	Cadmium as Cd	mg/l	2	5.1
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	<1.0
6	Cyanide as CN	mg/l	0.2	<1.0
7	Fluoride as F	mg/l	2	< 0.02
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.2
9	Lead as Pb	mg/l	0.1	< 0.01
10	Mercury as Hg			<1.0
11		mg/l	0.01	<1.0
12	Manganese as Mn	mg/l	2	11.2
	Nitrate as NO3	mg/l	10	1.54
13	Zinc as Zn	mg/l	5	4.2
14	Total coliform	/100ml	-	Present

Checked by: - Seelect

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist.: Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Name of the Client		Date: 31.08.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	H Quarry Pit Water (JWIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Result
2	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	~~
	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		<2.0
3	Chemical Oxygen Demand (COD)	mg/I	APHA (24th Edition), 5220B		7.8
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B	250	<4.0
5	DO	mg/l		-	5.9
6	Electrical conductivity	us/cm	APHA 24th Edition, 2023 4500-O-C/G	***	5.3
7	Iron (as Fe)		APHA (24th Edition), 2510B	1777	76
8		mg/l	APHA (24th Edition), 3500 Fe B	3	0.09
300	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B		
9	Odour	mg/l	APHA (24th Edition), 2150B	220	3.8
0	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agrecable 10	Agreeab
1	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
2	Salinity	13.50	(Chloroform Extraction)	1	< 0.001
3		PSU	APHA (24th Edition), 2520B	1777	0.04 PSL
4	Sulphate ( as SO4 )	mg/I	APHA (24th Edition), 4500 SO42-E		1.6
5	Total Alkalinity	mg/I	APHA (24th Edition), 5210B	***	27
	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	-	
5	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		50
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	35
3	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	313,3230	168
-			78 78 7 2 761 Edition, 2023 4500-H+B	5.5-9.0	6.01

Checked by:

For Mitra S. K. Private Limited

Al/P.O.:BARBIL Ward No-6 Dist.: Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037



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Report No. MSKGL/ED	Date: 31.08 2024
	ANALYSIS REPORT OF MINE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.98.2024
Location	H Quarry Pit Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	
2	Boron as B	mg/I	0.2	<1.0
3	Cadmium as Cd			7.2
4	Colour	mg/l	2	<1.0
5		Hazen	5	<1.0
-	Copper as Cu	mg/l	3	10.4
6	Cyanide as CN	mg/l	0.2	<0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/I	0.01	
11	Manganese as Mn	mg/l		<1.0
12	Nitrate as NO3		2	28
13		mg/l	10	1.48
14	Zinc as Zn	mg/l	5	4.4
1.4	Total coliform	/100ml	***	Present

Checked by:- Serelal:

For Mitra S. K. Private Limited



AMP.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2024	-25/003426	Date: 31.08.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	24.08.2024	
Location	Gangeiguda Pit Water (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
S.C.	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI)	mg/l	APHA (24th Edition), 4500 -C1B		6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	-	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	107
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	-	5.6
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	144	0.05 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-	3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	42
15	Total Dissolved Solids (as TDS)	mg/I	APHA (24th Edition), 2540C	_	64
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		55
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	948
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.29

Checked by:-

For Mitra S. K. Private Limited



AVP.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2024-25/003426

ANALYSIS REPORT OF MINE WATER

Name of the Client

M/s. TATA STEEL LIMITED

Name of the Mines

JODA WEST IRON & MANGANESE MINES (JWIMM)

Date of sampling

24.08.2024

Location

Gangeiguda Pit Water (JWIMM)

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	<1.0
2	Boron as B	mg/l	-	7.8
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	<1.0
6	Cyanide as CN	mg/l	0.2	< 0.02
7	Fluoride as F	mg/l	2	<0.2
8	Hexavalent Chromium (as Cr+6)	mg/I	0.1	< 0.01
9	Lead as Pb	mg/l	0.1	<1.0
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	39.8
12	Nitrate as NO3	mg/l	10	3.88
13	Zinc as Zn	mg/l	5	1.67
14	Total coliform	/100ml	_	Absent

Checked by:- Sentet

For Mitra S. K. Private Limited

AL



At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2024-25/004104		Date: 01.10.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	H Quarry Pit Water (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	- 30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/I	APHA (24th Edition), 4500 -Cl B	***	12
5	DO	mg/l	APHA 24th Edition, 2023 4500-O- C/G	-	4.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	102
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.22
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		3.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.05 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		38
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		63
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	-	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	153
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500- H+B	5.5-9.0	6.32

Checked by:

For Mitra S. K. Private Limited

At/P.O.:BARBIL Ward No-6 Dist.: Keonjhar, Odisha - 756035 CiN: U51909WB1958PTC023037 MSK TESTING INSPECTION

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Report No. MSKGL/ED/2024-	25/004104 Date: 01.10.2024
1	ANALYSIS REPORT OF MINE WATER
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	17.09.2024
Location	H Quarry Pit Water (JWIMM)

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	10
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	0.07
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	0.14
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	1.09
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	<0.5
6.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
7.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
8.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	< 0.01
9.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	< 0.001
10.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
11.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	-	<0.5
12.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	< 0.05
13.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B	_	<1.8

Checked by:

For Mitra S. K. Private Limited

R.



Al/P.O. BARBII, Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report No. MSKGL/ED/2024-25/004104		Date: 01.10.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	D Quarry Pit Water (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Tott Paramatary		Method	Max. Tolerance Limit as per CPCB	Results	
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0	
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	4.8	
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0	
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B		10	
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	6.5	
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		71	
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.2	
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		2.9	
9	Odour	mg/I	APHA (24th Edition), 2150B	Agreeable	Agreeable	
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	520B 10		
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001	
12	Salinity	PSU	APHA (24th Edition), 2520B	***	0.04 PSU	
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		<1.0	
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		17	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		44	
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		24	
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	9.8	
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.68	

Checked by:

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/2	024-25/004104 Date:	01.10.2024
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s, TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	D Quarry Pit Water (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SLNo	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
4.:	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	15
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	1.12
5.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	<0.5
6.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.000
7.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
8.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	(RA 0.1	
9,	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
10.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	<0.01
11.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	***	<0.5
12.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
13.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B	ess.	<1.8

Checked by:-

For Mitra S. K. Private Limited

At/P.O.:BARBIL, Ward No-6 Dist.: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037 TESTING INSPECTION

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Report No. MSKGL/ED/2	Date: 01.10.2024	
	ANALYSIS REPORT OF MINE WATER	
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)	
Date of sampling	17.09.2024	
Location	Gangeiguda Pit Water (JWIMM)	

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SLNo	Test Parameter	Test Method	Limit as per CPCB for discharge of effluentsto Inland Surface Water	Result
1.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	10
2.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	0.04
3.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2,0	1.16
5.	Nitrate (as NO <sub>3</sub> ) in mg/I	IS 3025 (Part 34)-1986, RA: 2019	10.0	<0.5
6.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	< 0.002
7.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
8.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)		
9.	Mercury (as Hg) in mg/I	IS 3025 (Part 48): 1994(RA 2019)	0.01	< 0.001
10.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	< 0.01
11.	Boron(as B) in mg/l	IS 13428-2005(Annex L); RA:2018	***	<05
12.	Hexavalent Chromium in mg/l	APHA 24th Edition2023; 3500 Cr B	0.1	<0.05
13.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24th edtn. 9221B		<1.8

Checked by:-

For Mitra S. K. Private Limited

AtIP O. BARBIL Ward No-6 Dist : Keonihar, Odisha - 758035 CIN: U51909WB1956PTC023037 MSK TESTING INSPECTION

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Report No. MSKGL/ED/2024-25/004106 Date: 01.10.2024

ANALYSIS REPORT OF MINE WATER

Name of the Client M/s. TATA STEEL LIMITED

Name of the Mines JODA WEST IRON & MANGANESE MINES (JWIMM)

Date of sampling 17.09.2024

Location Gangeiguda Pit Water (JWIMM)

#### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	arction and the second		Max. Tolerance Limit as per CPCB	Results
	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B		8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	_	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		110
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.21
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.06 PSU
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	_	42
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		68
16	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		53
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	968
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.39

Checked by

For Mitra S. K. Private Limited

Authorized Signatory

audhary



#### CONSENT ORDER JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

BY REGD. POST WITH AD

## STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA] A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

### **CONSENT ORDER**

4234 No.

IND-I-CON- 186

Dt. 12-03.2022

#### CONSENT ORDER NO. 67

Sub: Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.

Your online application No.3236687, Dated 02.12.2020 and your letter No.MGM/P&E/305/21 Dated 31-12-2021.

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: JODA WEST MANGANESE MINES OF M/S. TATA STEEL LTD.

Name of the Occupier & Designation: SRI AWNISH KUMAR, CHIEF AND AGENT

Address: AT/PO: BICHHAKUNDI, VIA: JODA, DIST: KEONJHAR, PIN:758034

This consent order is valid for the period up to 31/03/2026.

This consent order supersedes the earlier consent order issued vide letter No. 5334, dated 27.03.2021.

### Details of Products Manufactured

O1. Product	Quantity		
Ortails of Mineral Handling Plants / Inits	0.18 MTPA		

### Details of Mineral Handling Plants /Units

#### 01 Operation of stationery screening plant 1X70 TPH

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.



## CONSENT ORDER JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

## A. Discharge permitted through the following outlet subject to the standard

Out	Description of	Point of	Quantity	- I	Pre-scribed Standard			
let No.	outlet	discharge	of discharge KL/hr	рН	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)	
01	Septic tank (Domestic effluent)	Soak pit	-	5.5-9.0	200		100	
02	Mine drainage water/ surface inland surface surface	19634 (Monsoon period)	5.5-9.0	100 (Rainy day	10	-		
	wastewater	vastewater water body.			50(Non- Rainy day)	g principle		

# B. <u>Emission permitted through the following stack subject to the prescribed standard</u>

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Presc	ribed S	Standard
				PM (mg/Nm³)	SO <sub>2</sub>	NO <sub>x</sub>
					+	

## C. <u>Disposal of solid waste permitted in the following manner</u>

SI. No.	Type of Solid waste	Quantity generated (TPD)	reused on	Quantity to be reused off site(TPD)	Quantity disposed off (TPD)	Description of disposal site.
01	Top soil & over burden	As per approved mining plan				As per approved mining plan



#### CONSENT ORDER

#### JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

### D. GENERAL CONDITIONS FOR ALL UNITS

- The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
- The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity /quality of the effluent rate of emission / air pollution control equipment / system etc.
- The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the
  previous written permission of the Board.
- 4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
- 5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
- The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize
  any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
- This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
- 8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
- An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
- The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
- Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance consumer for utilization for any purposes whatsoever.
   Separate meters with perassay pipe line for execution.
- 12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - Industrial cooling, spraying in mine pits or boiler feed,
  - b) Domestic purpose
  - c) Process
- 13. The applicant shall display suitable caution board at the lace where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
- 14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
- 15. The applicant shall maintain good house keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leakproof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
- 16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
- 17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
   18. The utilization of treated effluent on feature in
- The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.

  The effluent disposal on land, if any about the course of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
- The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.

  If at any time the disposal of treated of
- 20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
- 21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
- 22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
- 23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
- 24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.

### SENT ORDER

### JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

- The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
- No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of 26 the Board.
- The liquid effluent arising out of the operation of the air pollution control equipment shall treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended). 27
- The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time. 28
- There shall not be any fugitive or episodal discharge from the premises. 29
- In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge /emission shall be brought to the notice of the Board 30 within 24 hours of occurrence.
- The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily 31. accessible at all times.
- Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post 32 within 24 hours of its occurence.
- The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that 33
- The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as no to cause fugitive 34 emission, dust problems through leaching etc., of any kind.
- All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by : 35
  - Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - Controlled incineration, wherever possible in case of combustible organic material.
  - Composting, in case of bio-degradable material. iii)
- Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of 36 authorization shall be obtained for handling and disposal of hazardous wastes.
- If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, 37 vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
- The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the 38. expiry period of this consent.
- The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent. 39
- Notwithstanding anything contained in this conditional letter of consent, the Board Newsby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as 40 deemed fit for the purpose of the Act by the Board.
- The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) 41. Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
- In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without 42.
- The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is 43 observed and to modify/ stipulate additional conditions as deemed appropriate.



### CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

### GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

- The applicant shall analyse the emissions every month for the parameters indicated in TABLE. B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10<sup>th</sup> of the succeeding month. 2.
- The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter. Sulphor Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monixide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
- The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, 3. humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month. 4
- The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly.
- Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month. Progress on planting of trees quarterly.
- b.
- The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of 5. trade as well as domestic effluent. A record of daily discharge shall be maintained. 6.
- The following information shall be forwarded to the Member Secretary on or before 10th of every month.
  - Performance / progress of the treatment plant.
  - b. Monthly statement of daily discharge of domestic and/or trade effluent.

#### 7 Non-compliance with effluent limitations

- If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the a) following information in writing within 5 days of such notification.
  - i) Causes of non-compliance
  - i) A description of the non-compliance discharge including its impact on the receiving waters.
  - Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the ii)
  - iii) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
  - Steps to be taken by the applicant too prevent the condition of non-compliance. iv)
- The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with b) any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the c)
- Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.
- The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board. 9
- The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids 10
- In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for;

Rotation of crops

Change of point of application of effluent on land

A portion of land kept fallow.

- The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department. 11 12
- It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royats in the surrounding areas as a result of discharge of sewage or trade effluent if any. 13
- Proper housekeeping shall be maintained by a dedicated team.
- The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution 14 control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned. Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the



### CONSENT ORDER

### JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

### E. SPECIAL CONDITIONS:

- This consent order is subject to compliance of orders of the Hon'ble Supreme Court of India in the matter of W. P. (Civil) 114/2014.
- 2) This consent order is subject to permission from MoEF & CC, Govt. of India and Steel and Mines Department, Government of Odisha for continuing of mining operation.
- The validity of the Consent to Operate is subject to availability of valid mining scheme from IBM, Govt. of India.
- 4) Mining operation is subject to availability of all other statutory clearances.
- 5) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.
- 6) Controlled blasting shall be practiced to minimize generation of dust and fly rocks.
- Regular water sprinkling shall be carried out in critical areas prone to air pollution such as around crushing and screening plant. Water sprinkling shall also be carried out on haul roads at frequent interval so that it should always remain in wet condition. Haulage roads shall be devoid of ruts and potholes and shall be maintained properly to avoid generation of dust during movement of vehicles.
- B) Dust suppression measures preferably dry fog system shall be provided at all appropriate places of mineral handling plants (screening plant). Loading the unloading areas including all the transfer points shall also have efficient dust suppression arrangements (dry fog system). These shall be properly maintained and operated.
- 9) Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
- 10) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
- 11) Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
- 12) Four Ambient Air Quality Monitoring Stations shall be established in core zone and buffer zone for monitoring of ambient air quality and location of the stations shall be decided in consultation with the Regional Officer, State Pollution Control Board based on the metrological data, topographical features and environmentally and ecologically sensitive targets.
- 13) The monitoring of ambient air quality shall be carried out twice in a week (24 hourly) at a particular site and the consolidated data shall be submitted to the State Pollution Control Board, once in a year.
- 14) The ambient air quality shall remain within prescribed national ambient air quality standards.
- 15) The top soil generated shall be stored at earmarked site (s) only and stabilized with plantation or shall be used for land reclamation and plantation.

# ODISHA

#### CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

- 16) The over burden generated during the course of mining shall be stacked at earmarked dump site (s) and stabilized with plantation or used for reclamation of excavated land followed by plantation.
- 17) The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations.
- 18) Check dams and check weirs shall be constructed at appropriate places of the mine lease area to prevent direct flow of runoff to nearby water bodies. The surface runoff water from the existing runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2) of the consent order.
- 19) Retention wall shall be constructed at the toe of topsoil dump and OB dump. Garland drain shall be constructed around topsoil dumps, over burden dumps and mineral stack yards terminating at settling pit to prevent direct disposal of runoff to nearby water bodies.
- 20) Garland drain and sedimentation pit shall be de-silted after monsoon or as and when required. The runoff discharge quality from runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2)of the consent order.
- 21) Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

PH - 6.5 -9.0 TSS - <100 mg/l BOD - 30 mg/l

Fecal Coliform - <1000 MPN/100 ml.

- 22) ETP shall be operated at all time for workshop and wastewater generated during mining operation, if any. The quality of the treated wastewater shall conform to the prescribed standard as stated in Part A (SI No. 2) of the consent order.
- Regular monitoring of water quality of upstream and downstream of surface water bodies existed if any within 5 Km shall be carried out once in every month and record shall be maintained and submitted to the State Pollution Control Board once in every year. Monitoring shall be carried out through MoEF& CC accredited laboratory.
- 24) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), monsoon (August), post-monsoon (November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly.
- 25) The mine shall take necessary action for compliance with the air and water quality standards as stipulated in this order.
- 26) Adequate measures shall be taken for control of noise levels below the following limits.

(6.00 AM - 9.00 PM) - Leq 75 dB(A) (9.00PM - 6.00 AM) - Leq 70 dB(A)



### CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

- Ambient air quality monitoring data, noise monitoring data and water / wastewater 27) quality monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.
- Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, 28) OB dumps, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The annual plantation details shall be submitted to the Board by 30th April every year.
- A copy of the annual return (annual return submitted to IBM, Govt. of India/ 29) Directorate of Mines, Govt. of Odisha) shall be submitted to this Board every year.
- The environmental statement report for the financial year ending 31st March shall be 30) submitted to the Board in Form -V on or before 30th September every year.

MEMBER SECRETARY STATE POLLUTION CONTROL BOARD, ODISHA

TO,

SRI AWNISH KUMAR, CHIEF AND AGENT JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED, AT/PO: BICHHAKUNDI, VIA: JODA DIST: KEONJHAR, PIN-758034

Memo	No.	/Dt/
	orwarded to:	- u u o d Deard Koonibar
- '\	Degianal Officer St	ate Pollution Control Board, Keonjhar

- Regional Officer, State Pollution Control Board, Keonjhar
- District Collector, Keonjhar ii)
- Director of Mines, Govt. of Odisha, Bhubaneswar iii)
- Director, Environment-cum-Special Secretary, F & E. Dept. Govt. of Odisha, iv) Bhubaneswar.
- D.F.O, Keonjhar V)
- Deputy Director of Mines, Joda vi)
- Addl. Chief Env. Engineer, (Hazardous Waste Management Cell) vii)
- Sr. Env. Scientist, Central Lab. SPCB, Bhubaneswar viii)
- Consent Register ix)

CHIEF ENV. ENGINEER (M) STATE POLLUTION CONTROL BOARD, ODISHA

## CONSENT ORDER JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

# GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS



CONSENT ORDER
JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

### GENERAL STANDARDS FOR DISCHARGE OF **ENVIRONMENTAL POLLUTANTS PART -A: EFFLUENTS**

SI.No.	Parameters	Standards						
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas			
		(a)	(b)	(c)	(d)			
1.	Colour & odour	Colourless/Odou rless as far as practible		See 6 of Annex-1	See 6 of Annex-1			
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.			
3.	Particular size of SS	Shall pass 850						
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0			
6.	Temperature	Shall not exceed 5°C above the receiving water temperature			Shall not exceed 5°C above the receiving water temperature			
7.	Oil & Grease mg/l max.	10	20	10	20			
8.	Total residual chlorine	1.0			1.0			
9.	Ammonical nitrogen (as N) mg/l max.	50	50		50			
10.	Total Kajeldahl nitrogen (as NH <sub>3</sub> ) mg/1 max.	100			100			
11.	Free ammonia (as NH <sub>3</sub> ) mg/1 max.	5.0	Vision in the second		5.0			
12.	Biochemical Oxygen Demand (5 days at (20°C) mg/1 max.	30	350	100	100			
13.	Chemical Oxygen Demand, mg/1 max.	250			250			
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2			
15.	Mercury (as Hg) mg/1 max.	0.01	0.01		0.001			
16.	Lead (as pb) mg/1 max.	01.	1.0		2.0			



# CONSENT ORDER JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

17.	Cardmium (as Cd) mg/1 max.	2.0	1.0		2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0		1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0		. 2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0		3.0
21.	Zinc (as Zn) mg/l max.	5.0	15		15
22.	Selenium (as Sc) mg/l max.	0.05	0.05		0.05
23.	Nickel (as Nil) mg/l max.	3.0	3.0		5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride ( as F) mg/l max.	2.0	15		15
26.	Dissolved Phosphates (as P) mg/l max.	5.0			
27.	Sulphide (as S) mg/l max.	2.0			5.0
28.	Phennolic compounds as $(C_6H_5OH)$ mg/l max.	1.0	5.0		5.0
29.	Radioactive materials a. Alpha emitter micro curle/ml. b. Beta emitter micro curle/ml.	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>8</sup>	10 <sup>7</sup>
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
1	Manganese (as Mn)	2 mg/l	2 mg/l		2 mg/l
2.	Iron (Fe)	3 mg/l	3 mg/l		3 mg/l
3.	Vanadium (as V)	0.2 mg/l	0.2 mg/l		0.2 mg/l
1.	Nitrate Nitrogen	10 mg/l			20 mg/l



SI. No.	Pollutants	Time Weighed		ALITY STANDA Concentrate of	
		Average	Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO <sub>2</sub> ), μg/m <sup>3</sup>	Annual * 24 Hours **	50 80	80	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), μg/m <sup>3</sup>	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite)
3.	Particulate Matter (size less than 10μm) or PM <sub>10</sub> μg/m <sup>3</sup>	Annual *  24 Hours **	60	60	- Chemiluminescence -Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5μm) or PM <sub>2.5</sub> μg/m <sup>3</sup>	Annual * 24 Hours **	40 60	40 60	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O <sub>3</sub> ) μg/m <sup>3</sup>	8 Hours ** 1 Hours **	100	100	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) μg/m <sup>3</sup>	Annual * 24 Hours **	0.50	0.50	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m <sup>3</sup>	8 Hours ** 1 Hours **	02	02	- Non Dispersive Infra Red (NDIR)
8.	Ammonia (NH <sub>3</sub> ) μg/m <sup>3</sup>	Annual*  24 Hours**	100	100	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C <sub>6</sub> H <sub>6</sub> ) μg/m <sup>3</sup>	Annul *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m³	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m <sup>3</sup>	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or
12.	Nickel (Ni),ng/m <sup>3</sup>	Annual*	20	20	equivalent filter paper -AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

<sup>24</sup> hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

# OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE) & CHIEF WILDLIFE WARDEN, ODISHA, BDA APARTMENT, 5<sup>TH</sup> FLOOR, PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR-12

Ph. No.0674-2564587, FAX No.0674-2565062 (Website:odishawildlife.org, E. mail: odishawildlife@gmail.com)

Memo No. 7.726 /1 WL-SSP-93/2015 Dated, Bhubaneswar, the  $\gtrsim$  / Aug, 2015

To

The Principal Chief Conservator of Forests, Odisha, Bhubaneswar

Sub:

Approval of Site Specific Wildlife Conservation Plan in respect of Joda West Manganese Mines of TATA Steel Ltd. in Keonjhar Forest Division

It is to inform you that M/s TATA Steel Ltd. has to implement a Site Specific Wildlife Conservation Plan for its Joda West Manganese mines in Keonjhar district in compliance to Specific Condition No.(xvi) stipulated in the Environment Clearance granted by Govt. of India, MoEF vide their letter No. J-11015/86/2004-IA.II(M) dated 13.9.2005.

2. The Site Specific Wildlife Conservation Plan in respect of the above project has been approved by the undersigned with financial forecast of ₹1130.08 lakh (Rupees eleven crore thirty lakh eight thousand) only for the following activities.

b.	For activities to be implemented by DFO, Keonjhar Division in project impact area	₹979.48 lakh
h.	area	₹979 48 lakh
a.	For activities to be implemented by the user agency in project	₹150.60 lakh

- 3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Keonjhar Division. A sum of ₹979.48 lakh only may be deposited in the CAMPA fund meant for the purpose for implementation of various activities within the project impact area by the Forest Deptt. as envisaged in the plan.
- 4. The User Agency may be advised to note the following conditions for future compliance.
  - This Plan may be revisited after 5 years and the User Agency will give undertaking to contribute towards the revised cost of the conservation plan till the project period, if any.

- The project proponent has to prepare and submit the Conservation Plan for the next 10 years of their lease period (balance period for which forest land remains diverted) at least one year before the expiry of the present Conservation Plan and deposit the outlay amount upon its approval. In case of delay, it will be dealt as per law for violations of Forest Conservation Act, 1980 and Environment (Protection) Act, 1986.
- The project proponent has to give an undertaking to bear the differential cost in case of enhancement of wage rate during the time of implementation of this plan.

Encl: 2 copies of approved site specific WL Conservation Plan

Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Odisha

Memo No. 7727 /date 31-08-2015

Copy forwarded for information and necessary action to -

- 1. Special Secretary to Govt. of Odisha, F&E Deptt., Bhubaneswar
- Regional Chief Conservator of Forests, Rourkela Circle with reference to memo No.5699 dt 16.7.2015 of the DFO, Keonjhar Division
- 3. Divisional Forest Officer, Keonjhar Division with reference to his memo No.5698 dt 16.7.2015 alongwith a copy of the approved site specific wildlife conservation plan

4. The Head, M/s Joda West Manganese Mines (TATA Steel Ltd.), At/PO- Joda, Dist. – Keonjhar alongwith a copy of the approved site specific wildlife conservation plan

Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Odisha



The Dy. Director General of Forest (FC)
Ministry of Environment, Forest & Climate Change,
Regional Office (EZ), Government of India,
A-3, Rail Vihar, Chandrasekharpur,
Bhubaneswar – 751023

Ref. No. MGM / P&E / 106 / 23

Date: 31.03.2023

Sub: Submission of Approved Review of Mining for Joda West Iron & Manganese Mine over an area of 1437.719 ha for the period 2023-24 to 2027-28.

Dear Sir,

With reference to above cited subject, we would like to inform you that the Review of Mining Plan & Progressive Mine Closure Plan in respect of Joda West Iron & Mn. Mine was submitted to Indian Bureau of Mines under Rule 17(2) of the MCR 2016 & Rule 23 of MCDR 2017 and duly approved vide letter no. MCDR-MiFL0Mn/3/2022-BBS-IBM\_RO\_BBS, Dtd. 28.03.2023.

Hence, we are enclosing herewith the approved copy of the Review of Mining Plan for your kind perusal.

Thanking you,

Yours faithfully, F: Tata Steel Ltd.

(Sabykachy Mishra) Qualified Person & Head (Mine & Production Planning), Ferro Alloys & Minerals Division,

Encl: As above.



#### TATA STEEL LTD.

	Manual Am Repor			oort (Core 1 to Sep-24	=			
Location	Parameter	UoM	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
	Particulate Matter (<10um)	μg/m³	227.3	226.2	226.5	103.5	61.6	66.0
	Particulate Matter (<2.5um)	μg/m³	104.9	114.4	116.5	51.3	30.6	33.4
	Sulphur Dioxide (SO2)	μg/m³	8.3	7.8	7.3	6.0	<6	6.1
	Nitrogen Dioxide (NO2)	μg/m³	22.0	22.7	23.2	17.6	14.5	17.2
	Carbon Monoxide (CO)	mg/m³	0.57	0.56	0.53	0.25	0.14	0.22
	Ozone (O3)	μg/m³	<20	<20	<20	<20	<20	<20
Near Time Office	Ammonia (NH3)	μg/m³	16.0	17.0	18.4	13.0	11.3	13.4
	Arsenic as (As)	ng/m³	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.03	0.03	0.03	0.04	0.04	0.02
	Manganese as Mn	μg/m³	0.32	0.31	0.30	0.35	0.35	0.10
	Nickel as Ni	ng/m³	10.9	6.0	<5	5.3	5.3	<5
	Particulate Matter (<10um)	μg/m³	215.8	217.1	221.0	90.5	54.8	54.6
	Particulate Matter (<2.5um)	μg/m³	100.6	109.7	113.8	44.8	27.0	27.8
	Sulphur Dioxide (SO2)	μg/m³	8.0	7.4	7.2	6.1	<6	<6
	Nitrogen Dioxide (NO2)	μg/m³	21.1	22.9	22.9	16.8	15.2	15.1
	Carbon Monoxide (CO)	mg/m³	0.52	0.52	0.52	0.25	0.17	0.16
D Quarry Sorting	Ozone (O3)	μg/m³	<20	<20	<20	<20	<20	<20
Yard	Ammonia (NH3)	μg/m³	14.7	16.4	17.0	13.7	12.4	9.5
, ara	Arsenic as (As)	ng/m³	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.02	0.04	0.03	0.02	0.02	0.04
	Manganese as Mn	μg/m³	0.18	0.24	0.25	0.24	0.24	0.05
	Nickel as Ni	ng/m³	5.2	5.0	<5	<5	<5	<5
	Particulate Matter (<10um)	μg/m³	217.2	220.7	222.3	96.2	56.7	52.3
	Particulate Matter (<2.5um)	μg/m³	100.6	111.7	114.8	47.1	27.9	26.6
	Sulphur Dioxide (SO2)	μg/m³	7.8	7.2	7.4	6.0	<6	<6
D Quarry Screen Plant	Nitrogen Dioxide (NO2)	μg/m³	21.6	22.7	22.9	18.1	13.7	15.0
	Carbon Monoxide (CO)	mg/m³	0.55	0.43	0.53	0.24	0.14	0.16
	Ozone (O3)	μg/m³	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	μg/m³	15.4	16.6	16.8	12.2	10.4	9.1
	Arsenic as (As)	ng/m³	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.02	0.03	0.02	0.03	0.03	0.02
	Manganese as Mn	μg/m³	0.25	0.29	0.26	0.25	0.25	0.07

1	Nickel as Ni	ng/m³	6.5	6.4	<5	5.2	5.2	<5
	Particulate Matter (<10um)	μg/m <sup>3</sup>	203.8	208.2	211.9	91.7	50.0	47.7
	Particulate Matter (< 2.5um)	7	96.2	105.3	109.1	44.7	24.8	24.3
	Sulphur Dioxide (SO2)	μg/m <sup>3</sup>	7.1	7.3	7.2	6.1	<6	<6
	Nitrogen Dioxide (NO2)	μg/m <sup>3</sup>	21.5	21.5	22.3	16.9	15.0	15.3
	Carbon Monoxide (CO)	mg/m <sup>3</sup>	0.53	0.51	0.50	0.26	0.15	0.15
	Ozone (O3)	μg/m <sup>3</sup>	<20	<20	<20	<20	<20	<20
H Quarry Rest	Ammonia (NH3)	μg/m <sup>3</sup>	14.9	16.5	17.0	13.1	10.4	10.9
Shelter	Arsenic as (As)	ng/m <sup>3</sup>	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.02	0.02	0.02	0.02	0.02	0.03
	Manganese as Mn	μg/m³	0.20	0.21	0.20	0.19	0.19	0.04
	Nickel as Ni	ng/m³	6.3	<5	<5	<5	<5	6.3
	Particulate Matter (<10um)	μg/m³	217.7	218.2	223.5	109.9	69.1	67.5
	Particulate Matter (<2.5um)	μg/m³	102.8	110.3	115.3	54.2	34.1	33.8
	Sulphur Dioxide (SO2)	μg/m³	7.8	7.5	7.4	6.1	<6	6.0
	Nitrogen Dioxide (NO2)	μg/m³	22.1	22.6	23.2	18.8	16.3	19.4
	Carbon Monoxide (CO)	mg/m³	0.53	0.49	0.52	0.28	0.20	0.21
Near Railway	Ozone (O3)	μg/m³	<20	<20	<20	<20	<20	<20
Siding	Ammonia (NH3)	μg/m³	16.9	16.4	17.6	13.6	13.0	13.5
	Arsenic as (As)	ng/m³	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.02	0.04	0.04	0.03	0.03	0.01
	Manganese as Mn	μg/m³	0.27	0.40	0.39	0.31	0.31	0.07
	Nickel as Ni	ng/m³	7.3	7.5	6.0	5.1	5.1	<5
	Particulate Matter (<10um)	μg/m³	212.1	204.6	208.9	84.5	48.5	53.2
	Particulate Matter (<2.5um)		98.2	103.4	107.8	41.6	24.2	27.1
	Sulphur Dioxide (SO2)	μg/m³	7.6	7.1	7.2	6.1	<6	<6
	Nitrogen Dioxide (NO2)	μg/m³	21.0	21.0	23.2	17.9	15.4	15.9
	Carbon Monoxide (CO)	mg/m <sup>3</sup>	0.50	0.47	0.44	0.25	0.16	0.14
Near Gangaigora	Ozone (O3)	μg/m³	<20	<20	<20	<20	<20	<20
Pit	Ammonia (NH3)	μg/m³	15.6	15.3	16.5	13.8	11.7	10.0
	Arsenic as (As)	ng/m³	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	μg/m³	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb )	μg/m³	0.02	0.03	0.04	0.02	0.02	0.02
	Manganese as Mn	μg/m³	0.20	0.26	0.11	0.22	0.22	0.04
	Nickel as Ni	ng/m³	5.3	5.4	<5	5.4	5.4	5.0

### Photographs of Fugitive Dust control Measures deployed at site











#### Address of Branch:

P.O. Barbil Dt Keonjher Orissa 758 635





### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Jode, Dist. - Kconjhar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date:

MSKGL/ED/2024-25/001607

28/05/2024

Sample No.:

MSKGL/ED/2024-25/05/01199

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

1, Group	AIR	
2. Description of sample	Fucilive Air	
3. Unique Identification of sample(if any)	Joda West Iron & Mn. Mines (JWIMM)	
4. Date of sampling	22/05/2024	
5. Place of sampling	Gengaiguda Pit	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2024-25/001607

Sample No.: MSKGL/ED/2024-25/05/01199

#### RESULT

St No.	Parameter	HOM	Method	Limit	Result
1	Nilrogen Dioxides (as NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	714 (704)	23.8
2	PM10/RPM	micro gm/m3	IS 5182; Part 23:2006 (Realf, 2012) (O)		10000
3	PM2.5	micro gm/m3	IS 5182 (Part 24)		276
4	Respirable Suspended Particulate Matter (RSPM)	rnicro gm/m3	IS 5182: Part 23:2006 (Realf, 2012) (O)		124 276
5	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182: Part.2. (O)		
6	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Pari4:1999 (Real/.2014), (O)		549

END -

Report Verified By

For Mitra S. K. Private Limited Baudhan

#### Address of Branch:

P.O. Barbil Dt Keonjhar Orlssa 758 035





### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AtiPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### TEST REPORT

Report No. :

MSKGL/ED/2024-25/001606

Date:

28/05/2024

Sample No.:

MSKGL/ED/2024-25/05/01198

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

1. Group	AIR	
2. Description of sample	Fugitive Air	
3. Unique Identification of sample(if any)	Joda West Iron & Mn. Mines (JWIMM)	
4. Date of sampling	22/05/2024	
5. Place of sampling	Haul-Road Neer H-Quarry	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGUED/2024-25/001606

Sample No.: MSKGL/ED/2024-25/05/01198

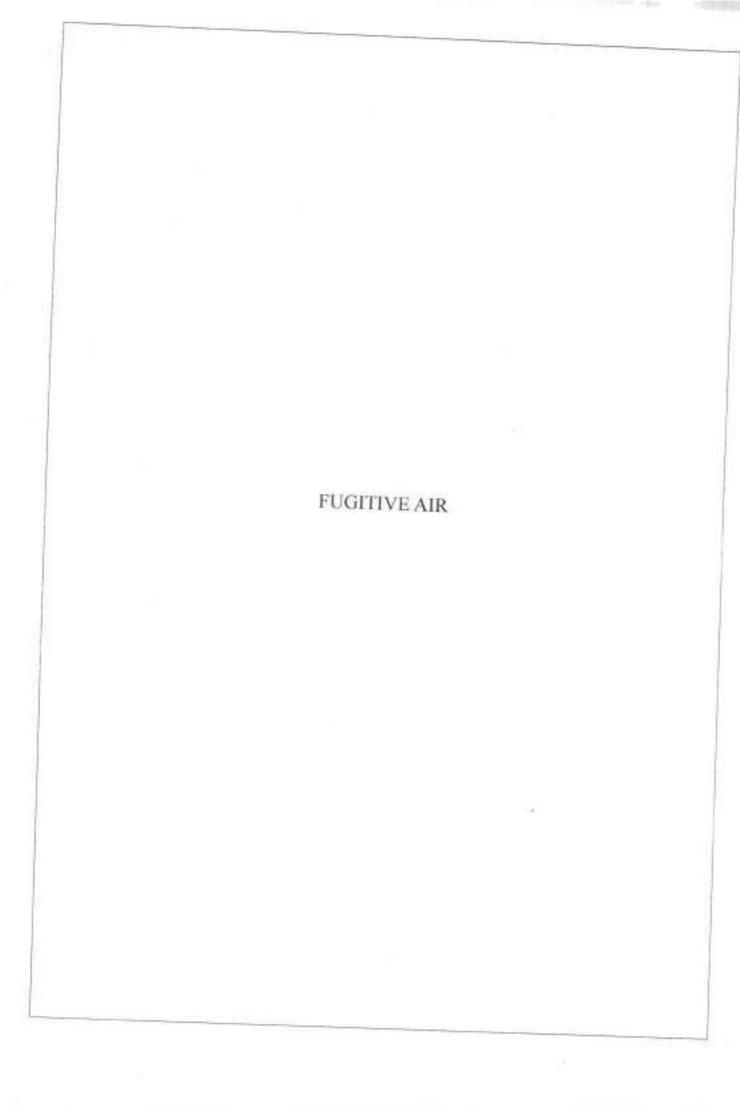
#### RESULT

Chemic	nical				
SI No.	Parameter	MOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS: 5182 (Part 6) (O)		19.5
2	PM10/RPM	micro gm/m3	IS 5182: Part 23:2006 (Reaft, 2012) (O)		254
3	PM2.5	micro gm/m3	IS 5182 (Part 24)		115
4	Respirable Suspended Particulate Motter (RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Realf, 2012)_(O)		254
5	Sulphur Dicoride (as SO2)	micro gm/m3	IS 5182; Part.2 (O)		8.1
6	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reeff,2014) (O)		483

END ---

Report Verified By

For Mitra S. K. Private Limited Blaudhaw



Address of Branch:

P.O. Berbil Dt Keonjhar Orisse 758 035





#### TEST REPORT Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

MSKGL/ED/2024-25/002135

02/07/2024

Sample No. :

Reference No. & Date :

MSKGL/ED/2024-25/06/01976 3000156017, Date - 28/09/2023

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

1. Group	AIR
2. Description of sample	Fugitive Air
3. Unique Identification of sample(if any)	The state of the s
4. Date of sampling	Joda West Iron & Mn. Mines (JWIMM)
5. Place of sampling	26/06/2024
6. Environmental conditions during sampling & Transport	Near Gangeiguda Pit JWIMM
7. Sampling Plan & Method used	Clear & Sunny
71 company Fran & meshod used	NA NA

Report No.: MSKGL/ED/2024-25/002135

Sample No.: MSKGL/ED/2024-25/06/01976

#### RESULT

SI No.	Parameter	UOM	Method	Limit	2000
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	Limit	Result
2	PM10/RPM	rmicro gm/m3	IS 5182: Part 23:2006 (Realf. 2012). (O)		21.3
3	PM2.5	micro am/m3	IS 5182 (Part 24)		261
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m3	IS 5182; Part 23:2006 (Reaff, 2012) (O)		128
5	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182: Part.2 (O)		261
6	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff.2014)_(O)		6.8

- END -

Report Verified By

For Mitra S.K. Private Limited

### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### TEST REPORT

Reference No. & Date :

Report No. :

Sample No.:

Date:

MSKGL/ED/2024-25/002134

02/07/2024

MSKGL/ED/2024-25/06/01975

3000156017, Date - 28/09/2023

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

1. Group	AIR
2. Description of sample	
3. Unique Identification of sample(if any)	Fugitive Air
4. Date of sampling	Joda West Iron & Mn. Mines (JWIMM)
5. Place of sampling	26/06/2024
6. Environmental conditions during	Near Haul Road, Time Office, JWIMM
Environmental conditions during sampling & Transport     Sampling Plan & Method used	Clear & Sunny
r oamplang rian & Method used	NA .

Report No.: MSKGL/ED/2024-25/002134

Sample No.: MSKGL/ED/2024-25/05/01975

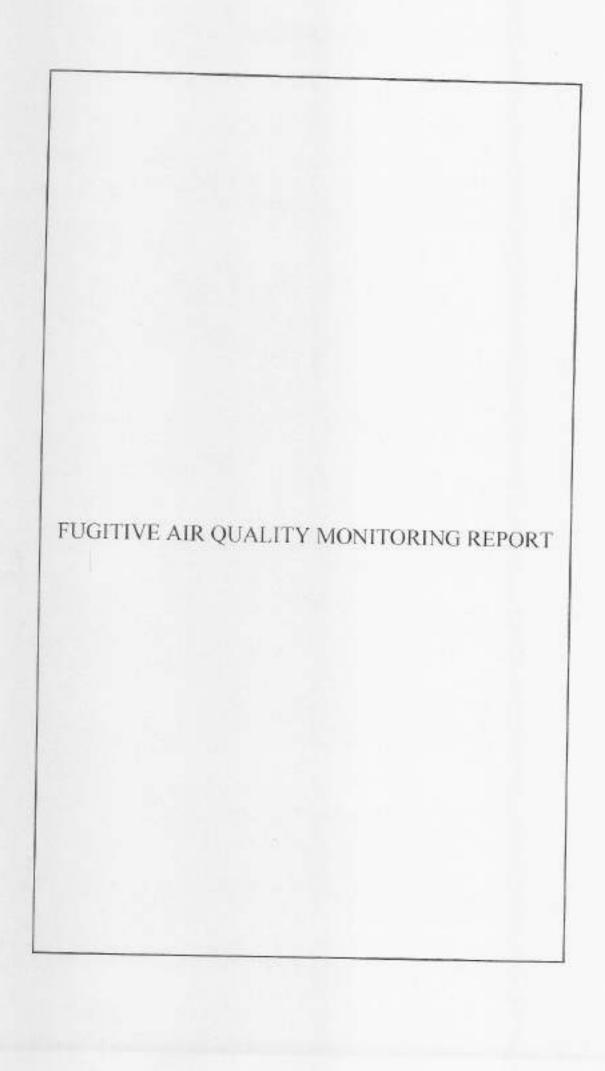
#### RESULT

hemic	cal	F 48 F	THE SECTION AND ADDRESS OF THE SECTION ADDRESS OF THE S		
SI No.	Parameter	UOM	Method	2000	-
1	Nitrogen Dicoides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM	micro gm/m3	IS: 5182 (Part 6)_(O)		19.6
3	PM2.5		IS 5182: Part 23:2006 (Reaff, 2012)_(O)		239
4	Respirable Suspended Particulate Matter	micro gm/m3	IS 5182 (Part 24)		117
	(RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Realf, 2012) (O)		7.000
5	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182: Part.2 (O)		239
6	Suspended Particulate Matter (SPM)	micro gm/m3			6.4
		The Breston I	IS 5182: Part4:1999 (Reaft,2014)_(O)		459

END ---

Report Verified By

For Mitra S. K. Private Limited



Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portol

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jods West

As/Po. - Joda, Dist. - Keonijhar, Odloha - 758034 India Pin

TEST REPORT

Report No. :

MSKGL/ED/2024-25/002747 16/07/2024

Date : Sample No. :

MSKGL/ED/2024-25/07/00431

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

1. Group	AIR
2. Description of sample	Fugitive Air
Unique Identification of sample(if any)	
4. Date of sampling	Joda Wast fron & Mn Mine (JWIMM)
5. Place of sampling	03/07/2024
6. Environmental conditions during sampling & Transport	Near Screen Plant , D-Quarry (JWIMM)
7. Sampling Plan & Method used	Rainy
ran a alegnog used	NA NA

Report No.: MSKGL/ED/2024-25/002747

Sample No.: MSKGL/ED/2024-25/07/00431

### RESULT

Chomic	al				
SI No.	Parameter	HOM	Method		
1	Nitrogen Dioxides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM	micro gm/m3	IS: 5182 (Part 6)_(O)		17.8
3	PM2.5	micro amim3	IS 5182; Part 23:2006 (Reeff. 2012)_(O)		507
4	Respirable Suspended Particulate Matter	A SHOW SHOW IN SHOW	IS 5182 (Part 24)		52.8
5	(RSPM) Sulphur Dioxide (as SO2)	тного дип/т/3	IS 5182: Part 23:2006 (Reeff. 2012)_(O)		107
6	Suproported Destroyles Add SO(2)	micro gm/m3	13 5182: Part.2 (O)		BDL(DL:6.0)
-	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff.2014)_(O)		215

--- END ----

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Authorised Signatory

Sheady Cantra (Str. Floor), 748, A.J.C. Stein Root, Kolkets - 700016; West Bergel, India. Tot.: 91 33 40143000 / 2260060 Pax:: 91 83 22850008 Errell: Molgli vetrast core Website: www.histok.com

### Address of Branch:

P.O. Berbil Dt Keonjher Orisaa 758 035





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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po, - Joda, Dist. - Keonjhar, Odisha - 759034. India Pin

### TEST REPORT

Reference No. & Date :

Report No. :

Date:

Sample No. :

MSKGL/ED/2024-25/002746 16/07/2024

MSKGL/ED/2024-25/07/00430

3000158017/066, Date - 15/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample(If any)	Fugiliye Air
4. Date of sampling	Joda West Iron & Mn Mine
5. Place of sampling	03/07/2024
5. Environmental conditions during sampling & Transport	Near Ganguiguda Pit
Sampling Plan & Method used	Rainy
The state of the s	Na Na

Report No.: MSKGL/ED/2024-25/002746

Sample No.: MSKGL/ED/2024-25/07/00430

### RESULT

Chemic	cal		KESOLI		
Si No.	Parameter	UOM	Marine a		
1	Nitrogen Dioxides (as NO2)	mioro gra/m3	Method	Limit	Result
2	PM10/RPM	The second second second	IS: 5182 (Part 6)_(0)		18.6
3	PM2.5	micro gm/m3	IS 5182; Part 23:2006 (Reaft, 2012), (O)		
7	Respirable Suspended Particulate Matter	micro gm/m3	IS 5182 (Part 24)		112
*	(RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Reeff. 2012)_(O)		54.9
5	Sulphur Dioxide (as SO2)	politico constant			112
6	Supremedical Device and the	micro gm/m3	IS 5182: Part.2 (O)		0.4
	Sospended Particulate mateur (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff,2014) (O)		6.4
			- FND		229

- END -

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Name & Address of Customer:

Tota Steel Ltd.(MGM)\_Joda Wast

AUPo. - Joda, Dist. - Keonjher, Odishe - 758034 India Pin

TEST REPORT

Reference No. & Date :

Report No.:

Date:

Sample No. :

MSKGL/ED/2024-25/002755

29/07/2024

MSKGL/ED/2024-25/07/00833

3000156017/056, Date - 15/09/2023

We namely cently that the following sample Drawn by us has been

1. Group	AIR
2. Description of sample	
Unique Identification of sample(if any)	Fugitive Air
4. Date of sampling	Joda West Iron & Mn Mine
5. Place of sampling	17/07/2024
6. Environmental conditions duri	Haul Road Near Time Office
Environmental conditions during sampling & Transport     Sampling Plan & Method used	Rainy
a surprising Frant & method used	NA NA

Report No.: MSKGL/ED/2024-25/002755

Sample No.: MSKGL/ED/2024-25/07/00833

### RESULT

SI No.	Parameter	MON	Method	600	-
1	Nitrogen Diexides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM	NAME OF TAXABLE PARTY.	IS: 5182 (Part 6)_(O)		14.1
3	PM2.5	micro gm/m3	IS 5182; Part 23:2006 (Reaff, 2012), (O)		95.6
-		micro gm/m3	IS 6182 (Part 24)		
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Realf, 2012). (O)		46,8
5	Sulphur Dixxide (as SO2)				95,6
6		micro gm/m3	IS 5182; Part.2 (O)		DESCRIPTION OF
· ·	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff,2014) (O)		BDL(DL:6.0)
					201

END -

Report Verified By

For Mitra S. K. Private Limited

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





### Name & Address of Customer:

Tale Steel Ltd.(MGM)\_Joda Weet

AVPo. - Jode, Dist. - Keonjhar, Odisha - 758034 India Pin

### TEST REPORT

Report No.:

Sample No.:

Date:

MSKGL/ED/2024-25/002756

29/07/2024

MSKGL/ED/2024-25/07/00834

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

Group		
2. Description of sample	AIR	
3. Unique Identification of sample(if any)	Fugilive Air	_
4. Date of sampling	Joda West Iron & Mn Mine	
5. Place of sampling	17/07/2024	
6. Environmental see different	Hauf Road Near H- Quarry	
5. Environmental conditions during sampling & Transport	Rainy	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2024-25/002756

Sample No.: MSKGL/ED/2024-25/07/00834

#### RESULT

Chemic	cal				
SI No.	Parameter	HOM	Method		
1	Nitrogen Dioxides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM	micro gmim3	IS: 5182 (Part 6)_(O)		12.5
3	PM2.5		IS 5182; Part 23:2006 (Reaff, 2012)_(O)		101.9
4	Respirable Suspanded Particulate Matter	micro gm/m3	IS 5182 (Part 24)		49.7
-	(RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012)_(O)		11 11 11 11 11 11
5	Sulphur Dioxida (as SOZ)	micro gmm3	IS 5182 Part.2 (O)		101.9
6	Suspended Particulate Matter (SPM)	micro graina	IS 5182: Parl4:1999 (Reaff:2014) (O)		BDL(DL:6.0)
		1	10 5 fts. (1995 (1993), 2014) (O)		210

- END ---

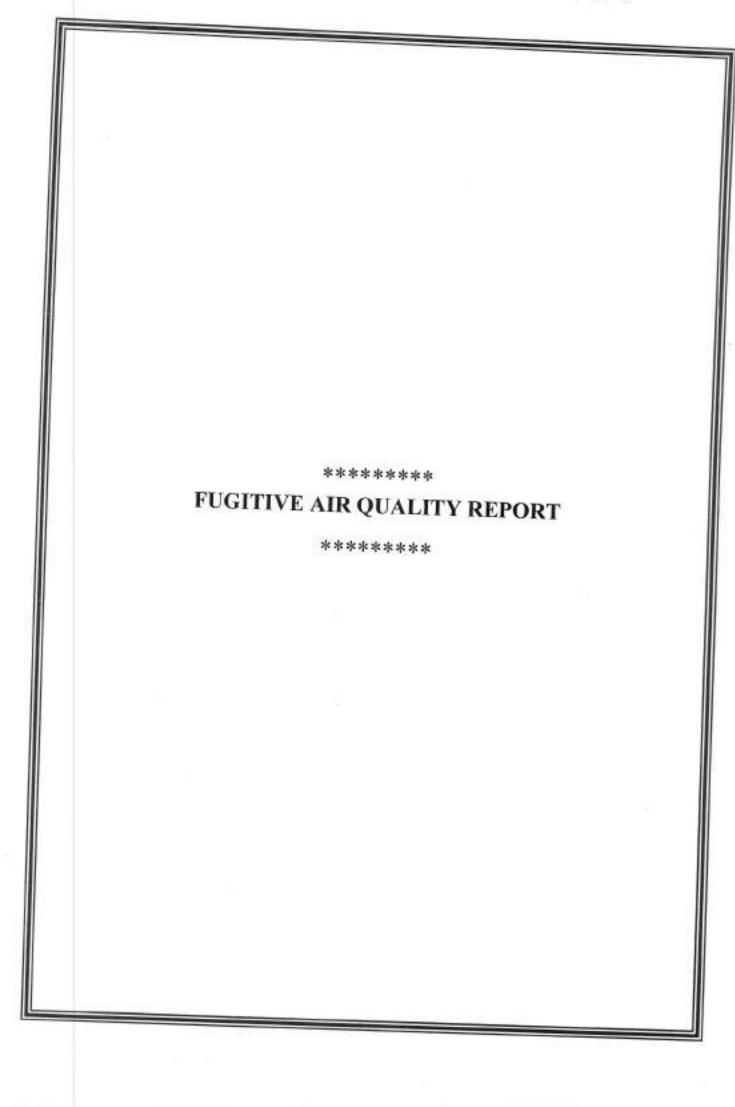
Report Verified By

For Mitra S. K. Private Limited

-500

Authorised Signatory

Head Office: Oreschi Contre (Stin Plants, 748, A.J.C. Boop Road, Kolkoto - 700016, West Sangal, India. Tel.: 91 33 40143000 / 22600007 Fax: 91 33 22600000 Gruid : info@infotole.com Widolic: www.reltock.com



Address of Branch:

P.O. Barbil Dt Koonjhar Orissa 758 035





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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

TEST REPORT

Reference No. & Date :

Report No. :

MSKGL/ED/2024-25/003373

Date:

13/08/2024

Sample No. :

MSKGL/ED/2024-25/08/00363

3000156017/056, Date - 15/09/2023

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

1, Group 2. Description of sample	AIR
3. Unique identification of sample(if any)	Fugitive Air
4. Date of sampling	Joda West Iron & Mn. Mines (JWIMM)
5. Place of sampling	07/08/2024
6. Environmental conditions during sampling & Transport	Heul Road Near Time Office
7. Sampling Plan & Method used	Rainy
pang i test a method used	NA .

Report No.:

MSKGL/ED/2024-25/003373

Sample No.: MSKGL/ED/2024-25/08/00363

#### RESULT

SI No.	Parameter	HOM	Method	00000	
1	Nitrogen Dioxides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM		IS: 5182 (Part 6)_(O)		15.2
3		micro gm/m3	IS 5182; Part 23:2006 (Reaff. 2012), (O)		
9	PM2.5	micro gm/m3	IS 5182 (Part 24)		98.7
4	Respirable Suspended Particulate Matter	mines and d	Control of the Contro		48.6
-	(RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012). (O)		98.7
5	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182; Part.2 (O)		80.7
6	Suspended Particulate Matter (SPM)	micro gm/m3			BDL(DL:6.0)
	ter my	micro griantia	IS 5182: Part4:1999 (Reaff,2014) (O)		205

- END -

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shouth Centre (Str. Floor), 740, A.J.C. Stee Road, Keforts - 700016, Wast Gengel, India. Tet.: 91 33 40143000 / 22650007 Pax : 91 33 22630009 Erroll : 816@entresk.com Website : www.retrock.com

Address of Branch:

P.O. Barbil Dt Keonjhar Ortssa 758 035





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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po, - Joda, Dist. - Keonjitar, Odisha - 758034 India Pin

TEST REPORT

Report No. : Date:

MSKGL/ED/2024-25/003347

14/08/2024

Sample No. :

MSKGL/ED/2024-25/08/00216

Reference No. & Date :

3000156017, Date - 28/09/2023

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

2. Description of sample	AIR
Unique identification of sample(if any)	Fugitive Air
4. Date of sampling	Joda West Iron & Mn. Mines (JWIMM)
5. Piace of sampling	03/08/2024
6. Environmental conditions during sampling & Transport	Near Screen Plant D Quarry (JWIMM)
7. Sampling Plan & Method used	Rainy
and the state of method deed	NA.

Report No.: MSKGL/ED/2024-25/003347

Sample No.: MSKGL/ED/2024-25/08/00216

#### RESULT

SI No.	Parameter	man. I			
		NOM	Method	Limit	Result
1	Nitrogen Dicoddes (as NO2)	micro gm/m3	IS 11255 (Part 7):2005 RA2017 (O)		PLUSUIE
2	PM10/RPM	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012) (O)		13.2
3	PM2.5	mioro amima			86.3
4	Respirable Suspended Particulate Matter	maio grenia.	IS 5182 (Part 24)		42.5
-	(RSPM)	micro gm/m3	IS 5182; Part 23:2006 (Reaff. 2012) (O)		
5	Sulphur Dioxide (as SO2)	micro gm/m3			86.3
6	Control of the Contro	The second second second	IS 11255 (Part 2): 1985_(O)		BOLIDL:5.0
	L. Constant motion (or my	micro gm/m3	APHA(23rd Edition)2540D (O)		178

-- END ---

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Strooth Cerdin (5th Floor), 74B, A.J.C. Bose Road, Kokata - 780016, West Bergal, India. Tet. :91 33 49143000 / 22530007 Fax : 91 32 29950005 Froat : http://minesk.com Website : www.nitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035

Name & Address of Customer:





Scan for Portal

TEST REPORT

Report No.:

MSKGL/ED/2024-25/003346

Tata Steel Ltd.(MGM)\_Joda West

Date:

14/08/2024

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Sample No. :

MSKGL/ED/2024-25/08/00215

Reference No. & Date :

3000156017, Date - 26/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Fugitive Air
f. Date of sampling	Joda West Iron & Mr. Mines (JWIMM)
5. Place of sampling	03/08/2024
5. Environmental conditions during sampling & Transport	Neer Gangeiguda Pit (JWIMM)
Sampling Plan & Method used	Rainy
Paris a mountain used	NA

Report No. :

MSKGL/ED/2024-25/003346

Sample No.: MSKGL/ED/2024-25/08/00215

### RESULT

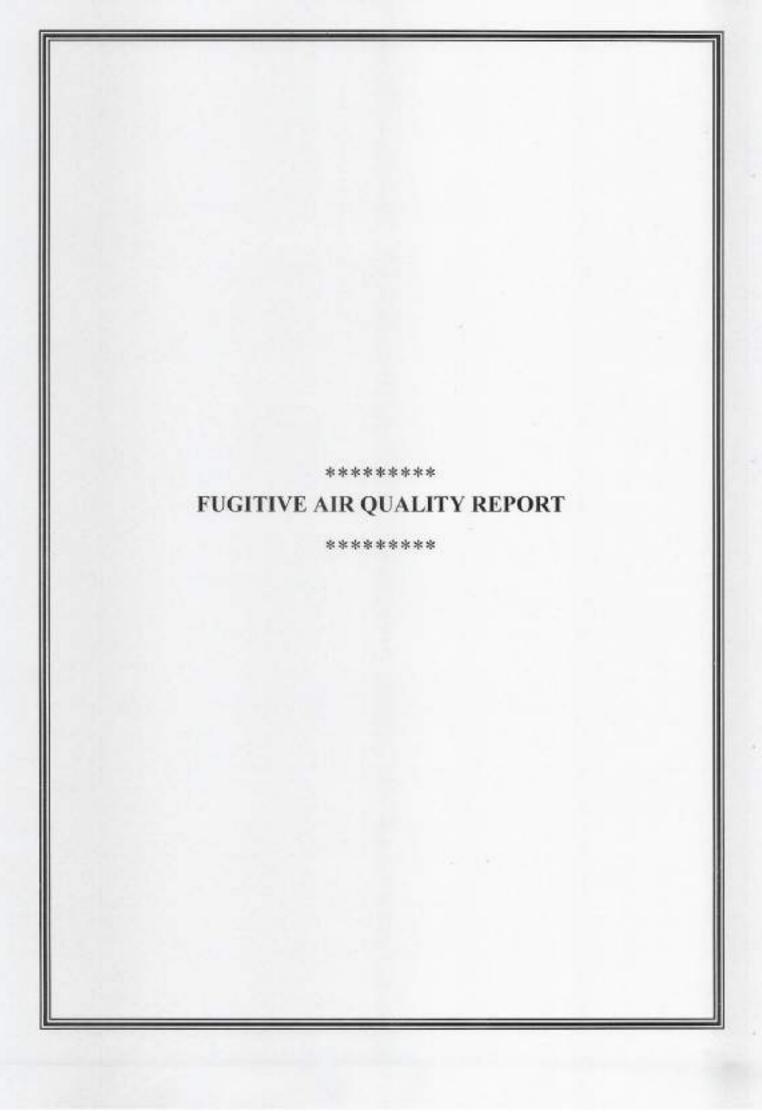
Chemic					
SI No.	Parameter	UOM	Method	Washing .	
1	Nitrogen Dioxides (as NO2)	micro gm/m3		Limit	Result
2	PM10/RPM	THE RESERVE AND PERSONS ASSESSED.	IS 11255 (Part 7) :2005 RA2017_(O)		12.8
2		micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012), (O)		1000
- 2	PM2.5	micro gm/m3	IS 5182 (Part 24)		98.7
4	Respirable Suspended Particulate Matter	N -0.20 (1.2			48.3
-	(RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012), (O)		
5	Sulphur Dioxide (as SO2)	micro gm/m3			98.7
6	Suspended Particulate Matter (SPM)	The second secon	IS 11255 (Part 2): 1985_(O)		BDL(DL:6.0)
	and the second	micro gm/m3	APHA(23rd Edition)2540D_(O)		
			20 20 20 20 20 20 20 20 20 20 20 20 20 2		202

---- END -----

Report Verified By

Head Office:

For Mitra S. K. Private Limited



Address of Branch:

P.O. Barbii Dt Keonjhar Orissa 758 035





### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda Wast

Al/Po. - Joda, Dist. - Keonjhar, Oelsha - 758034 India Pin

### TEST REPORT

Report No.:

MSKGL/ED/2024-25/003792

Date:

18/09/2024

Sample No. :

MSKGL/ED/2024-25/09/00420

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby cartily that the following sample Drewn by us has been analyzed w

1. Group	AIR	
2. Description of sample	NO.	
3. Unique Identification of sample(if any)	Fugitivs Air	
4. Date of sampling	Joda West Iron & Mr. Mines (JWIMM)	
	04/09/2024	
5. Place of sampling	Near D-Querry screen plant	_
6. Environmental conditions during sampling & Transport	Rainy	_
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2024-25/003792

Sample No.: MSKGL/ED/2024-25/09/00420

#### RESULT

SI No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaff, 2012)	
2	Respirable Suspended Particulate Matter (RSPM)	micro gn/m3	IS 5182: Part 23:2006 (Reaff, 2012)	18.9
3	Sulphur Dicoide (as SO2)	micro gm/m3	IS 5182: Part 2	6.3
4	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Restt.2014)	225

- END -

Report Verified By



For Mitra S. K. Private Limited

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

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#### Address of Branch:

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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### **TEST REPORT**

Report No. :

MSKGL/ED/2024-25/003791

Date:

18/09/2024

Sample No.:

MSKGL/ED/2024-25/09/00419

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby cardly that the following sample Drawn by us has been analyzed with the following res

1. Group	AIR
2. Description of sample	Fugitive Air
Unique Identification of sample(if any)	
4. Date of sampling	Joda West Iron & Mn. Mines (JWIMM)
5. Place of sampling	04/09/2024
	Houl road near H-quarry
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2024-25/003791

Sample No.: MSKGL/E0/2024-25/09/00419

#### RESULT

SI No.	Parameter	nom	Method	Result
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS 5182: Part 6 :2006 (Reaft,2012)	
2	Respirable Suspended Particulate Matter	THE RESIDENCE OF	THE SAME SHOULD BE THE STATE OF THE SAME SHOWS AND ADDRESS OF THE	16.7
-	(RSPM)	micro gre/m3	IS 5182: Part 23: 2006 (Reaff, 2012)	102
-	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182: Part.2	5.4
4	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Realf.2014)	215

-END-

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

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Head Office: Should Centre (bb.Floor), 748. A.J.C. Bose Road, Kokuta - 709018, West Bungel, India, Tel.; 91.33.40143000 / 23550007 Fax: 91.33.23550000 Email: sets@estruck.com Wedeste: www.militesk.com

#### Address of Branch:

P.O. Barbil Dt Koonihar Oriesa 758 035





### Name & Address of Customer:

Tatz Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### TEST REPORT

Report No.:

MSKGL/ED/2024-25/003790

Date:

18/09/2024

Sample No.:

Reference No. & Date:

MSKGL/ED/2024-25/09/00418 3000156017/056, Date - 15/09/2023

We heraby certify that the following sample Drawn by us has been enalyze

1, Group	AIR	
2. Description of sample	Fugitive Air	
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWIMM)	
4. Date of sampling	04/09/2024	
5. Place of sampling	Houl road near time office	
6. Environmental conditions during sampling & Transport	Rany	
7. Sampling Plan & Method used	NA .	

Report No.:

MSKGL/ED/2024-25/003790

Sample No.: MSKGL/ED/2024-25/09/00418

#### RESULT

SI No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS 5182: Part 6::2006 (Reaff.2012)	17.4
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Resalt. 2012)	105
3	Sulphur Dicoide (as SO2)	micro gm/m3	IS 5182: Part.2	8.2
4	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff.2014)	214

END -

Report Verified By



For Mitra S. K. Private Limited

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Head Office: Streets Ceres Cits Floor, 748, A.J.C. Brace Road, Kokato - 700016, West Bergal, India Tel.: 91 33 40143000 / 2000007 Fax: 91 33 2000009 Entail: Http://www.mitsuk.com

#### Address of Branch:

P.O. Barbil Dt Kaonjher Orisea 758 035





Scan for Portal

### **TEST REPORT**

Reference No. & Date :

Name & Address of Customer:

Tota Steel Ltd.(MGM)\_Jode West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Sample No.:

Date:

MSKGL/ED/2024-25/003793

18/09/2024

MSKGL/ED/2024-25/09/00421

3000156017/056, Date - 15/09/2023

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

1, Group	AIR	
2. Description of sample	Fugitivo Air	
3. Unique Identification of sample(if any)	Juda West Iron & Mn. Mines (JWIMM)	
4. Date of sampling	04/09/2024	
5. Place of sampling	Near Gangeiguda pit	_
6. Environmental conditions during sampling & Transport	Rainy	
7. Sampling Plan & Method used	NA .	

Report No.: MSKGL/ED/2024-25/003793

Sample No.: MSKGL/ED/2024-25/09/00421

#### RESULT

SI No.	Parameter	MON	Method	Result
1	Nitrogen Dioxides (as NO2)	micro gm/m3	IS 5182: Part 6 :2006 (Reaff.2012)	16.8
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012)	98.8
3	Sulphur Dioxide (as SO2)	micro gm/m3	IS 5182: Part.2	8.1
4	Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff.2014)	210

----- END -----

Report Verified By



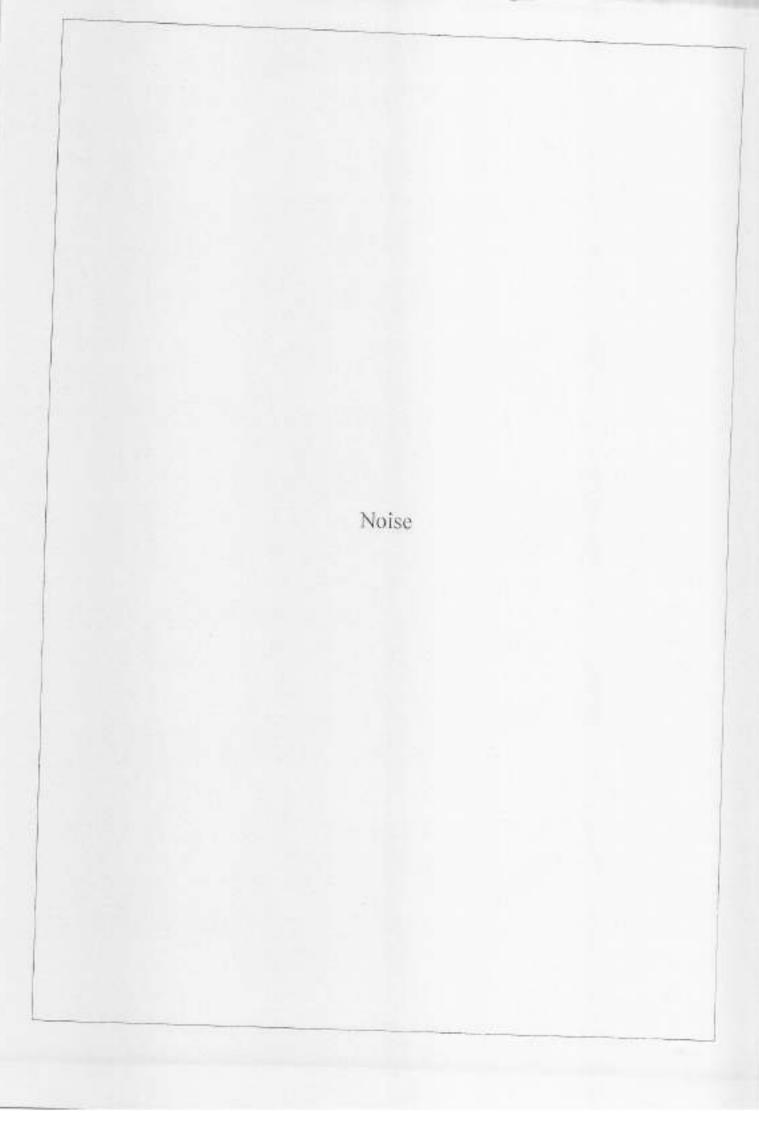
For Mitra S. K. Private Limited

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

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		Apr-24				May-2	4			Jun-24	ļ.		
SL.			Noise	e Level	in dB		Nois	e Level i	in dB		Noise	e Level	in dB
NO.	Monitoring Location	<b>Date of Monitoring</b>		(A)		Date of Monitoring		(A)		Date of Monitoring		(A)	
			Ld	Ln	Ldn		Ld	Ln	Ldn		Ld	Ln	Ldn
1	Inside Garage	22.04.2024	62.5	49.4	60.9	13.05.2024	62.7	45.5	60.9	17.06.2024	61.8	66.3	55.2
2	In Front of Admin Office	22.04.2024	47.6	40.8	46.2	13.05.2024	50	38.9	48.3	17.06.2024	58.3	64.3	45.8
3	In Front of Canteen	22.04.2024	47.9	46.1	47.4	13.05.2024	49.6	45.4	48.5	17.06.2024	52.4	65.2	44.7
4	Sorting Yard Rest Shelter	22.04.2024	61.2	46.9	59.4	13.05.2024	60.5	46.3	58.7	17.06.2024	51.9	53.5	48.6
5	250 meter from Screen Plant	23.04.2024	65.4	57.7	64	14.05.2024	65.9	55.2	64.3	18.06.2024	73.9	76.5	63.2
6	D-Quarry Sorting Yard	23.04.2024	62.7	54.9	61.3	14.05.2024	63	5405	61.5	18.06.2024	64.3	67	53.5

		July-24				Aug-24				Sept-24	,		
SL.			Noise	e Level	in dB		Nois	e Level	in dB		Nois	e Level	in dB
NO.	Monitoring Location	Date of Monitoring		(A)		Date of Monitoring		(A)		Date of Monitoring		(A)	
			Ld	Ln	Ldn		Ld	Ln	Ldn		Ld	Ln	Ldn
1	Inside Garage	15.07.2024	90.5	92.3	48.2	19.08.2024	65.4	66.7	59.8	23.09.2024	67.3	69.5	46.9
2	In Front of Admin Office	15.07.2024	46.7	48.1	40.1	19.08.2024	63.3	65	46.7	23.09.2024	49.2	5.9	38.1
3	In Front of Canteen	15.07.2024	73.5	75.2	55.9	19.08.2024	54.7	56.3	42.9	23.09.2024	52.6	54.3	38
4	Sorting Yard Rest Shelter	15.07.2024	79.5	81.2	66.6	20.08.2024	69.6	71.4	47.9	24.09.2024	56.4	58	45.9
5	250 meter from Screen Plant	16.07.2024	68.5	70.3	44.4	20.08.2024	69	70.7	49.9	24.09.2024	64.2	66	47.7
6	D-Quarry Sorting Yard	16.07.2024	66.8	68.4	55.3	20.08.2024	70.4	72	61	24.09.2024	63.1	64.9	46.3



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Report	No. MSKGL/ED/2024-2	5/000860			Date: 0	6.05.202
	MON	UTORING	REPORT OF AMBIE	NT NOISE		0.00.202
Name o	of the Client		A STEEL LIMITED	27 11 - 1071		
Name o	of the Mines	JODA WI	ST IRON & MANGANESI	E MINES (JW	/IMM)	
SL.	Monitoring Lo	cation	Date Monitoring	Noise	e Level in di	B (A)
NO.				Ld	Ln	Ldn
1.	ln side Gara	ge	22.04.2024	62.5	49.4	60.9
2.	In Front of Admi	n Office	22.04.2024	47.6	40.8	46.2
3.	In Front of Car	teen	22.04.2024	47.9	46.1	47.4
4.	Shorting Yard Rest Shelter		22.04.2024	61.2	46.9	59.4
5.	250 meter from Scr	een Plant	23.04.2024	65.4	57.7	64.0
6.	D-Quarry Shortin	ig Yard	23.04.2024	62.7	54.9	61.3

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

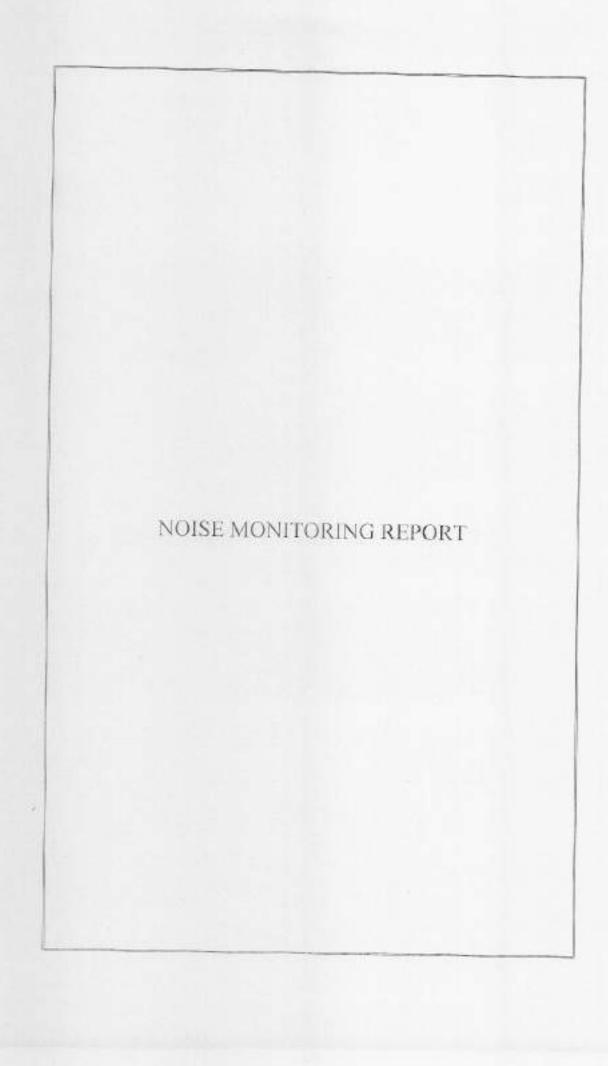
### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)			
	or man , core	DAY TIME	NIGHT TIME		
A	INDUSTRIAL AREA	75	70		
В	COMMERCIAL AREA	65	55		
C	RESIDENTIAL AREA	55	45		
D	SILENE ZONE	50	40		

Checked by:-(

For Mitra S. K. Private Limited

-500-Authorised Signatory





AtiP.O. BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Report	No. MSKGL/ED/2024-25/001656			Date: 0	5.06.202		
	MONITORING	REPORT OF AMBIEL	NT NOISE				
Name o	f the Client	M/s. TATA STEEL LIMITED					
Name o	of the Mines	JODA WEST IRON & M	IANGANESE	MINES (JWI	MM)		
SL.	Monitoring Location	Date Monitoring	Noise Level in dB (A)				
NO.		Date Monitoring	Ld	Ln	Ldn		
1.	In side Garage	13.05.2024	62.7	45.5	60.9		
2.	In Front of Admin Office	13.05.2024	50.0	38.9	48.3		
3.	In Front of Canteen	13.05.2024	49.6	45.4	48.5		
4.	H Quarry Rest Shelter	13.05.2024	60.5	46.3	58.7		
5.	250 meter from Screen Plant	14.05.2024	65.9	55.2	64.3		
6.	D-Quarry Shorting Yard	14.05.2024	63.0	54.5	61.5		

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

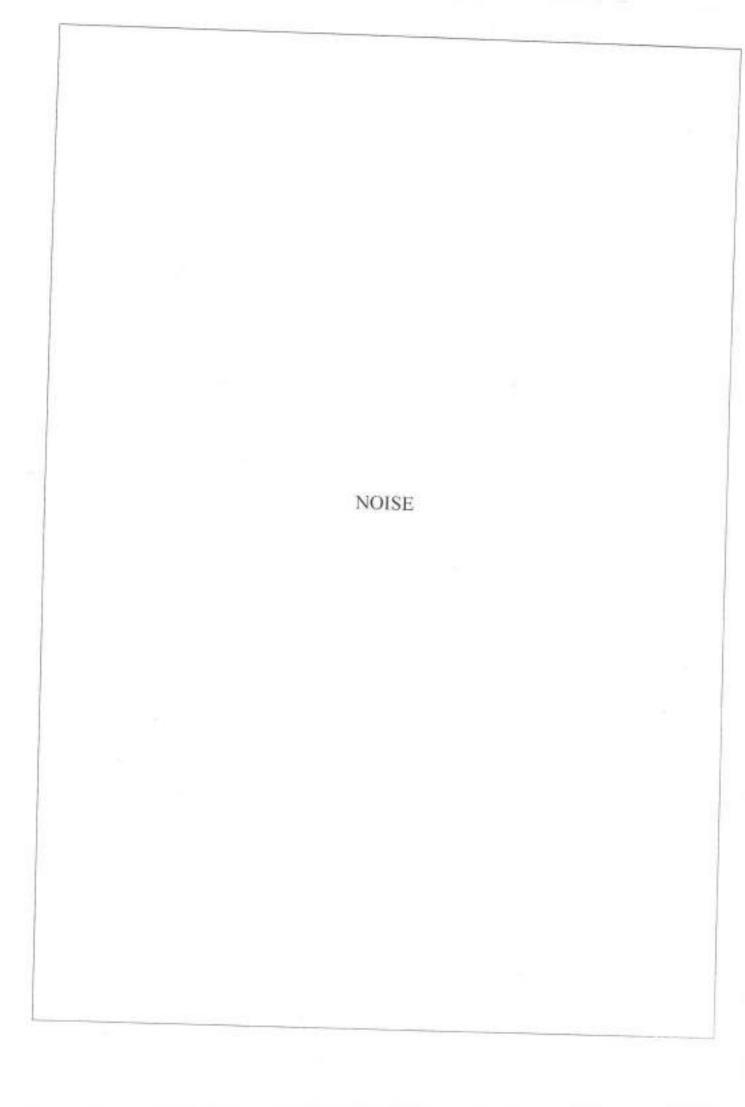
AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)			
	CHILDRE OF MEAN / LONE	DAY TIME	NIGHT TIME		
A	INDUSTRIAL AREA	75	70		
В	COMMERCIAL AREA	65	55		
C	RESIDENTIAL AREA	55	45		
D	SILENE ZONE	50	40		

Checked by:-

For Mitra S. K. Private Limited

Sanoway

Authorised Signatory



At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 CIN: U51909WB1956PTC023037

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Kepor	t No. MSKGL/ED/2024-25/002167			Date: 0	7.07.202
	MONITORING	REPORT OF AMBIE	NT NOISE		
Name	of the Client	M/s. TATA STEEL LIN			
Name	of the Mines	JODA WEST IRON & M		MINES (JWI	MM)
SL.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
NO.	764 H 545 P 1657 P 164 P 165 P	Date Monitoring	Ldn	Ld	Ln
1,	In side Garage	17.06.2024	61.8	66,3	55.2
2.	In Front of Admin Office	17.06.2024	58.3	64.3	45.8
3.	In Front of Canteen	17.06.2024	52.4	65.2	44.7
4.	H Quarry Rest Shelter	17.06.2024	51.9	53.5	48.6
5.	250 meters from Screen Plant	18.06.2024	73.9	76.5	63,2
6.	D-Quarry Shorting Yard	18.06.2024	64.3	67	53.5

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

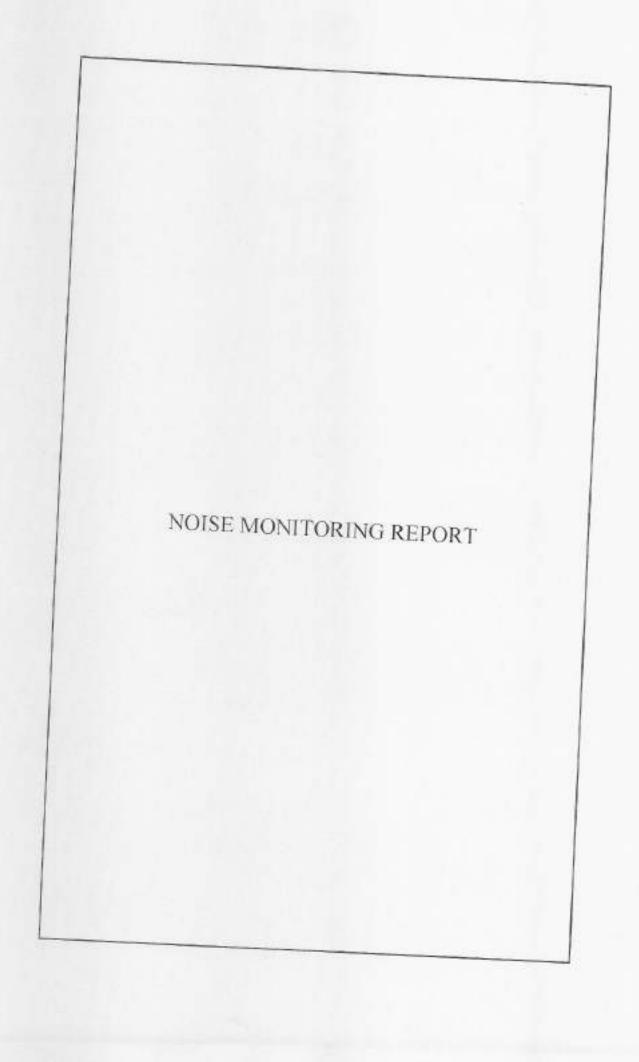
# AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)			
		DAY TIME	NIGHT TIME		
A	INDUSTRIAL AREA	75	70		
В	COMMERCIAL AREA	65	55		
С	RESIDENTIAL AREA	55	17.055		
D	SILENE ZONE	1000	45		
		50	40		

Checked by:

For Mitra S. Kaprivate Limited

Authorized Signatory



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Report	No. MSKGL/ED/2024-25/002862			Date:	03.08.202
	MONITORING	REPORT OF AMBIE	NT NOISE		001001201
Name	of the Client	M/s. TATA STEEL LIM			
Name	of the Mines	JODA WEST IRON & M		MINES (JWI	MM)
SL.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
NO.		Date Monitoring	Ldn	Ld	Ln
1.	In side Garage	15.07.2024	90.5	92.3	48.2
2.	In Front of Admin Office	15.07.2024	46.7	48.1	40.1
3,	In Front of Canteen	15.07.2024	73.5	75.2	55.9
4.	H-Quarry Rest Shelter	15.07.2024	79.5	81.2	66.6
5.	250 meters from Screen Plant	16.07.2024	68.5	70.3	44.4
6.	D-Quarry Shorting Yard	16.07.2024	66.8	68.4	55.3

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

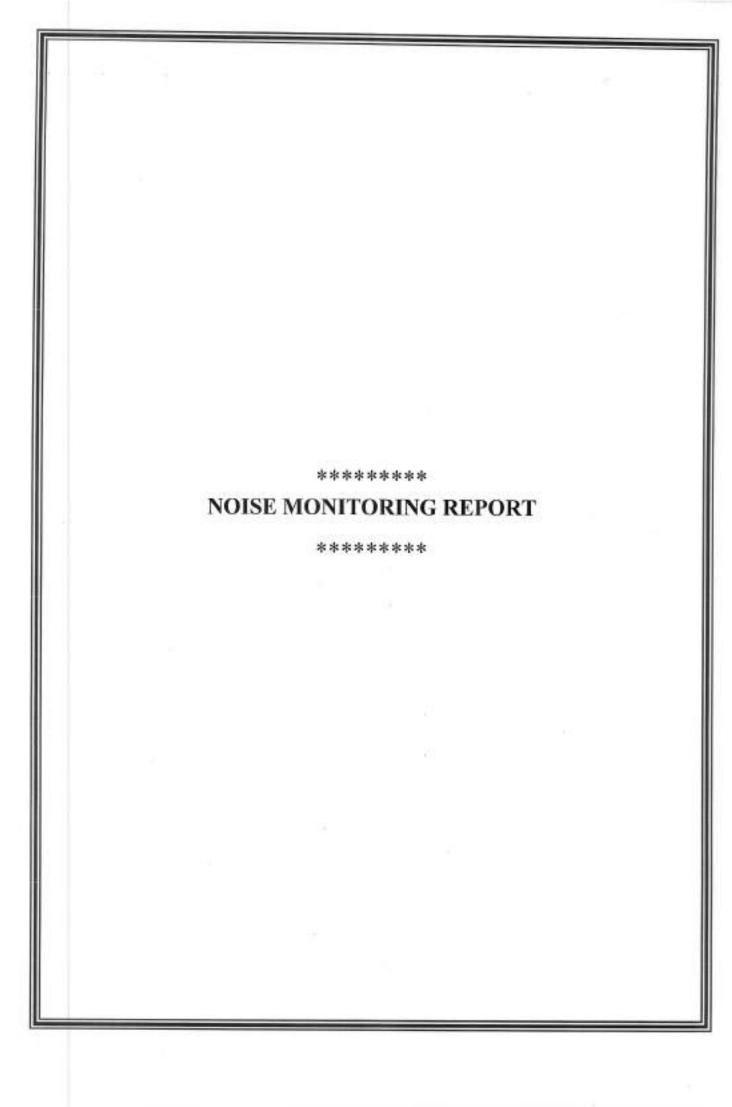
# AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)			
	,	DAY TIME	NIGHT TIME		
A	INDUSTRIAL AREA	75	70		
В	COMMERCIAL AREA	65	55		
C	RESIDENTIAL AREA	55	45		
D	SILENE ZONE	50	40		

Checked by:

For Mitra S. K. Private Limited

**Authorized Signatory** 





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Report N	o. MSKGL/ED/2024-25/003466			Date:	03.08.2024	
	MONITORING	REPORT OF AMBIE	NT NOISE			
Name of	the Client	M/s. TATA STEEL LIM	ITED			
Name of	the Mines	JODA WEST IRON & M	IANGANESE	MINES (JWII	MM)	
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)			
	omig bocacion		Ldn	Ld	Ln	
1.	In Side Garage	19.08.2024	65.4	66.7	59.8	
2.	In Front of Canteen	19.08.2024	63.3	65	46.7	
3.	In Front of Admin Office	19.08.2024	54.7	56.3	42.9	
4.	H-Quarry Rest Shelter	20.08.2024	69.6	71.4	47.9	
5.	D-Quarry Shorting Yard	20.08.2024	69	70.7	49.9	
6.	D-Quarry Screen Plant	20.08.2024	70.4	72	61	

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

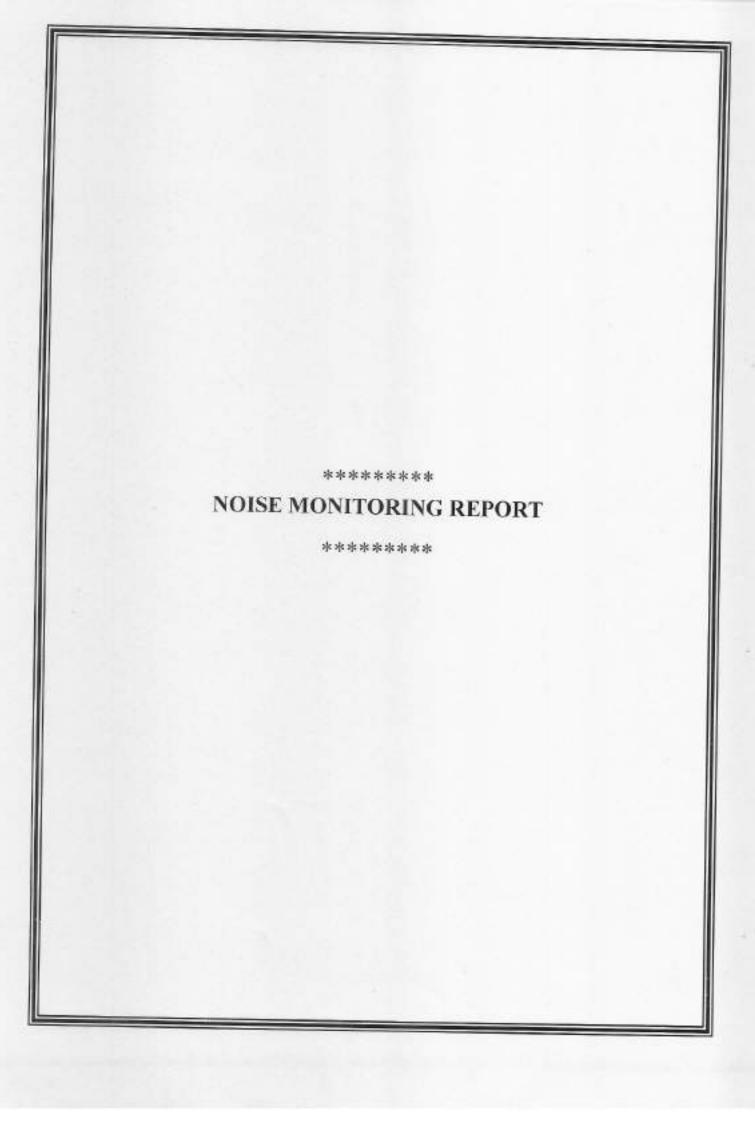
#### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)			
AIRLIN CODE	CATEGORY OF AREA / EURE	DAY TIME	NIGHT TIME		
A	INDUSTRIAL AREA	75	70		
В	COMMERCIAL AREA	65	55		
C	RESIDENTIAL AREA	55	45		
D	SILENE ZONE	50	40		

Checked by:

For Mitra S. K. Private Limited

**Authorized Signatory** 



At/P.O.:BARBIL Ward No-6 Dist: Keonjhar, Odisha - 758035 GIN: U51909WB1956PTC023037

GIN: U51909WB1956PTC023037 T : +91 94370 09815,94370 09820,94370 75269

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Report N	lo. MSKGL/ED/2024-25/004107			Date:	01.10,202
	MONITORING	REPORT OF AMBIE	NT NOISE		
Name of	the Client	M/s, TATA STEEL LIM	HTED		
Name of	the Mines	JODA WEST IRON & M	IANGANESE	MINES (JWI	MM)
SL.	Monitoring Location	Date Monitoring	Data Manitaria Noise		B (A)
NO.	Tromforing Docation	Date Monitoring	Ldn	Ld	Ln
1.	In Side Garage	23.09.2024	67.3	69.5	46.9
2.	In Front of Canteen	23.09.2024	49.2	50.9	38.1
3.	In Front of Admin Office	23.09.2024	52.6	54.3	38
4.	H-Quarry Rest Shelter	24.09.2024	56.4	58	45.9
5.	D-Quarry Shorting Yard	24.09.2024	64.2	66	47.7
6.	D-Quarry Screen Plant	24.09.2024	63.1	64.9	46.3

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00 PM- 6.00 AM

#### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

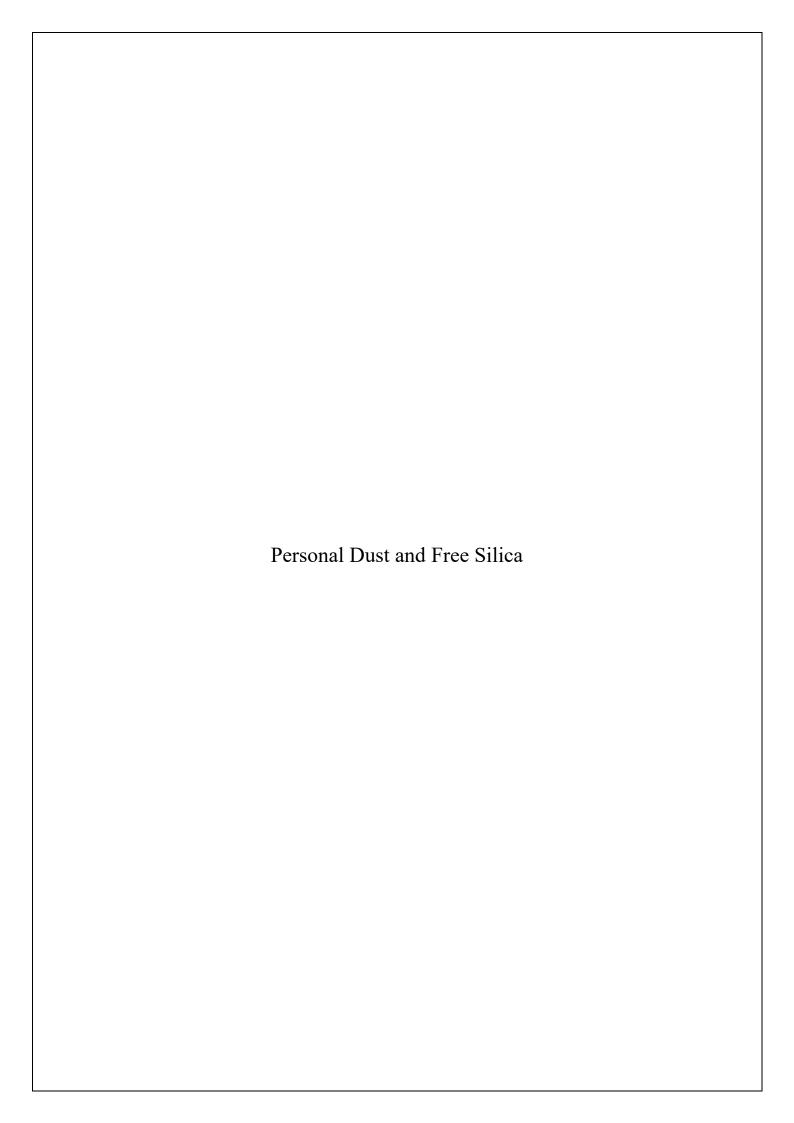
AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)		
	CATEGORY OF AREA / LONE	DAY TIME	NIGHT TIME	
A	INDUSTRIAL AREA	75	70	
В	COMMERCIAL AREA	65	55	
C	RESIDENTIAL AREA	55	45	
D	SILENE ZONE	50	40	

Checked by: - A

For Mitra S. K. Private Limited

(18 Daughay)

Authorized Signatory



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- 40		Test Rep	ort		White and the second	-
Name of the Industry	TATA Steel Limit	ed	Date of Mo	nitoring	15/04/2024	
Total Control of the	Mn Group of Min	es, JODA, Odish:	<ul> <li>Sample Re</li> </ul>	ceived on	20/04/2024	WSA.
	India		Date of Re	porting	14/05/2024	
	Name of the Mir Mn M nes	ie: Joda West Iro	n & Report No.	120	STL/.H/D20/074	1/24
Address	Through: Mitha SK Pvt Ltd AT/PO-Barbit Barbit – Keonjho India,			< 5 %	m³ If Free Silica	100
Sampler Details  SKC Make Sidekick Pump Sr. No.: 22553363, 22563359, 22553180, 22553181 & 22563360		Method of Analysis (ST/.H/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7632		Samplin Flow Ra		-
				2.21pr	n 485 to 5 Mints	

		The state of the s						
S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment 10	Respirable Bust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m³)	Free Silica Content (%)
1	Den S	D-Quarty Sorting yard ST-155	Supervisor	Mr. Annesh Russ (TSP:250888:0324)	355	1.95	1.97	ND
2	Laures .	D-Quarry Sorting yard: 51-156	worker	Mr. Ajaybaha (TSP/970737-1123)	Control of the Contro	2.06	2.10	N.D
3	15 <sup>0</sup> April 2024	D-Quarry Sorting yard / ST-157	Tipper Operator	Mr. Dibitsau (TSP/970781/1123)	Tipper ()D 09 P 3996	2.01	2.05	ЧD
140		D-Quarry Main Gate/ ST-158	Security	Mr. Girija Nandandas CTSP/264577/0424)		1.93	1.97	N.D
5	CE COMP	H- quarry ST-139	Forenian in side mines	Mr. Bisheswar Mahanta (P.No.181701)	Court of the court	2.25	2.43	N.D

Environmental Carabition, Temperature, -08.9 °C & RH - Mine than 45 %; [Detection Level = 0.0005 %] N. D.: Not Detected.

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines.

Free Silica Content is not detected in all five samples.

100	Compiled By	Authorised By
Name	S. Nagaraju	Y, Raghavendra Chary
Signature	8. Duyort -	XP35
Date	IH JAS JOAN LECHT	14/05/2024

Format No.: ST/I/I/G 001-F-27-02, Effective Date 08/07/202

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	- Land 1953	Test Repor	t one	0.640	
Name of the Industry	TATA Steel Limit	led	Date of Monit	oring 16/0	4/2024
12 come		es JODA, Odisha-	Sample Recei	ved on 20/0	4/2024
India.		and left and a second as a second	Date of Repor	ting 14/0	5/2024
	Mn Mines.	ne: Khonbond from &	Report No.	5TL	/IH/D20/075/24
Address	Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjho India.			ndard Limit (DC ust 3 mg/m <sup>3</sup> if F 5 %	
Sampler Details		Method of Analysis		Sampling Flow Rate	Sampling Time
SKC Make Sidekick I		(ST/IH/GTP	001-05)		485 to 490
22553363, 2255335 22553181 & 22		Respirable Oust Free Silica		2.2 lpm	Mints.

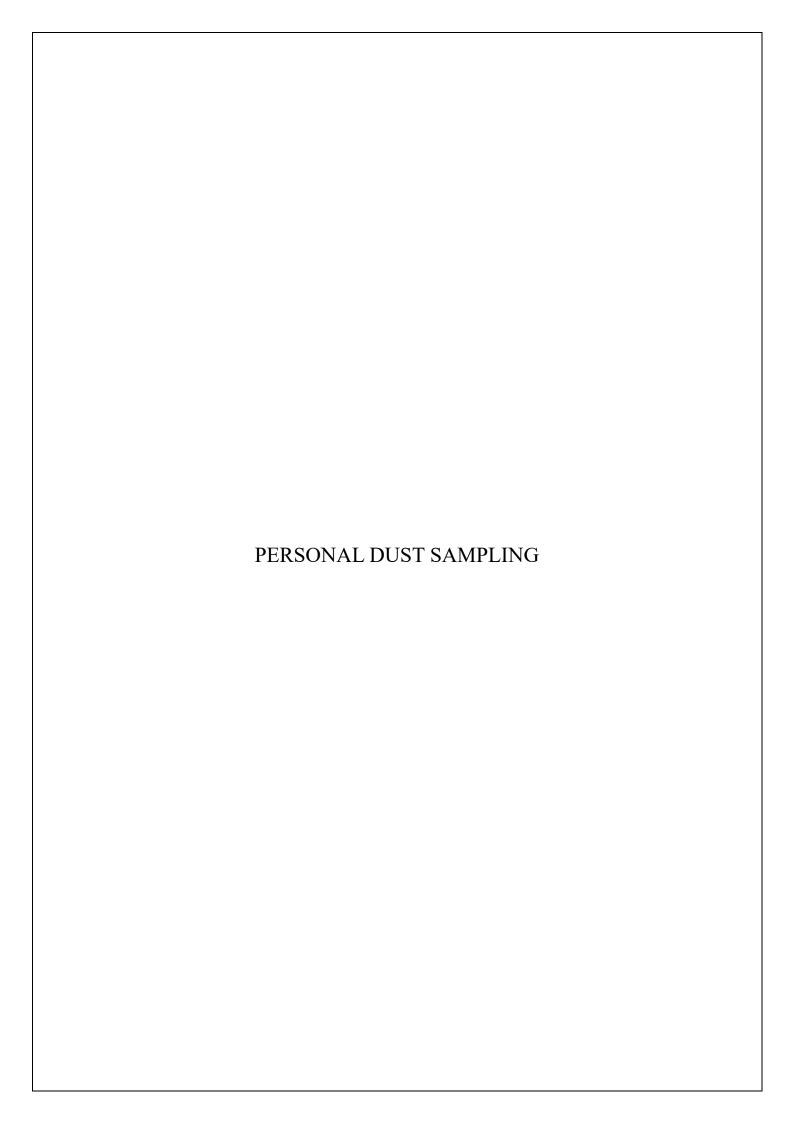
S. No.	Dute	Location / Sample 1D	Activity	Employee Name, Designation & Employee ID	Equipment 10	Respirable Dust (mg/m³)	Respirable Dust TWA (mg/m³)	Free Silica Content (%)
ī		Khonbond, Mn Mines Sorting yard (\$1-160)	Safety supervisor	Ms. Reality Naik (TSP-912168/1023)	(e) (i)	2 04	2,06	N.D
2	The Later	Knopbord Mn Mines Sorting yard ST-161	Supervisor	Mr. Parama Sanda Malanta (488/7590894523)	-	1.72	174	N.D
2	16 <sup>il</sup> April	Klimphond, Mp Mines Sorting yard, ST-162	supervisor	Mr. Malawari Kaching (18/9/12236/1023)	0.00	1.68	4.71	И.П
4	2024	Khonbond Mn Mines. Screening Plant Area / ST-163	London	Mr. Robit komor Mahanta (TSP1912254/1023)	Loscer OD09U55 69	1.43	1.46	ND
ş		Khondbond Mn Mines, Back filling Dump / ST-164	Dintiper Operator	Mr. Britinasen Nag. (TSP/886946/1023)	Dumper ODO9US2 69	1.75	1.79	N.D

Environmental Condition: Temperature - 3%,3 °C & RH - More than 43 %.. [Detection Level = 0,0805 %] N. D. Not Detected

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

NAME OF	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature	S. alugury _ LABS	As
Date	14/05/2024 ( works)	14/05/2024

Format No.: ST 111 G 001-1-27-02, Effective Date: 08.07.2022



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Dec.		Test Report	11000		and the same of th
Name of the industry	TATA Steel Limit	ted	Date of Moni	toring 27/0	35/2024
		nes, JODA, Odisha-	Sample Rece	elved on 03/4	06/2024
	India.		Date of Repo	orting 10/1	06/2024
	Name of the Mi	ne: Joda West Iron &	Report No.	STI	J/IH/F03/099/24
Address Through:  Mitra SK Pvt Uto AT/PO-Barbil Barbil – Keonjik India.  Sampler Details  SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-062, ST-EQ-IH-063, ST-EQ-IH-064, ST-EQ-IH-066		Standard Li Respirable Dust 3 mg		5%	Free Sillca
		Method of An	alysis	Sampling Flow Rate	Sampling Time
		(STAH/GTP CX Respirable Dust : NIC Free Silica : NIC		2.2 lpm	473 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m³)	Respirable Dust TWA (mg/m³)	Free Silica Content (%)
10	Herech)	Ganniguda Sorting yard/ ST-199	Worker	Mr Bijay maharana (TSP/950246/1123)	THE SELL	191	1.92	ND
2	,00	D-Querry Sorting yard/ ST-200	Supervisor	Mr.Bijay Kumar Das (TSP/988760/1123)		1 34	1.34	N.D
3	27 <sup>th</sup> May 2024	H-Quarry Sorting yard / ST-201	Shovel operator	Mr. Tarinder Singh (TSP/970584/1123)	Valvo 487	1 51	1.52	N.D
4		H-Quarry Main Gate/ ST-202	Dumper operator	Mr Bhole Munda (TSP/995571/1223)	OD09P2765	1 54	1.52	N.D
5	Sec. S.	H- Quarry OB Dump yard/ ST-203	Dozer operator	Mr. Lokanath Patra (TSP/970581/1123)	1	2.06	2.10	N.D

Environmental Condition: Temperature - 36.2 °C & RH - 42 %, [Detection Level = 0.0005 %] N. D.: Not Detected.

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines.

Free Silica Content is not detected in all five samples.

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chury
Signature	R. newyord -	yfa
Date	10/06/2014 (SH LABS)	10/06/2024

Format No : ST/IH G 001-F-27-02, Effective man 080

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AND THE PERSON NAMED IN	The same of the sa	Test Report	01	CHIEF CHIEF	
Name of the Industry	TATA Steel Limi	led	Date of Monito	ring 28/0	5/2024
Charge	Mn Group of Mir	nes, JODA, Odisha-	Sample Recal	ved on 03/0	6/2024
	India.	The same of the sa	Date of Repor	ting 10/0	6/2024
	Mame of the Mi	ne: Khanbond Iron &	Report No.	STL	AH/F03/100/24
Address	Through: Mitra SK Pvt Ltc AT/PO-Barbil Barbil – Keonjhi India.	Can		nderd Limit (DC ust 3 mg/m³ if F i %	
Sampler Details		Method of An	alysis	Sampling Flow Rate	Sampling Time
SKC Make Sidekick ST-EQ-IH-062, ST-EQ-B 064, ST-EQ-IH-065 8	H-063, ST-EQ-IH-	(ST/IH/GTP 0/ Respirable Dust : ) Free Silica : )		2.21pm	485 to 500 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m²)	Respirable Dust TWA (mg/m³)	Free Silica Content (%)
1		Khondbond Mn mines, Sorting Plot/ ST-204	Safety supervisor	Mg. Beauty Naik (TSP/912168/1023)	. (8)	1,85	1.87	0.0006
2	1000	Khonbood Mn Mines Sorting yard / ST-205	Worker	Mr karan minj (TSP/916376/1023)	200000	2.44	2.49	ND
3	28 <sup>th</sup> . May	Khonbond Mn Mines Sorting yard / ST-206	Supervisor	Mr. Ajay kumar Pradhan (TSP/912135/1023)		1.98	2.02	ND
4	2024	Khoubond Mn Mines, Screening Plant Area / ST-207	Shovel Operator	Mr. Sanjaya Mahanta (TSP/912298/1023)	TATA 210	1.40	1.45	ND
5	almen.	Kbondbond Mn mines, Screen plans/ ST-208	Dumper Operator	Mr Jagannath Dehury (TSP/912133/1023)	Dumper OD09U62 69	2.01	2.09	ND

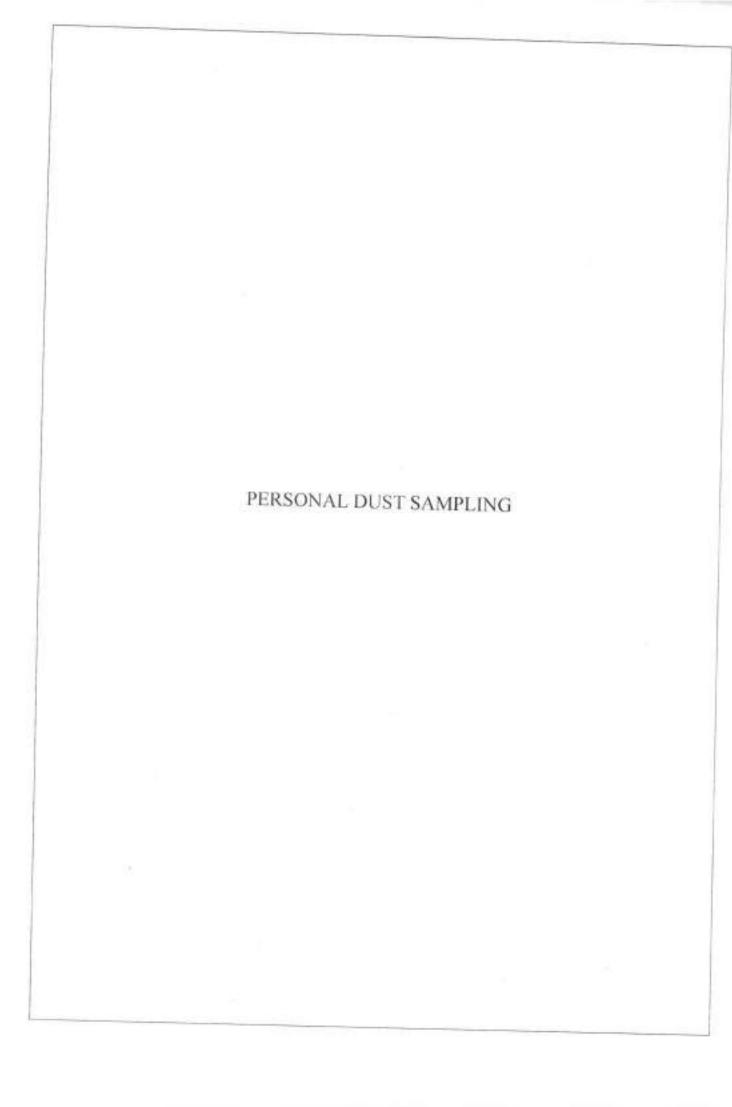
Environmental Condition: Temperature - 37.3 °C & RH - 43.24 %. [Detection Level = 0.0005 %] N. D. Not Detected

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines.

Free Silica Content is detected in one sample but within the limit

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature	8. severt -	y.F2
Date	10/06/2024 (5 ABS 0)	10/06/2024

Format No.: ST/III G 001-F-27-02, Effective Date.



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		Test Report			
Name of the Industry TATA Steel I		mited	Date of Monitoring	03/06/2024	
	Mn Group of N	lines, JODA, Odisha-	Sample Received on	03/06/2024	
	India.		Date of Reporting	01/07/2024	
	Mn Mines	Mine: Joda West Iron &	Report No.	STL/IH/F08/108/24	
Address	Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.		Standard Limit : DGMS (Tech) Circ (MAMID)/08; Date: 29/04/2020 Respirable Dust 1 mg/m³ If Free Silic Content is < 5 %		
Sampler Details  SKC Make Sidekick Pump Sr. No.: ST-EQ-		Method of Ana (ST/IH/GTP 001	Flow Ra		
IH-062, ST-EQ-IH-063, ST-EQ-IH-065 & ST-	ST-EQ-IH-064	Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602		485 to 495 Mints.	

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust	Dust TWA	Content
1		Joda west, H. Quarry Sorting yard/ ST-222	Supervisor	Mr. Jalendra Giri (TSP/983564/1123)	No.	(mg/m³) 0.83	(mg/m³) 0.84	(%) N.D
2	03 <sup>rd</sup>	H-Quarry Sorting yard/ ST-223	Shovel operator	Mr.BPiru nag (TSP/290978/0424)	and the same	0.93	0.94	N.D
3	June 2024	H-Quarry Sorting yard / ST-224	Dumper operator	Mr. Rocky Purty (TSP/027252/1223)	VOLVO EC480DL	0.91	0.94	N.D
4		H-Quarry Main Gate/ ST-221	Security	Mr. Rajesh kumar (TSP/264471/0424)	OD09P3906	0.76	0.78	N.D
5	-	H-Quarry Sorting yard / ST-220	Supervisor	Mr. Suresh Naik (TSP/027265/1223)		0.89	0.90	N.D

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

100	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature	S. plujony	y Pa
Date	01/07/2024	( NABS PL 01/07/2024

Format No.: ST/IH G 001-F-27-02, Effective Date. 08.07.20

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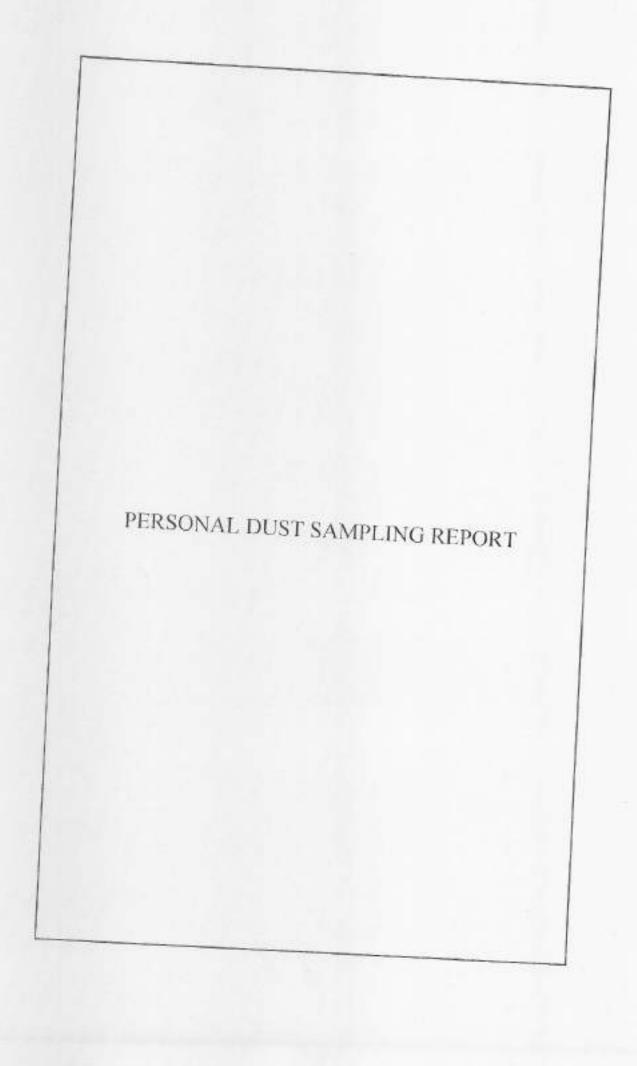
Name of the last o	(100	Test Report	-		100
Name of the Industry	TATA Steel Lin	nited	Date of Monito	ring 04	06/2024
	Mn Group of Mi	nes, JODA, Odisha-	Sample Receiv	-	06/2024
	India. Name of the M	ine: Khonbond Iron &	Date of Report		07/2024
Address	Mn Mines.	me, Michbond from &	Report No.	Total Control of the	L/IH/F08/109/24
	Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjho India.		Standard Lin (MAMID) Respirable Dus Content is < 5.9	/08; Date: 29 st 1 mg/m3 lf l	ech) Circular 0/04/2020 Free Silica
Sampler Details  SKC Make Sidekick Pump Sr. No.: ST-EQ- IH-062, ST-EQ-IH-063, ST-EQ-IH-064,		Method of An	alysis	Sampling Flow Rate	Sampling

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m³)	Respirable Dust TWA	Free Silica Content (%)
1		Khonbond Mn Mines Rwe handling dump/ ST-225	Shovel operator	Ms. Beauty Naik (TSP/912168/1023)	VOLVO EC480DL	0.93	(mg/m³) 0.94	N.D
2		Khonbond Mn Mines Sorting yard / ST-226	Dumper Operator	Mr. Parama Nanda Mahanta (TSP/759089/0723)	Dumper OD09U64 69	0.93	0.94	N.D
3	04 <sup>n</sup> June 2024	Khonbond Mn Mines Sorting yard / ST-227	Worker	Mr. Malawati Kachhap (TSP/912236/1023)	2	0.90	0.92	0.002
4		Khonbond Mn Mines, Dump-4/ ST-228	Dozer operator	Mr. Rohit kumar Mahanta (TSP/912254/1023)	DOZER B21042	0.90	0.91	N.D
5		Khondbond Mn Mines, Main gate / ST-229	Security	Mr. Bhimasen Nag (TSP/886946/1023)		0.88	0.88	N.D

Environmental Condition: Temperature - 33.3 °C & RH - More than 46.2 %., [Detection Level = 0.0005 %] N. D. Not Detected CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is detected in one sample but within the limit.

1000	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature	S. skyny -	182
Date	01/07/2024	LABS 0 01/07/2014

Format No.: ST/IH G 001-F-27-02, Effective Date. 08.07.20



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	Test Report				
	nited		onitorina	00007	inno.
Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines Through:  Mitra SK Pvt Ltd  AT/PO-Barbil Barbil – Keonjhor- 758035 India.		Sample R	eceived on	The State of	NAME OF TAXABLE PARTY.
				13/07/2024 06/08/2024 STL/IH/G13/126/2/	
		Standard Limit		nit (DGI m³ If Fre	MS) se Silica
Sampler Details  SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-001, ST-EQ-IH-008, ST-EQ-IH-044, ST-EQ-IH-045 & ST-EQ-IH-046		1-05)		te	Sampling Time 485 to 500
	Mn Group of M India. Name of the M Mn Mines Through: Mitra SK Pvt Lt AT/PO-Barbil Barbil – Keonjh India. ails	TATA Steel Limited  Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.  Method of Ana ump Sr. No.: (ST/IH/GTP 00	Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.  Method of Analysis  West Method of Analysis	TATA Steel Limited  Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.  Method of Analysis  Method of Analysis  Sample Received on Date of Reporting Report No.  Standard Lir Respirable Dust 1 mg/r Content is < 5 %  Method of Analysis  Samplir Flow Ra	TATA Steel Limited Date of Monitoring 08/07/ Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.  Method of Analysis Limited Date of Monitoring 08/07/ Sample Received on 13/07/ Page of Reporting 06/08/ Report No. STL/III  Standard Limit (DGI) Respirable Dust 1 mg/m³ If Free Content is < 5 %  Method of Analysis Limited  Method of Analysis Limited Sample Received on 13/07/ Report No. STL/III  Standard Limit (DGI) Respirable Dust 1 mg/m³ If Free Content is < 5 %  Method of Analysis Limited  Sample Received on 13/07/ Report No. STL/III  Standard Limit (DGI) Respirable Dust 1 mg/m³ If Free Content is < 5 %  Method of Analysis Limited  Sample Received on 13/07/ Report No. STL/III  Standard Limit (DGI) Respirable Dust 1 mg/m³ If Free Content is < 5 %  Sampling Flow Rate

S. No.	Date	Location / Sample (D	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m³)	Respirable Dust TWA	Content
t		Joda west 'H' Quarry Screen Plant/ ST-307	Shovel Operator	Mr. Nihar Rangan Mohanta (TSP/950069/1123)	TATA hitachi EX210LC	0.90	(mg/m³) 0.93	(%) N.D
2		Joda west 'H' Quarry Screen Plant//ST-200	Loader Operator	Mr. Krishna Gupta (TSP/950068/1123)	OD04N4269	0.91	0.95	N.D
3	July 2024	Joda west 'D' Quarry Sorting yard / ST-201	Worker	Mr. Banshilal Naik (TSP/950163/1123)		0.93	0.97	N.D
4	Joda west 'H' Quarry Sorting yard / ST-202 Joda west 'H' Quarry Main Gate/ ST-203	Joda west 'H' Quarry Sorting	Supervisor	Mr. Jitendra Lohar (TSP/220575/0324)		0.81	0.81	N.D
5		Security	Mr. Champak Giri (TSP/269310/0424)	1.00	0.71	0.72	N.D	

Environmental Condition: Temperature - 36.2 °C & RH - 42 %, [Detection Level = 0.0005 %] N. D. Not Detected.

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

	Compiled By	Authorised By
Name	Ch. Venkatesh	Y. Raghavendra Chary
Signature	ch. W. Ist	NBS VP1
Date	06/08/2024 -	06/08/2024

Format No.: ST/IH G 001-F-27-02, Effective Date, 08.07.2022

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Name of the last		Test Report			-	
Name of the Industry	TATA Steel Lin	tited	Date of Mor	itorina	00/0	7/2024
	India.	ines, JODA, Odisha-	Sample Rec			and the same of th
		ine: Khonbond Iron &	Date of Rep		13/07/2024 06/08/2024	
Address	Mn Mines. Through:		Report No.		STL/IH/G13/127/2/	
	Mitra SK Pvt Ltx AT/PO-Barbil Barbil – Keonjho India.		Respirable I	andard Lim Oust 1 mg/n 5 %	nit (DG n <sup>3</sup> If F	iMS) ree Silica
Sampler Details  SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-001, ST-EQ-IH-008, ST-EQ-IH-044, ST-EQ-IH-045 & ST-EQ-IH-046		Method of An (ST/IH/GTP 00	11-05)	Samplii Flow Ra		Sampling Time
		Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602		2.2 lpn	1	485 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee ID	Equipment ID	Respirable Dust (mg/m²)	Respirable Dust TWA	Free Silica Content (%
1		Khondhond Mn mines, Sorting yardt/ ST-312	Worker	Mr. Rama Chandra Naik (TSP/912317/1023)		0.95	(mg/m³) 0.96	N.D
2	ant.	Khonbond Mn Mines Sorting yard / ST-313	supervisor	Mr. Sukanta Kumar Bal (TSP/912401/1023)	1-2	0.82	0.83	N.D
3	09# July 2024	Khonbond Mn Mines Sorting yard / ST-314	Safety supervisor	Mr. Tapan Kumar Naik (TSP/912368/1023)		0.83	0.84	N.D
4		Khonbond Mn Mines, Main gate / ST-315	security	Mr. Suman Kumar Singh (TSP/269301/0424)		0.61	0.62	N.D
5		Khondbond Mn Mines Screen plant Over Size Dump/ ST-316 Shovel operator (TSP/957005/1123) mental Condition: Temperature 14.3 C & RH - 56.24 % [Detection CONCLUSION: From the above results is can be seen by the condition of the c	210LC	0.78	0.79	N.D		

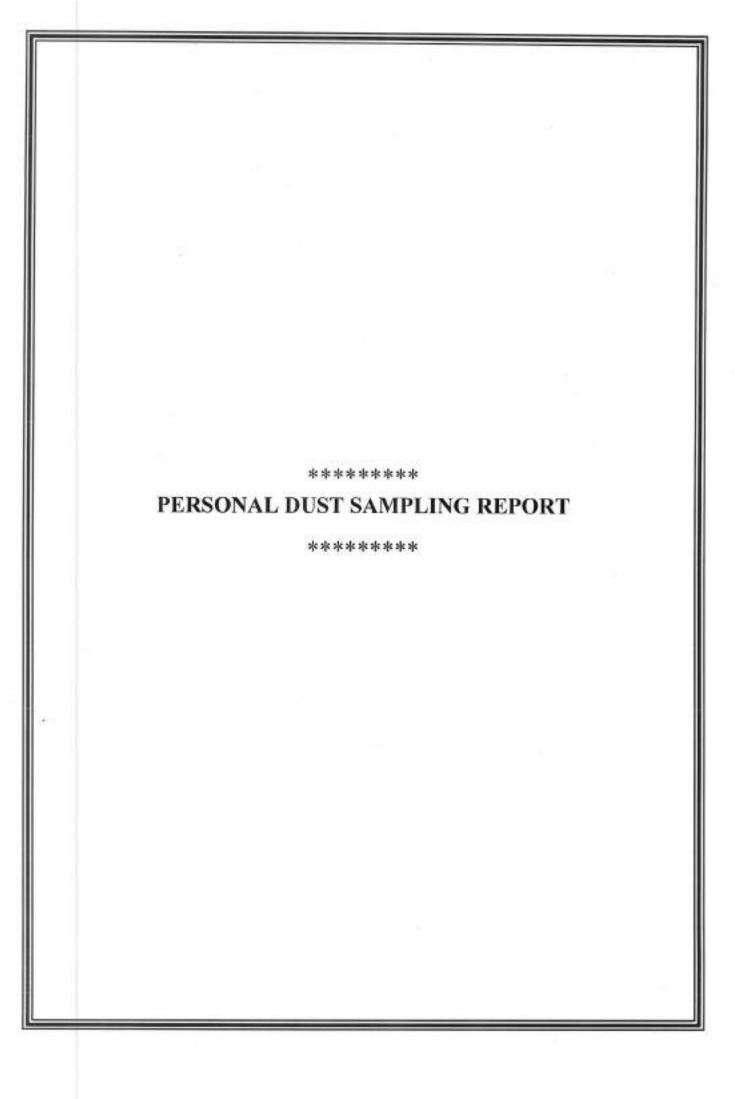
Environmental Condition: Temperature - 14.3 °C & RH - 56.24 %. [Detection Level = 6.0005 %] N. D. Not Detected CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for

all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all samples.

	Compiled By	Authorised By		
Name	Ch. Venkatesh	Y. Raghavendra Char		
Signature	ch vo cial	.0.		
Date	06/08/2024	06/08/2014		

Format No.: ST/IH G 001-F-27-02, Effective Date. 08.07.2022-

Page I of I



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-		Test Report	California Control			AVAIL
Name of the Industry	TATA Steel Li		Date of Monitoring		20/08	8/2024
		lines, JODA, Odisha-		eceived on	_	3/2024
	India.		Date of Reporting			9/2024
	Mn Mines	Mine: Joda West Iron &	Report No.		STL/IH/H26/158/24	
Address	Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.		Standard Limit (DGMS) Respirable Dust 1 mg/m³ If Free Silica Content is < 5 %			
Sampler Details  Make Sidekick Pump Sr. No.: ST-EQ-IH-064, ST-EQ-IH-063, ST-EQ-IH-046  O62, ST-EQ-IH-045 & ST-EQ-IH-046		Method of Ana (ST/IH/GTP 00- Respirable Dust : NICS Free Silica : NICS	1-05)	Samplir Flow Ra	te	Sampling Time 482 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m³)	Respirable Dust TWA (mg/m³)	Free Silica Content	
1	20 <sup>th</sup> Aug 2024		H Quarry Main Gate / ST-346	Security	Mr. Saran Kumar Giri (TSP/264752/0424)		0.61	0.62	(%) ND
2		H Quarry/ ST- 347	Fore man	Mr. Subhakanta Patra (181693)		0.53	0.54	N.D	
3		Aug	EN Quarry / ST-348	Dozer Operator	Mr. Mukunda Mahanta	OD04 N4269	0.43	0.44	ND
4		Gangagudu Quarry / ST- 349	Supervisor	Mr. Ranjan Munda (TSP/072881/0124)	-	0.53	0.53	N.D	
5		D Quarry / ST- 350	worker	Mr. Madan Munda (TSP/575909/0824)		0,52	0.52	ND	

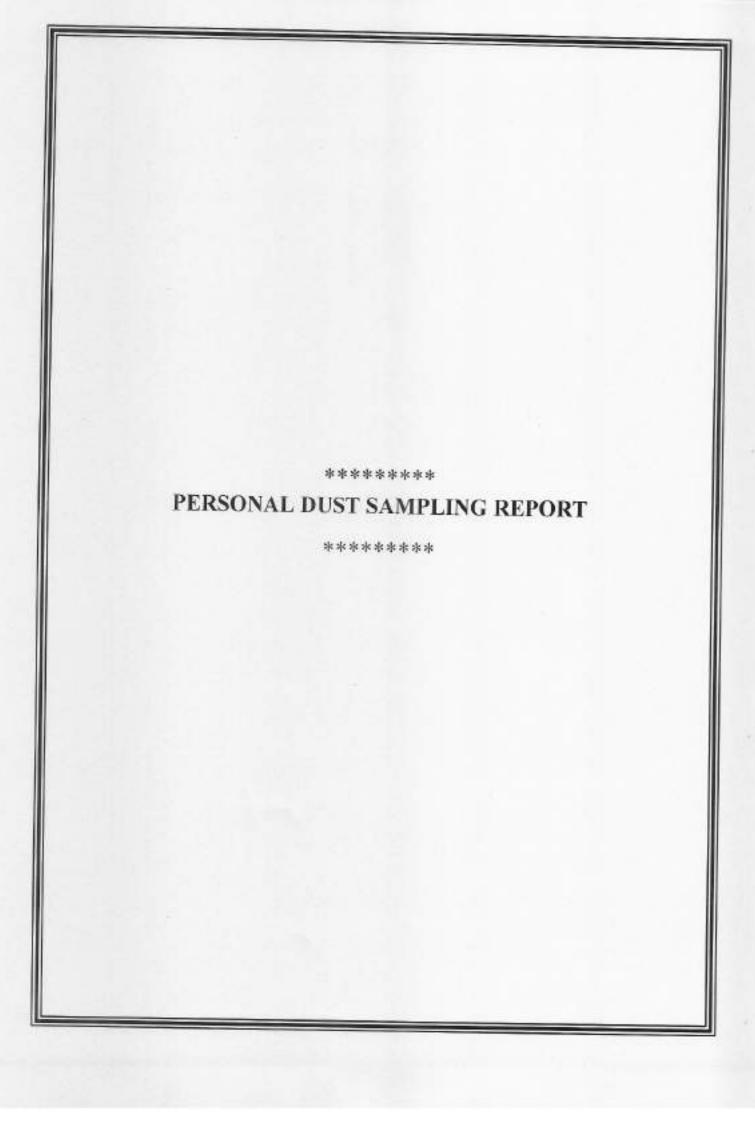
Environmental Condition: Temperature - 25.6 °C & RH - More than 60 %., [Detection Level = 0.0005 %] N. D.: Not Detected.

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

	Compiled By	Authorised By	
Name	S. Nagaraju	Y. Raghavendra Chary	
Signature	g-neograf =	182	
Date	<u> </u>	35 PL 04/09/2024	

Format No.: ST/IH G 001-F-27-02, Effective Date. 08:09-20.





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100	The said	Test Report	OF STREET		AMERICAN PROPERTY.	
Name of the industry	TATA Steel Lin	mited	Date of Mor	18/09/2024		
	Mn Group of Mines, JODA, Odisha- India.  Name of the Mine: Joda West Iron & Mn Mines		Sample Received on		23/09/2024	
			Date of Reporting Report No.		04/10/2024 STL/IH/H23/166/24	
Address Through:  Mitra SK Pvt Ltd  AT/PO-Barbil  Barbil – Keonjhoi India.		Respirab		andard Lim Dust 1 mg/n : 5 %	it (DGMS)	
Sampler De Make Sidekick Pump S IH-064, ST-EQ-IH-06, 062, ST-EQ-IH-065 &	r. No.: ST-EQ- 3, ST-EQ-IH-	Method of Ana (ST/IH/GTP 00 Respirable Dust : NIO Free Silica : NIO	1-05) SH 600	Sampling Flow Rat 2.2 lpm	te Time	

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m³)	Respirable Dust TWA (mg/m³)	Free Silica Content (%)
1	No. of Contract	Gangaiguda sorting yard/ ST-375	Supervisor	Mr. Jadumani Mahanta (TSP/566759/0824)	Care	0.68	0.69	N.D
2	18th	Gangaiguda sorting yard/ ST-376	Dumper Operator	Mr. Pitrukhan Gait (TSP/566802/0824)	OD09AA 3169	0.82	0.83	N.D
3	Sept 2024	Gangaiguda sorting yard/ ST-377	Shovel Operator	Mr. Fakira Mahanta (TSP/566723/0824)	VOLVO EC480DL	0.64	0.64	N.D
4	and Wi	D Quarry / ST- 378	Worker	Mr. Umend Kumar (TSP/56668/0824)	The second second	0.83	0.84	N.D
5		H Quarry / ST- 379	Safety Supervisor	Mr. Motilal Giri (TSP/607096/0824)		0.60	0.61	N.D

Environmental Condition Temperature - 29.6 °C & RH - More than 50 %, [Detection Level - 0.0005 %] N. D. Not Detected.

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

No.	Compiled By	Authorised By	
Name	S. Nagaraju	Y. Raghavendra Chary	
Signature	S.aprij -	B	
Date	04/10/2014 (51) LA	BS 04/10/204	

Format No : ST/IH G 001-F-27-02, Effective Date 6