



By-Email

Ref.No.: MGM/P&E/ 512

Date: 29/11/2024

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

**Subject:** Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Bamebari 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-11015/85/2003-IA. II(M) dated 17<sup>th</sup> November 2005.
- 2) MoEFCC's notification vide S.O-5845 (E), dated 28<sup>th</sup> 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-11015/85/2003-IA. II(M) dated 17<sup>th</sup> November 2005 in respect of Bamebari 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](mailto:roez.bsr-mef@nic.in).

We believe the above submission is in order.

Thanking You,

Yours Faithfully,

F: TATA STEEL LTD.

  
Head (Mine Planning),  
Bamebari Iron & Manganese Mines,  
Ferro Alloys Mineral Division

**Encl:** As above.

**Copy To:**

- 1) Zonal Office Kolkata, Central Pollution Control Board, South end Conclave, Block 502, 5<sup>th</sup> and 6<sup>th</sup> Floors, 1582 Rajdanga Main Road, Kolkata, 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**

Ferro Alloys & Manganese Division, Manganese Group of Mines, At/P.O.: Bichhakundi, Via: Joda,

Dist: Keonjhar Odisha – 758 034 Tel.: 9238101370, email : [mnminesadmin@tatasteel.com](mailto:mnminesadmin@tatasteel.com)

Regd. Office : Bombay House, 24 Homi Modi Street, Mumbai – 400 001 Tel 912266658282, Fax 912266657724

Corporate Identity Number L27100MH1907PLC000260 Website [www.tatasteel.com](http://www.tatasteel.com)

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

**Acknowledgement**

<b>Proposal Name</b>		Bamebari Manganese Ore Mine of M/s Tata Steel, ML Area: 464 ha { Production Capacity: 0.832 LTPA }	
<b>Name of Entity / Corporate Office</b>		Tata Steel	
<b>Village(s)</b>		N/A	
<b>District</b>		KENDUJHAR	
<b>Proposal No.</b>	IA/OR/MIN/11660/2005	<b>Category</b>	Non-Coal Mining
<b>Plot / Survey / Khasra No.</b>	N/A	<b>Sub-District</b>	N/A
<b>State</b>	ODISHA	<b>Entity's PAN</b>	*****2803M
<b>MoEF File No.</b>	No.J-11015/85/2004-IA.II(M)No.J-11015/85/2004-IA.II(M)	<b>Entity name as per PAN</b>	UTSAV KASHYAP

**Compliance Reporting Details**

**Reporting Year** 2024

**Remarks (if any)** Six Monthly EC Compliance Report in respect of Bamebari Iron and Mn Mine Project  
Type: Mining (Open Cast)  
Mineral: Manganese Ore (83200 Tonnes per annum)

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

**Details of Production and Project Area**

**Name of Entity / Corporate Office** Tata Steel

	Project Area as per EC Granted	Actual Project Area in Possession
Private	0	15.503
Revenue Land	67.165	0.102
Forest	382.269	448.395
Others	14.566	0
Total	464	463.99999999999994

**Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Manganese Ore	Tons per Annum (TPA)	31/03/2025	83200	82885	83200

## Conditions

### Specific Conditions

Sr.No.	Condition Type	Condition Details
1	Statutory compliance	Mining shall not be undertaken in areas of forestland within the lease without the necessary approvals / forestry clearance.

#### PPs Submission: Complied

The present leasehold area of Bamebari Iron and Manganese Mine is 464.0 ha. Out of which, forest land and non-forest land prevails over 448.395 ha and 15.605 ha. respectively. Stage-II Forest clearance has been accorded vide letter no 8-72/2004-FC dt 25.01.2007 for 145.329 ha of forest land. FC for balance forest area of 303.066 ha (Sabik Forest and Balance HAL Forest) has been applied. Presently, Mining is carried out in restricted manner within the extent of stage-II diverted area of 145.329 ha, non-forestland of 15.605 ha and some portions of the broken-up forestland (broken up prior to 1980).

Date:  
29/11/2024

2	GREENBELT	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 24-Sep 24 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.

Date:  
29/11/2024

3	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 mtrs 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 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 is enclosed as Annexure 1.

Date:  
29/11/2024

4	WASTE MANAGEMENT	Minerals rejects shall be stacked separately at earmarked site/dump only.
---	------------------	---------------------------------------------------------------------------

#### PPs Submission: Complied

The mineral rejects generated during manual processing of manganese ore (i.e. sorting, dressing and

Date:

sizing) has been stacked separately at earmarked site. The designated site for mineral storage is indicated in the surface plan which is updated on quarterly basis.		29/11/2024
5	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.
<b>PPs Submission:</b> 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 mine pit to store the water and also recharge the ground water table.		Date: 29/11/2024
6	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.
<b>PPs Submission:</b> Complied While designing network of garland drains, checkdams, 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.		Date: 29/11/2024
7	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.
<b>PPs Submission:</b> 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 was carried out during year FY 24.		Date: 29/11/2024
8	AIR QUALITY MONITORING AND PRESERVATION	Mineral and OB transportation shall be 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.
<b>PPs Submission:</b> 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 from 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 point of the mines 4. Dust suppression by means of mobile water tanker (capacity 10KI) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding		Date: 29/11/2024
9	GREENBELT	A green belt of adequate width should be raised by planting the



		native species around ML area. Plantation should also be carried out along roads, OB dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be not less than 2500 plants per ha.
<b>PPs Submission: Complied</b> 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 57.971 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 287220 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 35.129 hectares over OB dump and 1.5 ha of backfilled area where the saplings have attained self-sustaining stage. Glimpses of Dump management and associated afforestation measures undertaken at mine level is enclosed as Annexure 2.		Date: 29/11/2024
10	Statutory compliance	Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.
<b>PPs Submission: Complied</b> 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/2/2023/8486 which is valid till 22nd July 2024. Copy of the said NOC is enclosed as Annexure 3.		Date: 29/11/2024
11	MINING PLAN	Mining will not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.
<b>PPs Submission: Complied</b> 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 intersect the regional ground water table; however at Joribar bar pit, seepage was evidenced during FY23 mainly attributed to some localised aquifer which was identified during a detailed hydrogeological investigation carried out by engaging a CGWA empanelled agency and with the help of ground water modelling studies, it was estimated that peak seepage for Joribar would be around 482KLD. Based on the above said studies and deliberations at CGWA, NOC was granted to Bamebari mine for the Abstraction of 130 KLD (from bore wells) and 482 KLD from Mine pits (as seepage) vide NOC no. CGWA/NOC/MIN/REN/2/2023/8486 valid till 22nd July 2024.		Date: 29/11/2024
12	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 & Central Ground Water Authority quarterly.
<b>PPs Submission: Complied</b> 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 4.		Date: 29/11/2024
13	WATER QUALITY	Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn

	MONITORING AND PRESERVATION	at specific locations for both surface water downstream and in ground water at lower elevations from mine area, shall be periodically monitored 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.
<b>PPs Submission:</b> 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 24-Sep 24 is enclosed herewith as Annexure 5.		Date: 29/11/2024
14	Statutory compliance	"Consent to Operate" should be obtained from SPCB before expanding mining activities.
<b>PPs Submission:</b> 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. 544/IND/I/CON/189 dated 07-01-2022 which is valid up to 31/03/2025. A copy of the valid CTO is enclosed as Annexure 6.		Date: 29/11/2024
15	Statutory compliance	A 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, Bhubaneswar.
<b>PPs Submission:</b> Complied A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7743 / 1 WL-SSP -01/2015 dated 01.09.2015. Following funds have been deposited by PP to State Forest Dept till date for - Rs. 4,69,81,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other - Rs 166.10 Lakhs for activities to be implemented by the user agency in the project impacted area A copy of the approval of site-specific wildlife conservation plan is enclosed herewith as Annexure 7.		Date: 29/11/2024
16	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.
<b>PPs Submission:</b> 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. 11.59165 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/696/20 dated 01.10.2020.		Date: 29/11/2024

## General Conditions

Sr.No.	Condition Type	Condition Details
1	MINING PLAN	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
<b>PPs Submission:</b> 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.		Date: 29/11/2024
2	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, SO <sub>2</sub> , NO <sub>x</sub> 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, SO <sub>2</sub> & NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office at Bhubaneswar and the State Pollution Control Board/Central Pollution Control Board once in six. Months.
<b>PPs Submission:</b> Complied In consultation with Regional Office, State Pollution Control Board (Keonjhar Region), 04 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 8.		Date: 29/11/2024
3	AIR QUALITY MONITORING AND PRESERVATION	Drills should be wet operated or with dust extractors and controlled blasting should be practiced.
<b>PPs Submission:</b> 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 blasts 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.		Date: 29/11/2024
4	AIR QUALITY 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.
<b>PPs Submission:</b> Complied Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-10KI) 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. Reports are enclosed as Annexure 09.		Date: 29/11/2024
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 should be provided with ear plugs/ muffs.

<p><b>PPs Submission: Complied</b>  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 10.</p>		Date: 29/11/2024
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.
<p><b>PPs Submission: Complied</b>  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. 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.</p>		Date: 29/11/2024
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.
<p><b>PPs Submission: Complied</b>  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.</p>		Date: 29/11/2024
8	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.
<p><b>PPs Submission: Complied</b>  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. Reports is enclosed as Annexure 11.</p>		Date: 29/11/2024
9	Corporate Environmental Responsibility	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.

<b>PPs Submission: Complied</b> 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 and Production Planning), Head (Environment), Senior Manager - Mine Planning, Area Manager (RM Environment), Environment Engineer, Chemists, etc.		Date: 29/11/2024
10	Corporate Environmental Responsibility	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 Bhubaneshwar.
<b>PPs Submission: Complied</b> 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. 219.6 Lakhs - FY-2022-23: Rs. 218.33 Lakhs - FY-2023-24: Rs. 302.7 Lakhs		Date: 29/11/2024
11	MISCELLANEOUS	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.
<b>PPs Submission: Complied</b> 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.		Date: 29/11/2024
12	PUBLIC HEARING	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.
<b>PPs Submission: Complied</b> The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Sarpanch, Gram Panchayat, Palasa on 12.01.2006.		Date: 29/11/2024
13	Corporate Environmental Responsibility	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.
<b>PPs Submission: Complied</b> The EC documents was displayed in the office of Regional Office, District Industry Centre and Collector s Office/ Tehsildar s Office for 30 days.		Date: 29/11/2024
14	Statutory compliance	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular 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 Web Site of the Ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.
<b>PPs Submission: Complied</b> A copy of Environmental Clearance with regard to Joda West Manganese Mine was published in		Date: 29/11/2024

Oriya News Papers Anupam Bharat and Aam Khabar on 10.01.2006.		
15	MINING PLAN	No change in the calendar plan including excavation, quantum of manganese ore and waste should be made.
<b>PPs Submission:</b> 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 0.832 Lakh tonnes per annum.		Date: 29/11/2024
<b>Visit Remarks</b>		
<b>Last Site Visit Report Date:</b>		N/A
<b>Additional Remarks:</b>		
<p><b>Note:</b> 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.</p>		

**Compliance to the Environment Clearance Letter No: J-11015/85/2003-IA. II(M) dated 17<sup>th</sup> November 2005 in respect of "Expansion of Bamebari Manganese Mines (to a capacity of 0.83 LTPA) of M/s Tata Steel Limited located in villages Bamebari, Boneikela, and Joribar, Tehsil-Barbil, District-Keonjhar, Odisha."**

**Table A:- Specific Conditions**

SN.	EC Conditions	Status of Compliance
(i)	Mining shall not be undertaken in areas of forestland within the lease for which necessary approval/ forestry clearance has not been obtained.	The present leasehold area of Bamebari Iron & Manganese Mine is 464.0 ha. Out of which, forest land and non-forest land prevails over 448.395 ha and 15.605 ha. respectively. Stage-II Forest clearance has been accorded vide letter no 8-72/2004-FC dt 25.01.2007 for 145.329 ha of forest land. FC for balance forest area of 303.066 ha (Sabik Forest & Balance HAL Forest) has been applied. Presently, Mining is carried out in restricted manner within the extent of stage-II diverted area of 145.329 ha, non-forestland of 15.605 ha and some portions of the broken-up forestland (broken up prior to 1980).
(ii)	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.	No topsoil generated during the period April'24-Sep'24 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.
(iii)	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.	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 mtrs and overall slope is maintained well within 28°. Environmental Protection Measures ensured at site especially for the dump management aspects are as follows: 1. Network of Garland Drains and/or 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 is enclosed as <b>Annexure 1</b> .
(iv)	Mineral rejects shall be stacked separately at earmarked site/dump only.	The mineral rejects generated during manual processing of manganese ore (i.e. sorting, dressing and sizing) has been stacked separately at earmarked site. The designated site for mineral storage is indicated in the surface plan which is updated on quarterly basis.
(v)	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and	Existing catch drains & 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



**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

SN.	EC Conditions	Status of Compliance
	<p>mineral dumps. The drains should be regularly desilted and maintained properly.</p> <p>Garland drains (size, gradient &amp; 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.</p> <p>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.</p>	<p>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 mine pit to store the water and also recharge the ground water table.</p>
(vi)	<p>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.</p>	<p>While designing network of garland drains, checkdams, 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.</p>
(vii)	<p>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.</p>	<p>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 was carried out during year FY 24.</p>
(viii)	<p>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 &amp; transfer points, etc.</p>	<p>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 from 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 point of the mines 4. Dust suppression by means of mobile water tanker (capacity 10KI) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding</p>

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
<b>(ix)</b>	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.	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 57.971 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 287220 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 35.129 hectares over OB dump and 1.5 ha of backfilled area where the saplings have attained self-sustaining stage. Glimpses of Dump management and associated afforestation measures undertaken at mine level is enclosed as <b>Annexure 2</b> .
<b>(x)</b>	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 & 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/2/2023/8486 which is valid till 22 <sup>nd</sup> July 2024. Copy of the said NOC is enclosed as <b>Annexure 3</b> .
<b>(xi)</b>	Mining shall not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.	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 intersect the regional ground water table; however at Joribar bar pit, seepage was evidenced during FY23 mainly attributed to some localised aquifer which was identified during a detailed hydrogeological investigation carried out by engaging a CGWA empanelled agency and with the help of ground water modelling studies, it was estimated that peak seepage for Joribar would be around 482KLD. Based on the above said studies and deliberations at CGWA, NOC was granted to Bamebari mine for the Abstraction of 130 KLD (from bore wells) and 482 KLD from Mine pits (as seepage) vide NOC no. CGWA/NOC/MIN/REN/2/2023/8486 valid till 22 <sup>nd</sup> July 2024.
<b>(xii)</b>	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new	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 4</b> .

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

SN.	EC Conditions	Status of Compliance
	<p>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 &amp; Forest and the Central Ground Water Authority quarterly.</p>	
(xiii)	<p>Trace metals such as Fe, Cr<sup>+6</sup>, 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.</p>	<p>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'24-Sep'24 is enclosed herewith as <b>Annexure 5</b>.</p>
(xiv)	<p>"Consent to Operate" should be obtained from SPCB before expanding mining activities.</p>	<p>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. 544/IND/I/CON/189 dated 07-01-2022 which is valid up to 31/03/2025. A copy of the valid CTO is enclosed as <b>Annexure 6</b>.</p>
(xv)	<p>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</p>	<p>A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7743 / 1 WL-SSP -01/2015 dated 01.09.2015.</p> <p>Following funds have been deposited by PP to State Forest Dept till date for –</p> <ul style="list-style-type: none"> <li>Rs. 4,69,81,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other</li> <li>Rs 166.10 Lakhs for activities to be implemented by the user agency in the project impacted area</li> </ul> <p>A copy of the approval of site-specific wildlife conservation plan is enclosed herewith as <b>Annexure 7</b>.</p>

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
	implementation of the Plan and the expenditure thereon should be reported to the Ministry of Environment & forests, RO, Bhubaneshwar.	
<b>(xvi)</b>	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.	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. 11.59165 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 & CC, Bhubaneswar vide our letter no MGM/P&E/696/20 dated 01.10.2020.

**Table B:- General Conditions**

SN.	EC Conditions	Status of Compliance
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & 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 0.832 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, SO <sub>2</sub> , NO <sub>x</sub> & 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, SO <sub>2</sub> , NO <sub>x</sub> & CO) should be regularly submitted to the Ministry including its regional office at Bhubaneswar 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), 04 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 8</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 blasts 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 & unloading points should be provided	Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-10KI) 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. Reports are enclosed as <b>Annexure 09</b> .

# Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24

SN.	EC Conditions	Status of Compliance
	and properly maintained.	
(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/ muffs.	<p>Ear plugs &amp; Earmuffs are provided to the workers working in mining operation &amp; 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:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> </ol> <p>Noise level monitoring data for the period during April 2024 to September 2024 is enclosed as <b>Annexure 10</b>.</p>
(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.	<p>For effective management of effluent following mitigative measures are ensured at the mine level:</p> <ol style="list-style-type: none"> <li>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</li> <li>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.</li> <li>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.</li> </ol> <p>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.</p>
(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 & 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.	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 & contractual) are conducted as per prescribed norms of Mines Rule,

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
	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.	1955. Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling & Free Silica exposure assessment by a DGMS approved agency. Reports is enclosed as <b>Annexure 11</b> .
<b>(x)</b>	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 & Production Planning), Head (Environment), Senior Manager - Mine Planning, Area Manager (RM Environment), Environment Engineer, Chemists, etc.
<b>(xi)</b>	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: <ul style="list-style-type: none"> <li>• FY-2021-22: Rs. 219.6 Lakhs</li> <li>• FY-2022-23: Rs. 218.33 Lakhs</li> <li>• FY-2023-24: Rs. 302.7 Lakhs</li> </ul>
<b>(xii)</b>	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.
<b>(xiii)</b>	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 Sarpanch, Gram Panchayat, Palasa on 12.01.2006.
<b>(xiv)</b>	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.	The EC documents was displayed in the office of Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.
<b>(xv)</b>	The project authorities should	A copy of Environmental Clearance with regard to Joda West



**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

SN.	EC Conditions	Status of Compliance
	<p>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 &amp; Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.</p>	<p>Manganese Mine was published in Oriya News Papers Anupam Bharat &amp; Aam Khabar on 10.01.2006.</p>

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

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.	<p>The mine is operated by opencast mining method using shovel-dumper combination.</p> <p>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:</p> <ol style="list-style-type: none"> <li>1. Wet drilling (Drills with inbuilt features of wet drilling) for preventing fugitive dust generation at the working face.</li> <li>2. Controlled blasting by means of pre-split blasts using both NONEL &amp; SME for arresting fly rocks and improved fragmentation with minimal ground vibration is practiced.</li> <li>3. Pre-wetting is also carried out prior to blasting to minimize dust generating potential of blasts.</li> <li>4. Stationary water sprinklers and mobile water tankers are operated main/permanent haul roads.</li> <li>5. Garland drains all along the periphery of dumps supported with toe walls/gabion walls and adequate no of settling pits (1.5mX1.5mX2m) for guiding effluents/surface runoff up to ETP.</li> </ol>
(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	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.

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
	village and keeping the noise levels well within prescribed limits for day/ night hours.	
<b>(iv)</b>	The project Authority shall make necessary alternative arrangement, where required, in consultation with 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.	No such grazing land have been acquired by the company.
<b>(v)</b>	Wherever blasting is undertaken as part of mining activity, the Project Authority shall carry out vibration studies well before approaching any such habitats or other building to 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	Deep hole drilling and controlled blasting technique is adopted in the mine. Vibration study has been conducted by CIMFR. Each blast is monitored for the Peak Particle Velocity which is well within the DGMS prescribed limits. Rock breakers are used to avoid secondary blasting depending upon the strata.

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
	inhabited sites except with prior permission from the competent Authority.	
<b>(vi)</b>	Main haulage road in the mines should be provided with permanent water sprinkler and other road should be regularly wetted water 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.	Permanent portions of the haul roads are provided with fixed sprinklers. Water sprinkling through mobile tanker is carried out regularly on all haul roads, mineral stacking area and overburden dumping areas and for dust suppression.
<b>(vii)</b>	The project Authority shall ensure 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.	There is no crop land nearby the M.L. area.
<b>(viii)</b>	In case any village is located within 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.	No such village exist within the ML area.
<b>(ix)</b>	Transportation of minerals by road passing through the village shall not be allowed. A “bypass” road should be	There is no transportation road passing through any village.

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

SN.	EC Conditions	Status of Compliance
	<p>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.</p> <p>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</p> <p>No road movement should be allowed on existing village road without appropriately increasing carrying capacity of such road</p>	
(x)	<p>Likewise, alteration or re-routing of foot paths, pagdandies, cart road and village infrastructure/ public utilities or roads (for purpose of land acquisition for mining) shall be 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.</p>	<p>Land Acquisition is not involved.</p>
(xi)	<p>The CSR activates by companies including mining establishment has become mandatory up to 2% their financial turn over, socio Economic Development of neighbourhood. Habitats could also be planned and 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&amp;R Plan// compensation details for Project Affected People (PAP) should be furnished. While preparing the R&amp;R plant, the relevant State/ national</p>	<p>Tata Steel has taken up many social initiatives for the improvement of quality of life of the surrounding community by means of education, health and other socio-economic aspects. TSF (Tata Steel Foundation) has been pioneering the initiatives through CSR activities. A number of rainwaters harvesting cum recharge ponds have been constructed in the peripheral villages.</p>

**Six Monthly EC Compliance Report-Bamebari Manganese Mine, M/s Tata Steel Limited for April'24-Sep'24**

<b>SN.</b>	<b>EC Conditions</b>	<b>Status of Compliance</b>
	Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs and STs and weaker section of society in study, a need based 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&R and socio-economics aspect should be discussed in EIA report.	

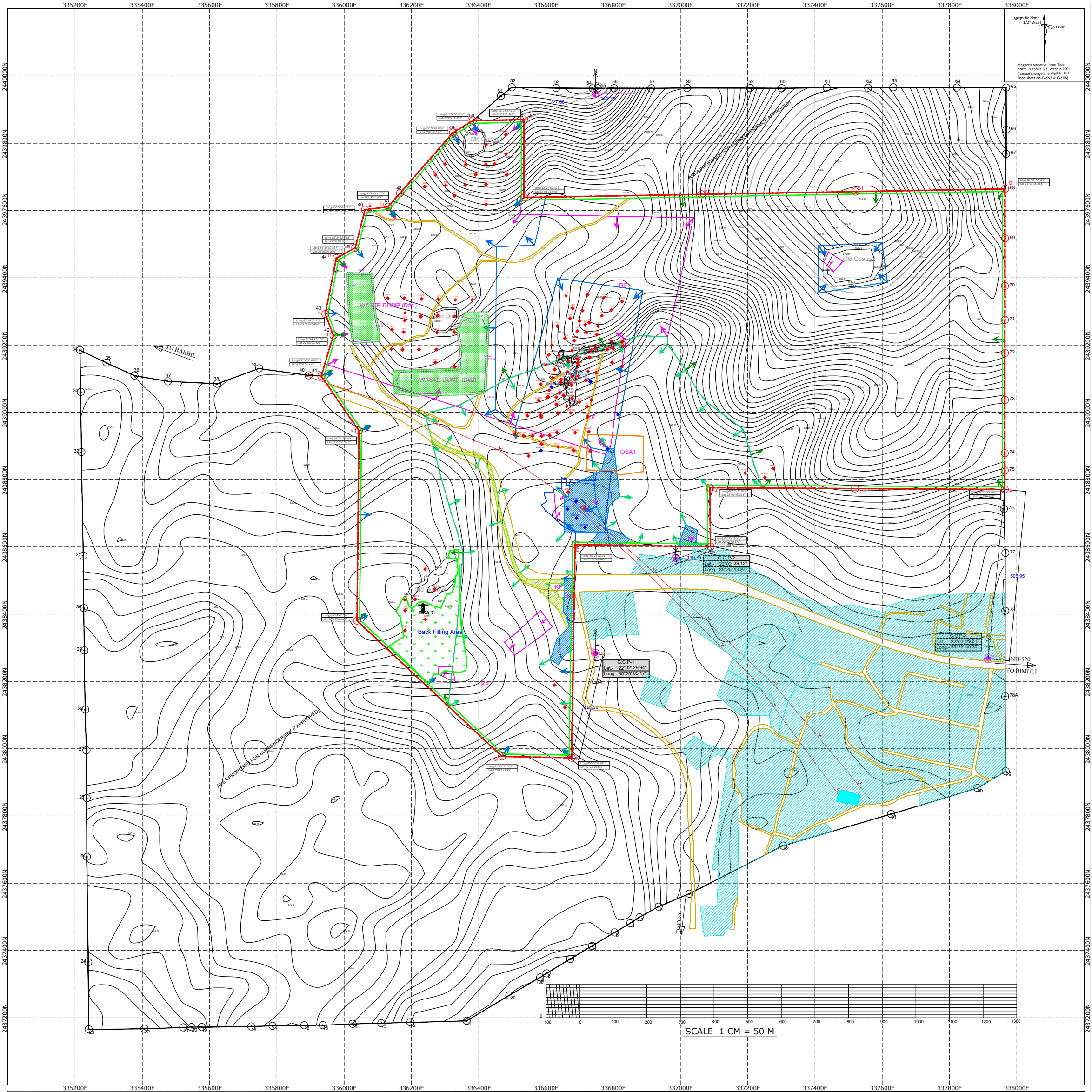












COORDINATES OF ML PILLAR				
SL No	Point_ID	Longitude	Latitude	Easting
1	ML-A	85°24'57.14905"	22°03'21.46969"	336534.431
2	ML-B	85°24'51.83586"	22°03'21.31267"	336382.056
3	ML-C	85°24'49.80632"	22°03'20.12717"	336323.492
4	ML-D	85°24'45.69812"	22°03'15.68182"	336204.290
5	ML-E	85°24'43.17071"	22°03'12.90786"	336130.943
6	ML-F	85°24'40.77189"	22°03'12.58794"	336062.067
7	ML-G	85°24'39.79878"	22°03'08.91184"	336032.991
8	ML-H	85°24'37.85789"	22°03'07.89486"	335977.020
9	ML-I	85°24'36.77062"	22°03'02.48845"	335944.115
10	ML-J	85°24'37.63340"	22°03'00.42171"	335968.189
11	ML-K	85°24'36.84725"	22°02'57.87772"	335944.835
12	ML-L	85°24'36.40865"	22°02'56.49285"	335931.816
13	ML-M	85°24'40.38331"	22°02'51.23372"	336044.088
14	ML-N	85°24'40.39288"	22°02'52.85256"	336038.477
15	ML-O	85°24'55.55365"	22°02'19.89533"	336469.028
16	ML-P	85°25'02.78222"	22°02'19.83704"	336676.271
17	ML-Q	85°25'02.91784"	22°02'40.44378"	336686.730
18	ML-R	85°25'16.95362"	22°02'46.07319"	337089.133
19	ML-S	85°25'16.82390"	22°02'46.07362"	337087.227
20	ML-T	85°25'47.40301"	22°02'46.20116"	337964.001
21	ML-U	85°25'47.10794"	22°03'15.25377"	337964.737
22	ML-V	85°24'57.17263"	22°03'13.94085"	336532.702

DETAILS OF GROUND CONTROL POINTS				
Ref.	Latitude	Longitude	Line	Bearing
GCP-1	22°02'29.94"	85°25'05.12"	GCP-1 to lease pillar no. N	193.53° SW
GCP-2	22°02'39.12"	85°25'13.37"	GCP-2 to lease pillar no. O	70.63° NE
GCP-3	22°02'29.81"	85°25'45.90"	GCP-3 to lease pillar no. Q	05.80° NE

LEGEND	
	ORIGINAL ML BOUNDARY
	INTENDED TO RETAIN AREA(233 Ha.)
	7.5 M SZ BOUNDARY
	WASTE DUMP
	QUARRY
	BACKFILLED PLANTATION
	PUBLIC ROAD/ HIGHWAY
	INFRASTRUCTURE
	UTM GRID LINES(WGS 84 DATUM)
	LOCAL GRID LINES
	CONTOUR LINE
	KHESRA FOREST
	RESERVE FOREST
	DIVERTED FOREST LAND
	SABIK FOREST
	SURFACE RIGHT AREA
	BENCH MARK
	PERMANENT REFERENCE POINT
	GROUND CONTROL POINT
	ORE STACK AREA( Iron & Manganese)
	NON FOREST(Private Land)
	DRILLED BOREHOLE
	HABITATION
	REHABILITATION WASTE DUMP
	POND

The plans and sections are prepared based on the lease map authenticated by the state govt. of Odisha .

SURVEYOR  
(Bijoy Mondal)  
Cert. No. SVR-E/127

**TATA STEEL LIMITED**

**BAMEBARI IRON & MANGANESE MINE  
SURFACE PLAN  
BONAIKELA BLOCK**

Drawing No.- DWG 4C

MINE MANAGER  
(Amulya Kumar Panda)

**TATA STEEL LIMITED**

**BAMEBARI IRON & MANGANESE MINE  
SURFACE PLAN  
BONAIKELA BLOCK**

Scale : 1:5000  
UP TO DATE AS ON 01.10.2024



## DUMP MANAGEMENT PRACTICES AT BAMEBARI IRON & MANGANESE MINE OF M/s TATA STEEL LIMITED

**Fig.1 Check Dam in Series**



**Fig.2 Garland Drain with Toe Wall**



**Fig.3 & 4 Rain Passes for slope protection**



**Fig.5 Coir Matting of Dump Slopes for stabilization**



**Fig.6 Vetiver Plantation on  
Dump slope**



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:	Bamebari Iron And Manganese Mine		
Project Address:	Bamebari Iron And Manganese Mine, Tata Steel Ltd., At./po : Bamebari,, Tahsil / Taluk: Barbil / Champua Pin-758034		
Village:	Palasa	Block:	Champua
District:	Kendujhar	State:	Odisha
Pin Code:			
Communication Address:	Bamebari Iron And Manganese Mine Of M/s Tata Steel Limited, Administrative Office At/po- Bichhakundi, P.s-joda, 758034 (keonjhar, Odisha), Ferro Alloys Mineral Division (joda), Keonjhar, 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.	<b>NOC No.:</b>		CGWA/NOC/MIN/REN/2/2023/8486				2.	<b>Date of Issuance</b>		02/11/2023					
3.	Application No.:		21-4/1194/OR/MIN/2017				4.	Category: (GWRE 2022)		Safe					
5.	Project Status:		Existing With Additional Ground Water Requirement				6.	NOC Type:		Renewal					
7.	<b>Valid from:</b>		23/07/2022				8.	<b>Valid up to:</b>		22/07/2024					
9.	Ground Water Abstraction Permitted:														
Fresh Water			Saline Water				Dewatering				Total				
m³/day		m³/year		m³/day		m³/year		m³/day		m³/year		m³/day		m³/year	
130.00		47450.00						482.00		175930.00					
10.	Details of ground water abstraction /Dewatering structures														
<b>Total Existing No.:</b> 4							<b>Total Proposed No.:</b> 0								
			DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*			0	0	3	0	0	0	0	0	0	0	0	0	
Dewatering Structure*			0	0	0	0	1	0	0	0	0	0	0	0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps															
11.	Ground Water Abstraction/Restoration Charges paid (Rs.):								1098523.00						
12.	Environment Compensation (if applicable) paid (Rs.):								0.00						
13.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.					No. of Piezometers			Monitoring Mechanism						
								Manual	DWLR**	DWLR With Telemetry					
**DWLR - Digital Water Level Recorder					2			0	1	1					

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

**(Compliance Conditions given overleaf)**

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

CENTRAL GROUND WATER AUTHORITY

---

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](http://cgwa-noc.gov.in)

**पानी बचाये – जीवन बचाये**  
**SAVE WATER - SAVE LIFE**

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](http://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<sup>3</sup>/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 CPCB 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 m<sup>3</sup>/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).
- 31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

**(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](http://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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

1.	<b>General Information:</b>	
	<b>Water Quality:</b>	Fresh Water
	<b>Purpose of Renewal Application:</b>	Existing with Additional Ground Water Requirement
	<b>Application Type Category/ Type of Application</b>	Manganese ore
2.	<b>Name of Mine/Project:</b>	BAMEBARI IRON AND MANGANESE MINE
3.	<b>Location Details of the Mining Unit- (Attach Site, Approved Mining Plan, Toposketch of Surrounding 10km Radius Outside) (\$) :</b>	
	<b>Address Line 1 :</b>	BAMEBARI IRON AND MANGANESE MINE, TATA STEEL LTD.
	<b>Address Line 2 :</b>	AT./PO : BAMEBARI,
	<b>Address Line 3 :</b>	TAHSIL / TALUK: BARBIL / CHAMPUA PIN-758034
	<b>State:</b>	ODISHA
	<b>District:</b>	KENDUJHAR
	<b>Sub-District:</b>	CHAMPUA
	<b>Village/Town:</b>	Palasa
	<b>Latitude:</b>	
	<b>Logitude:</b>	
	<b>Area Type :</b>	Non-Notified
	<b>Area Type Category :</b>	Safe
	<b>Whether industry is MSME:</b>	No
4.	<b>Communication Address</b>	
	<b>Address Line 1:</b>	BAMEBARI IRON AND MANGANESE MINE, TATA STEEL LTD.
	<b>Address Line 2:</b>	VILLAGE: BAMEBARI
	<b>Address Line 3:</b>	AT./PO : BAMEBARI,
	<b>State:</b>	ODISHA
	<b>District:</b>	KENDUJHAR
	<b>Sub-District:</b>	CHAMPUA
	<b>Pincode:</b>	758034
	<b>Phone Number with Area Code:</b>	
	<b>Mobile Number:</b>	91 9438887800
	<b>Fax Number:</b>	
5.	<b>Details of Existing NOC issued by CGWA (enclose copy)</b>	
	<b>E-Mail:</b>	arun.chaudhary@tatasteel.com
	<b>NOC Letter No:</b>	CGWA/NOC/MIN/REN/2/2023/8486
	<b>Date of Issuance:</b>	02/11/2023
	<b>Vailidity (Start):</b>	23/07/2022
	<b>Validity (End):</b>	22/07/2024



**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

	<b>Reason for not applying for renewal before expiry of NOC Validity (Attach Affidavit):</b>		NA
<b>6.</b>	<b>Change in Land Use Pattern after execution of Project and Surroundings (10 km Radius - Outside)</b>		
	The predominant land use in the study is forest (75.47%) followed by crop land (9.15%), scrub land (8.09%), mining (3.94%), built-up (2.65%), river (0.39%), water bodies (0.25%) and barren land (0.06%).		
<b>7.</b>	<b>Land Use Detail of Project Area</b>		
	<b>Land Use Details</b>	<b>Existing (sq meter)</b>	<b>Proposed (sq meter)</b>
	<b>Green Belt Area</b>	2732320.00	0.00
	<b>Open Land</b>	1519120.00	0.00
	<b>Road/ Paved Area</b>	201600.00	0.00
	<b>Rooftop area of building/ sheds</b>	186960.00	0.00
	<b>Total</b>	4640000.00	0.00
<b>8.</b>	<b>Whether there is a change in Topography of the Area after the execution of the Project:</b>		Yes
	<b>a) Regional</b>	No Change is expected since this is an operational mine lease area where active mining operation is already being carried out.	
	<b>b) Project Area</b>	This is an operational mining project. Presently, an area of around 260.12 Ha is untouched (Safety Zone), Diverted and un-diverted forest land, Public Utility etc.) out of which around 98.996 Ha shall be taken into mining operations at the end of mine life as per the approved mine plan. This would reflect some topographical changes having its impact within the project area of 464 Ha. topographical changes is expected to happen within the local extent i.e within mine lease area of 464 Ha.	
<b>9.</b>	<b>Whether there is change in Drainage pattern of the area after the execution of the Project:</b>		No
	<b>a) Regional</b>		
	<b>b) Project Area</b>		
<b>10.</b>	<b>Present Townships / Villages within 10 km radius of the Project:-</b>		Joda, Anseikala, Bansapani, Jurudi, Bhadaridihi, Sillijoda, Basantpur, Nayagarh, Kolhapandoli, Patamunda, Chormalda, Rugudi, Lasarda, Roida, Bhadrasahi, Nalda, Deojhar, Duduma, Balibandh, Kandarapasi, Kiriakudar

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

<b>11.</b>	<b>Whether the Groundwater Table will be Intersected by Activity :-</b>									Yes	
	<b>(a) At What Depth (m bgl)</b>					<b>Pre-monsoon</b>			<b>Post-monsoon</b>		
	Minimum (m bgl)					90.00			96.00		
	Maximum (m bgl)					86.00			90.00		
	<b>(b) Maximum Depth Proposed to Dewater (m bgl)</b>					120.00					
	<b>(c) Groundwater Flow Direction (Attach Map)(\$)</b>					South-West to North- East					
	<b>(d) Any Other Information</b>					NA					
<b>12.</b>	<b>Total Water Requirement for various Purpose to be Mentioned</b>					<b>Existing (m3/day)</b>	<b>Additional (m3/day)</b>	<b>Existing (m3/year)</b>	<b>Additional (m3/year)</b>		
	Ground Water Required through Abstract Structure					130.00	0.00	47450.00	0.00		
	Ground Water Abstracted on account of Dewatering / Mining Seepage					482.00	714.00	175930.00	260610.00		
	Total Ground Water Withdrawal					612.00	714.00	223380.00	260610.00		
<b>13.</b>	<b>Details of De-Watering Structure</b>										
	<b>(a) De-Watering Existing Structure</b>										
	<b>Number of Existing Structures:</b>					1					
	<b>SNo.</b>	<b>Type of Structure Name / Year of Construction</b>	<b>Depth (Meter) / Diameter (mm)</b>	<b>Depth to Water Level (Meters below Ground Level)</b>	<b>Discharge (m3/Hour)</b>	<b>Operational Hours(Day) / Days (Year)</b>	<b>Mode of Lift Name</b>	<b>Horse Power of Pump</b>	<b>Whether fitted with Water Meter</b>	<b>Whether Permission Registered with CGWA /If so Details Thereof</b>	
	1	Mine Pumps /-	- / -		85.00	- / -	Centrifugal Pump	50.00	Yes	Yes / -	
	<b>(b) De-Watering Requirement and Additional Structure Detail</b>										
	<b>Number of Proposed Structures:</b>					0					
	<b>SNo.</b>	<b>Type of Structure Name / Year of Construction</b>	<b>Depth (Meter) / Diameter (mm)</b>	<b>Depth to Water Level (Meters below Ground Level)</b>	<b>Discharge (m3/Hour)</b>	<b>Operational Hours(Day) / Days (Year)</b>	<b>Mode of Lift Name</b>	<b>Horse Power of Pump</b>	<b>Whether fitted with Water Meter</b>	<b>Whether Permission Registered with CGWA/If so Details Thereof</b>	
<b>14.</b>	<b>Details of Utilization of Pumped Water (Please Attach Details)(m3/year) (\$)</b>										
	<b>(a)</b>	<b>Water Supply</b>			Yes	109500.00	300 KLD used for Drinking and domestic for mine, colony area and supply to peripheral villages.				
	<b>(b)</b>	<b>Agriculture</b>			No						
	<b>(c)</b>	<b>Green Belt Development</b>			Yes	32850.00	90 KLD used for Green Belt Development.				

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

(d)	Suppression of Dust	Yes	65700.00	180 KLD used for Dust Suppression.
(e)	Recharge	No		
(f)	Any Other Item	15330 m3/year (42 KLD) for Floor washing and others. 260610 m3/year (714 KLD) for Agriculture		

**15. Monitoring of Ground Water Regime (Attach Map(\$))**

(a)	Location Details of the Wells / Piezometers (Latitude, Longitude, Reduced Level)	Bore Well-1 (Near Club House Bamebari) with Lat-21.901885 deg N and long-85.425425 deg N, Bore Well-2 (Near Jagannath Temple) with Lat- 21.902887 deg N and Long- 85.425838 deg N, Bore Well-3 (Near Security Barrack Joribar) with Lat 21.931207 deg N and Long-85.414825 deg E, etc.
(b)	Number of Wells / Piezometers	Total 23 wells have been monitored.02 nos. piezometers installed. 01 with Telemetry and 01 without
(c)	Attach Details of GW Level of Observation Wells / Piezometers( At Least for One Year )(\$)	Core zone-1.25 to 4.06 mbgl. Buffer Zone-1.11 to 9.57 mbgl. Outside buffer zone- 1.37 to 12.67 mbgl
(d)	General Quality of GW in the Area & Surroundings (\$)	The quality is found to be in conformance with IS10500:2012 standard.
(e)	Any Other Item	The mine management has a well laid down process of monitoring GW-quality and Level round the year.

**16. Give the details of change in groundwater regime and quality after execution of the project (Attach detailed report with Map showing GW flow direction(\$))**

Groundwater flow direction is South-West to North-East. Hydrogeological map given in attachments.

**17. Proposed Pump / Pumping Groundwater Outside the Mine Pit for Domestic or Other Use (If so, give Details):**

	Number of Existing Structures:					3					
		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	Borewell / -	67.00 / 150		3.00	- / -	Submersible Pump	1.00	Yes	Yes / -
		2	Borewell / -	70.00 / 150		9.00	- / -	Submersible Pump	3.00	Yes	Yes / -
		3	Borewell / -	75.00 / 150		10.00	- / -	Submersible Pump	3.00	Yes	Yes / -
	Number of Additional Structures:					0					

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

		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
--	--	------	-----------------------------------------------	-------------------------------	--------------------------------------------------	---------------------	---------------------------------------	-------------------	---------------------	---------------------------------	---------------------------------------------------------------

**18. (a). Compliance to the Condition prescribed 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 progressive mine closure plan duly approved by IBM. Plantation scheme is strictly followed over the mine dumps and other areas for subsequent rehabilitation.
	2	Domestic Water School Sanitation	Yes	Essential Sanitation programs are conducted from time to time and projects like drip irrigation system and water losses at the existing outlets are undertaken periodically via Annual Water audit.
	3	Groundwater quality monitoring - Pre monsoon and Post monsoon	Yes	Ground Water Quality is monitored round the year engaging an NABL Accredited Laboratory. There are no such instances where any contamination is observed in the ground water quality so far.
	4	Maintenance of recharge structures	Yes	Recharge structures such as roof top RWH ones are regularly maintained both pre-monsoon and post monsoon and similarly RWH ponds in the nearby villages are de-silted periodically.
	5	Number of Pizometers as per NOC and Water Level Record	Yes	02 no. of Piezometers fitted in the mine. One fitted with DWLR with telemetry system and one fitted with DWLR without telemetry system. The details therefore have been submitted to the Board.
	6	Number of Tubewells Borewales as per NOC	Yes	03 (Three Nos) fitted with Digital Flow Meters
	7	Pizometer fitted with AWLRs with telemetry as per NOC	Yes	One Piezometer fitted with DWLR with telemetry and one fitted without DWLR with telemetry.
	8	Quantum of Groundwater as per NOC	Yes	As per the NOC, abstraction permitted is 612 m3/day (223380 m3/year). Currently we are applying for 1326 m3/day (483990 m3/year).

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

9	Recharge through ponds	Yes	Near around 4-5 village ponds have been developed in the peripheral villages and one RWH pond constructed inside the company land.
10	Recycle and reuse of water	Yes	This is not process intense project thus scope for recycle and reuse is limited only to the domestic effluent. Treated effluent from the STP is reused for Greenbelt development and maintenance purpose
11	RWH and AR structures implemented	Yes	04 Ponds in the peripheral villages, 01 Pond in the company land, One Roof Top Rain Water Recharge Structure at project office.
12	Submission of Compliance report to the Region	Yes	Self Complianc Report has been submitted through NOCAP Portal.
13	Water conservation measures	Yes	1. Drip Irrigation Project for STP 2. Garland Drains for collection of runoff and floor wash effluents 3. Mulching and Soil-Moisture Conservation Project for Dump rehabilitation 4. Dry Magnetic Separa
14	Water Security Plan of villages	Yes	1. Solar Pump based deep borewells for nearby villages 2. Supply Water for local communities or dwelling units 3. Construction of village tanks or ponds and periodic de-siltation of the existing tanks
15	Well monitored around the plant premises	Yes	Approximately 23 wells have been monitored during the detailed Hydrogeological Investigation. Out of which around 5-6 wells are monitored for quality purpose and the same are tested-monthly basis
16	Wells fitted with water meter and its Record	Yes	Three Abstraction Structures are fitted with digital flowmeters having telemetry system.

**(b). Compliance to the Condition prescribed in the NOC - Other**

SNo.	Conditions given in NOC	Status of Compliance
1	In case of mining project, the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL Accredited Lab.	To ascertain seepage, M/s GEO CLIMATE RISK SOLUTIONS PRIVATE Ltd., for undertaking detailed Hydrogeological Investigation in this regard. The findings are summarised in the report.

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

2	Industries abstracting ground water in excess of 100 m <sup>3</sup> /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to C	Federation of Indian Chambers of Commerce and Industry (FICCI), one of the CGWA accredited auditing agency for undertaking Annual Water Audit of the mine.
---	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------

**19. Gainful utilization of pump water:-**

Integration of dewatering Outlet from the mine pit with the Fixed Sprinkling System for ensuring optimal usage of water for haul road dust suppression system has a potential of reducing the water demand by more than 30% than that of conventional mobile water tanker based sprinkling system. Availability of water for the development of Slope stabilisation projects. Reduction in the piped water (external sources) if the pumped water would not have been available.

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

05 Village Tanks of around 30mtr X 45 mtr each, One Roof Top Rain Water Harvesting Structure to cater around 6500sq-mtr area in the Bamebari Township.

**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.

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 prescribed place before submission of application.**

4. Receipt 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

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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

Ground Water Charge Recieve:	No	Ground Water Charge Amount:	
		Ground Water Arear Amount:	

**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	GW Quality Reports	GW Quality Reports.pdf

**4). Changes in Topography : (Refer: 8)**

No Attachment Found!

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

No Attachment Found!

**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	Existing_NOC.pdf

**8). Compliance to the Condition prescribed in the NOC : (Refer: 17-a)**

SNo.	Conditions given in NOC	Attachments		
		S.No.	Attachment Name	File Name
1	Area Specific Plantation	No Attachment 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 Attachment Found!		

**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

5	Number of Pizometers as per NOC and Water Level Record	No Attachment Found!
6	Number of Tubewells Borewales as per NOC	No Attachment Found!
7	Pizometer fitted with AWLRs with telemetry as per NOC	No Attachment Found!
8	Quantum of Groundwater as per NOC	No Attachment Found!
9	Recharge through ponds	No Attachment Found!
10	Recycle and reuse of water	No Attachment Found!
11	RWH and AR structures implemented	No Attachment Found!
12	Submission of Compliance report to the Region	No Attachment Found!
13	Water conservation measures	No Attachment Found!
14	Water Security Plan of villages	No Attachment Found!
15	Well monitored around the plant premises	No Attachment Found!
16	Wells fitted with water meter and its Record	No Attachment Found!

**9). Compliance to the Condition prescribed in the NOC - Other : (Refer: 17-b)**

S.No.	Conditions given in NOC	Attachments		
		S.No.	Attachment Name	File Name
1	In case of mining project, the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL Accredited Lab.	No Attachment Found!		
2	Industries abstracting ground water in excess of 100 m <sup>3</sup> /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to C	No Attachment Found!		

**10). Extra Attachment :**

S.No	Attachment Name	File Name
1	Mine dewatering data	Mine dewatering data.pdf

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

S.No	Attachment Name	File Name
1	Bharatkosh Receipt for Bamebari	Bharatkosh Receipt for Bamebari.pdf

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



**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 : 21-4/1194/OR/MIN/2017**

**Applied For Renewal : 3rd**

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

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

-----

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/2024-25/4288

Date: 02.10.2024

**MONITORING REPORT OF GROUND LEVEL**

Name of the Client		M/s. TATA STEEL LIMITED	
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)	
SL. NO.	Monitoring Location	Date Monitoring	Water Level (Below Ground level, in mtrs)
1.	Bamebari Near Club House (BIMM) Bore well No.-1	16.09.2024	11.8
2.	Bamebari Near Jagannath Temple (BIMM) Bore well No.-2	16.09.2024	6.6
3.	Borewell Near Nona Hotel, Joribar (BIMM)	16.09.2024	7.4

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory

Water

## Address of Laboratory :

Building No. P- 45, Udayan Industrial Estate,  
3, Pegladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000008386F

## TEST REPORT

## Name &amp; 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. &amp; Date :

Discipline:

MSKPL/FD/2024-25/J8206U

13/05/2024

MSKNB/FD/2024-25/04/2BVF1N

19/04/2024

19/04/2024 - 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
4. Date of sampling	18/04/2024
5. Place of sampling	Tindharla upstream (Baitarani 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	Pranab sethi, Dambarudhar Das

Report No. : MSKPL/FD/2024-25/J8206U

Sample No. : MSKNB/FD/2024-25/04/2BVF1N

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO <sub>3</sub>	mg/l	IS 3025 (Part 23)	39.5
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)	12.12
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	12.0
8	Chloride as Cl	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)	130
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 36)	6.2
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.30
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)	4.85
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature :

Name :

Designation :

Authorized Signatory:

Signature :

Name :

Designation :

Head Office:

Shriach Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel.: 91 33 40143000 / 22660007 Fax: 91 33 22660008  
Email: info@mitrask.com Website: www.mitrask.com



## Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695024000008386F

Report No. : MSKPL/FD/2024-25/J8206U

Sample No. : MSKNB/FD/2024-25/04/28VF1N

## RESULT

Sl No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> - B	0.94
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 C <sub>6</sub> H <sub>5</sub> OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO <sub>4</sub>	mg/l	IS 3025 (Part 24) Sec1	5.80
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	80
27	Total Hardness as CaCO <sub>3</sub>	mg/l	IS 3025 (Part 21)	50.5
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	3.8
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	7.4 AT 28.4 DEG C

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature : *Abhijit Sam P. Ganguly*  
Name : Mr. Abhijit Sam, Mr. P. Ganguly  
Designation : Sr. Exp. Chemist, Executive Chemist

Authorized Signatory:

Signature : *Dr. Soumyadeep Mukherjee*  
Name : Dr. Soumyadeep Mukherjee  
Designation : Lab In-charge

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

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

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

The retained part of sample(s) for chemical analysis (Solid, Solid & Liquid Matrix) shall be retained for 15 days as per CPCB guideline & (NO 1) month from the date of issue of the Test Report.

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

Head Office: Shreeji Centre (9th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650000  
Email : info@mitrask.com Website : www.mitrask.com

**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695024000008350F

Report No. : MSKPL/ED/2024-25/23364U

Sample No. : MSKNB/ED/2024-25/04/964C30

**RESULT****Sampling & Analysis of Gaseous Emission**

SL No.	Parameter	Unit	Method	Value
1	Barometric pressure	mm of Hg	IS : 11255 (Part 3)	726
2	Carbon Dioxide	% v/v	IS 13270	5.2
3	Carbon Monoxide	% v/v	IS 13270	BDL(DL:0.2)
4	Flow Rate of the Flue Gas	Nm <sup>3</sup> /hr	IS : 11255 (Part 3)	683
5	Hydrocarbon (C2-C5) (Non Methane) as Methane	mg/m <sup>3</sup>	USEPA Part 18	BDL(DL:0.327)
6	Oxides of Nitrogen as NO <sub>2</sub>	mg/Nm <sup>3</sup>	IS 11255 (Part 7)	83.4
7	Particulate Matters	mg/Nm <sup>3</sup>	IS : 11255 (Part II)	28.3
8	Temperature of emission	Deg C	IS : 11255 (Part 3)	137
9	Velocity	m/s	IS : 11255 (Part 3)	35.48

Opinion : NA

Statement of Conformity NA


— END —

Reviewed By:

Signature :   
Name : Dr. Devanjan Banerjee, Mr. Banerjee

Designation : Technical In charge, Exe. Chemist

Authorized Signatory:

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

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

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

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

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

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

**Head Office:** Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 40149000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

**Address of Laboratory :**

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



Scan for Portal

## 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/J8206U\_1

**Date :**

13/05/2024

**Sample No. :**

MSKNB/FD/2024-25/04/2BVF1N\_1

**Date of receipt of sample:**

19/04/2024

**Date(s) of performance:**

19/04/2024 - 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
4. Date of sampling	18/04/2024
5. Place of sampling	Tindharia upstream (Baitarani 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	Pranab sethi, Dambarudhar Das

**Report No. :** MSKPL/FD/2024-25/J8206U\_1**Sample No. :** MSKNB/FD/2024-25/04/2BVF1N\_1

## RESULT

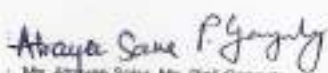
Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	68.54

**Opinion :** NA

— END —

Reviewed By:

Signature



Name : Mr. Aniruddha Saha, Mr. Pabli Ganguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation : Lab in charge

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

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

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

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



## Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695024000008386F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/J8206U

Date :

13/05/2024

Sample No. :

MSKNB/FD/2024-25/04/2BVF1N

Date of receipt of sample:

19/04/2024

Date(s) of performance:

19/04/2024 - 24/04/2024

Location of performance of

Permanent Facility

Reference No. &amp; 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
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/04/2024
5. Place of sampling	Tincharia upstream (baitarani river)
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, Dambarudhar Das

Report No. : MSKPL/FD/2024-25/J8206U

Sample No. : MSKNB/FD/2024-25/04/2BVF1N

## RESULT

## Micro Biology

Sl No.	Parameter	UCM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	21

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature :

Name :

Designation :

Ms. Matreyee Chakraborty

Executive Microbiologist

Authorized Signatory:

Signature :

Name :

Designation :

Mr. Subanta Palui

Technical in charge

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

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

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

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

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



## Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695024000008387F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/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. &amp; Date :

Discipline:

MSKPL/FD/2024-25/KM206N

13/05/2024

MSKNB/FD/2024-25/04/A95F2B

19/04/2024

19/04/2024 - 13/05/2024

Permanent Facility

3000158017/056, 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
4. Date of sampling	18/04/2024
5. Place of sampling	Tindharia downstream (Baitarani river)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab sethi, Dambarudhar Das

Report No. : MSKPL/FD/2024-25/KM206N

Sample No. : MSKNB/FD/2024-25/04/A95F2B

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO <sub>3</sub>	mg/l	IS 3025 (Part 23)	29.7
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	IS 3025 (Part 2)	BDL(DL:0.001)
6	Calcium as Ca	mg/l	IS 3025 (Part 40)	12.12
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16.0
8	Chloride as Cl	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)	96
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/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)	2.42
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature:

Name : Ms. Anayee Saha, Ms. Palli Ganguly

Designation : Sr. Exec. Chemist, Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation : Lab in charge

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

**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695024000008387F

Report No. : MSKPL/FD/2024-25/KM206N

Sample No. : MSKNB/FD/2024-25/04/A95F2B

**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> - B	0.69
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 C <sub>6</sub> H <sub>5</sub> OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO <sub>4</sub>	mg/l	IS 3025 (Part 24) Sec1	6.24
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	74
27	Total Hardness as CaCO <sub>3</sub>	mg/l	IS 3025 (Part 21)	40.4
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 25 DEG C

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation : Lab in charge

No results relate only to the item(s) tested.

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

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

The retained part of sample(s) for chemical analysis (Silt, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline 5 (At) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non-perishable sample(s) Food, Bore Water, Sealed Solid) 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

Head Office: Shree Centre (5th Floor), 74th, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
Tel. : 91 33 40143000 / 22950007 Fax : 91 33 22950038  
Email : info@mitrask.com Website : www.mitrask.com



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West  
At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/FD/2024-25/KM206N\_1

Date :

13/05/2024

Sample No. :

MSKNB/FD/2024-25/04/A95F2B\_1

Date of receipt of sample:

19/04/2024

Date(s) of performance:

19/04/2024 - 13/05/2024

Reference No. & Date :

3000156017/055, 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	18/04/2024
5. Place of sampling	Tindharis downstream (Baitarani 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	Pranab sethi, Dambarudhar Das

Report No. : MSKPL/FD/2024-25/KM206N\_1

Sample No. : MSKNB/FD/2024-25/04/A95F2B\_1

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	33.21

Opinion : NA

----- END -----

Reviewed By:

Signature :   
Name : Mr. Ananya Saha, Mr. Pankaj Ganguly  
Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

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

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

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

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

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

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Surface Water, Sewage 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.

Head Office: Shreechi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650009  
Email : info@mitrask.com Website : www.mitrask.com

**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695024000008387F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

AI/PO. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2024-25/KM206N

**Date :**

13/05/2024

**Sample No. :**

MSKNB/FD/2024-25/04/A95F2B

**Date of receipt of sample:**

19/04/2024

**Date(s) of performance:**

19/04/2024 - 24/04/2024

**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
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/04/2024
5. Place of sampling	Tindharia downstream (Baitarani river)
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/KM206N**Sample No. :** MSKNB/FD/2024-25/04/A95F2B

## RESULT

**Micro Biology**

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

**Opinion :** NA**Statement of Conformity :** NA

— END —

Reviewed By:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Pal

Designation : Technical In charge

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

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

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

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

**Head Office:** Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650006  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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



TC-6950



Scan for Portal

ULR: TC-695024000009089F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/EM459B

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/A2DQ2S

Date of receipt of sample:

02/05/2024

Date(s) of performance:

02/05/2024 - 22/05/2024

Location of performance of

Permanent Facility

Reference No. &amp; 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
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/05/2024
5. Place of sampling	Palsa Khas Pond
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 Kr Setti

Report No. : MSKPL/FD/2024-25/EM459B

Sample No. : MSKNB/FD/2024-25/05/A2DQ2S

## RESULT

## Chemical

Sl 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)	0.48
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	1.06
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature: *Atanayee Saha P. Ganguly*

Name : Ms. Atanayee Saha, Ms. Preeti Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature : *Dr. Soumyadeep Mukhopadhyay*

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab in charge

**Address of Laboratory :**

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



TC-8950



Scan for Portal

ULR: TC-895024000009089F

**Reviewed By:**

Signature:   
Name : Ms. Anayee Saha, Ms. Palli Ganguly  
Designation : Sr. Executive Chemist

**Authorized Signatory:**

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

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

**Address of Laboratory :**

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



TC-6950



Scan for Portal

ULR: TC-695024000009089F

## TEST REPORT

**Name & Address of Customer :**

Tats 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/EM459B

22/05/2024

MSKNB/FD/2024-25/05/A2DQ2S

02/05/2024

02/05/2024 - 07/05/2024

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
4. Date of sampling	01/05/2024
5. Place of sampling	Palsa Kha Pond
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	Akash Kr Setti

Report No. : MSKPL/FD/2024-25/EM459B

Sample No. : MSKNB/FD/2024-25/05/A2DQ2S

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24h edtn, 9221B	12

Opinion : NA

Statement of Conformity NA

——— END ———

Reviewed By:

Signature :

Name : Ms. Malayee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical in charge

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

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

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

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline 6 (A/R) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
 Tel. : 91 33 40143000 / 22550007 Fax: 91 33 22550099  
 Email : info@mitrask.com Website : www.mitrask.com



At/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
 CIN: U51906WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 76269  
 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/0001189

Date: 21.05.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	01.05.2024
Location	Palasa Kha Village Pond (BIMM)

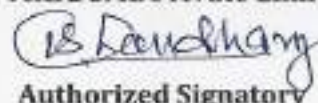
**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	8
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	25.3
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	123
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.36
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.06
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	14.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	76
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	6.8
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.65

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



Scan for Portal

## 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/FV537S\_1

**Date :**

25/06/2024

**Sample No. :**

MSKNB/FD/2024-25/06/XH902V\_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
4. Date of sampling	01/06/2024
5. Place of sampling	Gurubeda Baitarani River TMM
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/FV537S\_1**Sample No. :** MSKNB/FD/2024-25/06/XH902V\_1

## RESULT

**Chemical**

Sl 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)	180
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)	0.03
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	1.01
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

**Opinion :** NA

— END —

Reviewed By:

Signature: 

Name: Ms. Abayee Saha, Ms. Palli Gogoi

Designation: Sr. Executive Chemist

Authorized Signatory:

Signature: 

Name: Dr. Soumyadeep Mondal

Designation: Lab in charge

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## Reviewed By:

Signature :   
Name : Ms. Aranya Saha, Ms. Piali Ganguly  
Designation : Sr. Executive Chemist

## Authorized Signatory:

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

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

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/FV537S\_1

Date :

25/08/2024

Sample No. :

MSKNB/FD/2024-25/06/XH902V\_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	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/06/2024
5. Place of sampling	Gurubeda Bailarani River TIMM
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	Pankaj Ku. Mahanta

Report No. : MSKPL/FD/2024-25/FV537S\_1

Sample No. : MSKNB/FD/2024-25/06/XH902V\_1

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	46

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Ms. Malayee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Subanta Pakui

Designation : Technical in charge

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

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

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

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

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

Head Office: Sheela Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 40143000 / 22690007 Fax : 91 33 22690008  
Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2024-25/002048


Date: 17.06.2024

## ANALYSIS REPORT OF SURFACE WATER


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	Gurubeda Baitarani River (TIMM)

### 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 CaCO <sub>3</sub> )	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 <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	92
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	7.8
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	1
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	57
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	61
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.01

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



Scan for Portal

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**Report No. :**

MSKPL/FD/2024-25/AS5372\_1

**Date :**

25/06/2024

**Sample No. :**

MSKNB/FD/2024-25/06/UWT31U\_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
4. Date of sampling	01/06/2024
5. Place of sampling	Jalahari Nala (Jaroli) TIMM
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/AS5372\_1**Sample No. :** MSKNB/FD/2024-25/06/UWT31U\_1

## RESULT

Chemical				
Sl 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)	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	0.89
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

**Opinion :** NA

----- END -----

Reviewed By:

Signature : 

Name : Mr. Aranya Saha, Mr. Piali Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature : 

Name : Dr. Soumyadeep Bhattacharya

Designation : Lab in charge

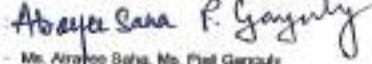
## Address of Laboratory :

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



Scan for Portal

## Reviewed By:

Signature :   
Name : Mr. Aravind Baha, Mr. Preet Ganguly  
Designation : Sr. Executive Chemist

## Authorized Signatory:

Signature :   
Name : Dr. Gouryashree  
Designation : Lab In charge

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

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

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

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Wastes) shall be retained for 15 days as per CPCB guideline 5 (A) 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, Sterile Water, Sterile food) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/AS5372\_1

Date :

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/UWT31U\_1

Date of receipt of sample:

03/06/2024

Date(s) of performance:

03/06/2024 - 06/06/2024

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	01/06/2024
5. Place of sampling	Jalahari Nala (Jaroli) TIMM
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	Pankaj Ku. Mahanta

Report No. : MSKPL/FD/2024-25/AS5372\_1

Sample No. : MSKNB/FD/2024-25/06/UWT31U\_1

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	47

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Mr. Malleswari Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical in charge

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

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

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

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

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

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
Tel : 91 33 40143000 / 22550007 Fax : 91 33 22550008  
Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2024-25/002047

Date: 17.06.2024

## ANALYSIS REPORT OF SURFACE WATER

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	Jalahari Nala Jurudi (TIMM)


## 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 CaCO <sub>3</sub> )	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/l	APHA (24th Edition), 4500 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	99
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.27
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	61
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	11
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.63

Checked by:-



For Mitra S. K. Private Limited

  
Authorized Signatory

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/595379\_1

Date :

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/22GK35\_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
4. Date of sampling	01/06/2024
5. Place of sampling	Pond in palasa (kha) villageTIMM
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pankaj Ku. Mahanta

Report No. : MSKPL/FD/2024-25/595379\_1

Sample No. : MSKNB/FD/2024-25/06/22GK35\_1

## RESULT

### Chemical

Sl 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)	0.60
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	1.02
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

— END —

Reviewed By:

Signature

Name

Designation

Atreyee Saha P. Ganguly

Ms. Atreyee Saha, Ms. Piali Ganguly

Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay  
Lab in charge

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## Revised By:

Signature :   
Name : Ms. Anayee Saha, Ms. Piali Ganguly  
Designation : Sr. Executive Chemist

## Authorized Signatory:

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

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

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

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

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

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



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/2024-25/595379\_1

25/06/2024

MSKNB/FD/2024-25/06/22GK35\_1

03/06/2024

03/06/2024 - 08/06/2024

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
4. Date of sampling	01/06/2024
5. Place of sampling	Pond in palasa (kha) village TIMM
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	Pankaj Ku. Mahanta

Report No. : MSKPL/FD/2024-25/595379\_1

Sample No. : MSKNB/FD/2024-25/06/22GK35\_1

## RESULT

### Micro Biology

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

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Mr. Maitrayee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical in charge

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

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

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

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

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

Report No. MSKGL/ED/2024-25/002044

Date: 17.06.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	01.06.2024
Location	Palasa Kha Village Pond (BIMM)

## 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	11
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	32
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	94
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	4.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	405
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	---	14
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.20
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	200
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	253
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	91
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	2.8
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.5

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



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/AU5EEC\_1

Date :

13/07/2024

Sample No. :

MSKNB/FD/2024-25/07/S943FB\_1

Date of receipt of sample:

06/07/2024

Date(s) of performance:

06/07/2024 - 13/07/2024

Reference No. &amp; 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	Surface Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	05/07/2024
5. Place of sampling	Tindharia Down Stream (Baitarani river)
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS: 17514(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Ku. Sethi

Report No. : MSKPL/FD/2024-25/AU5EEC\_1

Lab Sample Id. : MSK/KOL/2024-25/73

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	3.5
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:5.0)
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	23
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	4.3
10	Manganese as Mn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	96.8
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	1.39
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	72.7

Reviewed By:

Signature

Name : Mr. Ananya Saha, Ms. Pooi Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation : Lab in charge



Report No. MSKGL/ED/2023-24/002774

Date: 19.07.2024

## ANALYSIS REPORT OF SURFACE WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	05.07.2024
Location	Tindharia Down Stream Baitarani River (TIMM)

## 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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	6
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	---	5.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	98
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.7
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	3.0
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	8.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	24
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	62
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	27
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	91
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.53

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## 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/2024-25/HG5EET\_1

13/07/2024

MSKNB/2024-25/07/YMZ3DA\_1

08/07/2024

08/07/2024 - 13/07/2024

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	05/07/2024
5. Place of sampling	Tindharis Up Stream (Baitarani 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	Akash Ku. Sethi

Report No. : MSKPL/2024-25/HG5EET\_1

Lab Sample Id. : MSK/KOL/2024-25/74

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	4.0
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:5.0)
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	25.8
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	4.9
10	Manganese as Mn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	116.7
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	1.23
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	98.9

Reviewed By:

Signature : *Abhishek Saha P. Ganguly*  
Name : Mr. Abhishek Saha, Mr. Pali Ganguly  
Designation : Sr. Executive Chemist

Authorized Signatory:

Signature : *Dr. Souryadip Mukherjee*  
Name : Dr. Souryadip Mukherjee  
Designation : Lab in charge

## Address of Laboratory :

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




Scan for Portal

Opinion : NA

— END —

Reviewed By:

Signature :   
Name : Mr. Atreyee Saha, Mr. Priti Ganguly  
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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



## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/HG5EET\_1

13/07/2024

MSKNB/FD/2024-25/07/YMZ3DA\_1

06/07/2024

06/07/2024 - 11/07/2024

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	05/07/2024
5. Place of sampling	Tindharia Up Stream (Baitarani river)
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	Akash Ku. Sethi

Report No. : MSKPL/FD/2024-25/HG5EET\_1

Lab Sample Id. MSK/KOL/2024-25/74

## RESULT

### Micro Biology

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

Opinion : NA

----- END -----

Reviewed By:

Signature :   
Name : Ms. Maitreyee Chakraborty  
Designation : Executive Microbiologist

Authorized Signatory:

Signature :   
Name : Ms. Maitreyee Chakraborty  
Designation : Executive Microbiologist

The results relate only to the item(s) tested.  
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.  
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Solid, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.  
Lead Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40140000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

Report No. MSKGL/ED/2024-25/0002775

Date: 19.07.2024

**ANALYSIS REPORT OF SURFACE WATER**


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	05.07.2024
Location	Tindharia Up Stream Baitarani River (TIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	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 Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	84
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.8
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	16
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	52
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	31
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	96
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.25

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



Scan for Portal

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**Report No. :**

MSKPL/FD/2024-25/BZ5EE4\_1

**Date :**

13/07/2024

**Sample No. :**

MSKNB/FD/2024-25/07/LLF3CZ\_1

**Date of receipt of sample:**

06/07/2024

**Date(s) of performance:**

06/07/2024 - 13/07/2024

**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	Gurubeda Baitarani 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	Akash Ku. Sethi

**Report No. :** MSKPL/FD/2024-25/BZ5EE4\_1**Lab Sample Id. :** MSK/KOL/2024-25/72

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	4.3
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	BDL(DL:5.0)
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	26
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	5.1
10	Manganese as Mn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	122
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	2.72
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	83.6

Reviewed By:

Signature:

Name : Ms. Anayee Saha, Ms. Pooi Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature :

Name :

Designation : Lab In charge

Head Office:

Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40149000 / 22650007 Fax : 91 33 22650026  
Email: info@mitrask.com Website : www.mitrask.com



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

Opinion : NA

— END —

Reviewed By:

Signature : *Atanayee Saha P. Ganguly*  
Name : Ms. Atanayee Saha, Ms. Palli Ganguly  
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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

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

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

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

The reserved part of sample(s) for Microbiological analysis (Food - perishable sample(s) Food, Borewell Water, Drilled body 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

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

**Address of Laboratory :**

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



Scan for Portal

## 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/BZ5EE4\_1

13/07/2024

MSKNB/FD/2024-25/07/LLF3CZ\_1

06/07/2024

06/07/2024 - 11/07/2024

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	05/07/2024
5. Place of sampling	Gurubeda Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS: 17514(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash K. Sethi

**Report No. :** MSKPL/FD/2024-25/BZ5EE4\_1**Lab Sample Id.** MSK/KOL/2024-25/72

## RESULT

**Micro Biology**

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

**Opinion :** NA

— END —

Reviewed By:

Signature

Name : Ms. Meenyes Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature

Name : Mr. Sukanta Palui

Designation : Technical in charge

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

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

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

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.

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

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

Tel : 91 33 45143000 / 22650007 Fax : 91 33 22650008

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

Report No. MSKGL/ED/2024-25/002773

Date: 18.07.2024

**ANALYSIS REPORT OF SURFACE WATER**


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	05.07.2024
Location	Gurubeda Baitarani River (TIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<2.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	2.0
5	DO	mg/l	APHA 24th Edition, 2033 4500-O-C/G	---	6.0
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	93
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.5
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	2.8
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	9.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	20
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	57
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	31
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	97
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.76

Checked by 

For Mitra S. K. Private Limited

  
Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/YM5EEQ\_1

12/07/2024

MSKNB/FD/2024-25/07/SL43AL\_1

05/07/2024

05/07/2024 - 12/07/2024

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	04/07/2024
5. Place of sampling	Jalahari Nala (Jurudi)
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold Chain Maintained
7. Sampling Plan & Method used	IS: 17514(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Pranab Ku. Sethi

Report No. : MSKPL/FD/2024-25/YM5EEQ\_1

Lab Sample Id. : MSK/KOL/2024-25/61

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	5.3
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	6.6
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	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	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/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	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	0.95
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	28.2

Reviewed By:

Signature

Name

Designation

Ms. Anayee Saha P. Ganguly  
Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Sourajyoti Mukherjee  
Lab in charge

Head Office:

Shradhi Centre (8th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143000 / 22659007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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



Scan for Portal

Opinion : NA

— END —

Reviewed By:

Signature

Name

Designation

*Atreyee Saha P. Ganguly*

Ms. Atreyee Saha, Ms. Palli Ganguly

Sr. Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Soumendra Bhattacharya

Lab In-charge

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

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

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

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

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

Head Office:

Strategic Centre (8th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143000 / 22650007 Fax: 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West  
At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2024-25/YM5EEQ\_1

Date :

12/07/2024

Sample No. :

MSKNS/FD/2024-25/07/5L43AL\_1

Date of receipt of sample:

05/07/2024

Date(s) of performance:

05/07/2024 - 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	04/07/2024
5. Place of sampling	Jalahari Nala (Jurudi)
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/YM5EEQ\_1

Lab Sample Id. MSK/KOL/2024-25/81

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1.	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	47

Opinion : NA

----- END -----

Reviewed By :

Signature :

Name : Mr. Mdrosay Chakraborty

Designation : Executive Microbiologist

Authorized Signatory :

Signature :

Name : Mr. Sukanta Paki

Designation : Technical In charge

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

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

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

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

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

Head Office: Shreeji Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143000 / 22660007 Fax : 91 33 22660008  
Email : info@mitrask.com Website : www.mitrask.com

Report No. MSKGL/ED/2024-25/002771

Date: 18.07.2024

**ANALYSIS REPORT OF SURFACE WATER**


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	05.07.2024
Location	Jalahari Nala Jurudi (TIMM)

**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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	27
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<2.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	4.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	156
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	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), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.08
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	2.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	75
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	98
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	86
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.87

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory

\*\*\*\*\*  
**WATER QUALITY REPORT**

\*\*\*\*\*



A/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/2024-25/003332


Date: 30.08.2024

**ANALYSIS REPORT OF Surface Water**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Tindharia Up Stream Baitarani River (BIMM)

**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 CaCO <sub>3</sub> )	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 <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	114
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	3.9
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.06
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	14.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	27
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	70
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	83
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.97

Checked by:   
 Limited

For Mitra S. K. Private

  
 Authorized Signatory

A/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
 CIN: U51909WB1958PTC023037

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

Report No. MSKGL/ED/2024-25/003332

Date: 30.08.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Tindharia Up Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

SL No.	Test Parameters	Unit	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	4.1
2	Boron as B	mg/l	—	<5.0
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	23
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	4.8
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	117
12	Nitrate as NO <sub>3</sub>	mg/l	10	2.68
13	Zinc as Zn	mg/l	5	78.8
14	Total coliform	/100ml	---	Present

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory

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/2024-25/003333


Date: 30.08.2024

**ANALYSIS REPORT OF Surface Water**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Tindharia Down Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	12
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	113
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	4.7
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	12.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	23
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	72
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	89
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.9

Checked by:-   
 Limited

For Mitra S. K. Private

  
 Authorized Signatory



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/2024-25/003333**Date: **30.08.2024****ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Tindharia Down Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	3.4
2	Boron as B	mg/l	---	<5.0
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	22
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	4.1
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	89.4
12	Nitrate as NO3	mg/l	10	1.28
13	Zinc as Zn	mg/l	5	69.4
14	Total coliform	/100ml	---	Present

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory



Report No. MSKGL/ED/2024-25/003331


Date: 30.08.2024

## ANALYSIS REPORT OF Surface Water

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Jalahari Nala Jurudi (BIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	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 Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	4.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	110
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.26
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	5.7
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	43
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	68
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	51
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.66

Checked by:   
Limited

For Mitra S. K. Private

  
Authorized Signatory

Report No. MSKGL/ED/2024-25/003331


Date: 30.08.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Jalahari Nala Jurudi (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	5.2
2	Boron as B	mg/l	---	6.3
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	1
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	10.8
12	Nitrate as NO <sub>3</sub>	mg/l	10	0.93
13	Zinc as Zn	mg/l	5	27.8
14	Total coliform	/100ml	---	Present

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



Report No. MSKGL/ED/2024-25/003335


Date: 30.08.2024

**ANALYSIS REPORT OF Surface Water**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Gurubeda Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	106
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	4.3
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	13.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	23
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	66
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	93
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.21

Checked by:-   
Limited

For Mitra S. K. Private

  
Authorized Signatory

Report No. MSKGL/ED/2024-25/003335

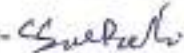
Date: 30.08.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Gurubeda Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	4.2
2	Boron as B	mg/l	—	<5.0
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	24.8
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	4.8
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	118
12	Nitrate as NO <sub>3</sub>	mg/l	10	2.62
13	Zinc as Zn	mg/l	5	81.4
14	Total coliform	/100ml	—	Present

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory



Report No. MSKGL/ED/2024-25/003330


Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari Canteen R.O. Water (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SL No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983; Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	162
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	7.6
8	Phenolic Compound (as C6H5OH)	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	---	---	0.08
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	6.4
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_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	74
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	100
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	87
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	6.67

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory

# Mitra S. K. Private Limited

A/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/2024-25/003330

Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari Canteen R.O. Water (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Norms as per IS: 10500-2012		Results
			Desirable Limit	Permissible Limit	
1	Arsenic as As	mg/l	0.01	No Relaxation	<1.0
2	Cadmium as Cd	mg/l	0.003	No Relaxation	<1.0
3	Colour	Hazen	5	15	<1.0
4	Copper as Cu	mg/l	0.05	1.5	<1.0
5	Cyanide as CN	mg/l	0.05	No Relaxation	<0.02
6	Fluoride as F	mg/l	1	1.5	<0.2
7	Lead as Pb	mg/l	0.01	No Relaxation	<1.0
8	Mercury as Hg	mg/l	0.001	No Relaxation	<1.0
9	Manganese as Mn	mg/l	0.1	0.3	1.4
10	Nickel (as Ni)	mg/l	0.02	No Relaxation	<1.0
11	Nitrate as NO3	mg/l	45	No Relaxation	0.8
12	Selenium as Se	mg/l	0.01	No Relaxation	<1.0
13	Silica as SiO2	mg/l	Not Specified	Not Specified	<0.1
14	Silver as Ag	mg/l	0.1	No Relaxation	<1.0
15	Total Chromium as Cr	mg/l	0.05	No Relaxation	<1.0
16	Zinc as Zn	mg/l	5	15	442
17	Total coliform	/100ml	Not Acceptable	Not Acceptable	Present
18	E. coli	/100ml	Not Acceptable	Not Acceptable	Absent

Checked by:- *Ganapati*

For Mitra S. K. Private Limited

*S.K.*  
Authorized Signatory



# Mitra S. K. Private Limited

A/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/2024-25/003324

Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari WTP Inlet (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983; Rfmc:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	160
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	8.6
8	Phenolic Compound (as C6H5OH)	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	---	---	0.08
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	6.3
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rfmc:2012_(O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	70
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	98
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	91
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	6.51

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory

# Mitra S. K. Private Limited

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/2024-25/003324

Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari WTP Inlet (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Norms as per IS: 10500-2012		Results
			Desirable Limit	Permissible Limit	
1	Arsenic as As	mg/l	0.01	No Relaxation	<1.0
2	Cadmium as Cd	mg/l	0.003	No Relaxation	<1.0
3	Colour	Hazen	5	15	<1.0
4	Copper as Cu	mg/l	0.05	1.5	<1.0
5	Cyanide as CN	mg/l	0.05	No Relaxation	<0.02
6	Fluoride as F	mg/l	1	1.5	<0.2
7	Lead as Pb	mg/l	0.01	No Relaxation	<1.0
8	Mercury as Hg	mg/l	0.001	No Relaxation	<1.0
9	Manganese as Mn	mg/l	0.1	0.3	18.6
10	Nickel (as Ni)	mg/l	0.02	No Relaxation	<1.0
11	Nitrate as NO <sub>3</sub>	mg/l	45	No Relaxation	0.91
12	Selenium as Se	mg/l	0.01	No Relaxation	<1.0
13	Silica as SiO <sub>2</sub>	mg/l	Not Specified	Not Specified	<0.1
14	Silver as Ag	mg/l	0.1	No Relaxation	<1.0
15	Total Chromium as Cr	mg/l	0.05	No Relaxation	<1.0
16	Zinc as Zn	mg/l	5	15	4.2
17	Total coliform	/100ml	Not Acceptable	Not Acceptable	Present
18	E. coli	/100ml	Not Acceptable	Not Acceptable	Absent

Checked by:- *Sankar*

For Mitra S. K. Private Limited

*Sankar*  
Authorized Signatory



Report No. MSKGL/ED/2024-25/003325


Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari WTP Outlet (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	25
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	16
4	Odour	Hazen	3025 (Part-5)-1983; Rfmm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	183
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	11.4
8	Phenolic Compound (as C6H5OH)	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	---	---	0.09
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	5.2
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rfmm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	74
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	114
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	111
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	6.8

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory

# Mitra S. K. Private Limited

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

T : +91 94370 09815, 94370 09620, 94370 75269  
E : barbil@mitrask.co.in  
W : www.mitrask.com



Report No. MSKGL/ED/2024-25/003325

Date: 29.08.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	22.08.2024
Location	Bamebari WTP Outlet (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Norms as per IS: 10500-2012		Results
			Desirable Limit	Permissible Limit	
1	Arsenic as As	mg/l	0.01	No Relaxation	<1.0
2	Cadmium as Cd	mg/l	0.003	No Relaxation	<1.0
3	Colour	Hazen	5	15	<1.0
4	Copper as Cu	mg/l	0.05	1.5	<1.0
5	Cyanide as CN	mg/l	0.05	No Relaxation	<0.02
6	Fluoride as F	mg/l	1	1.5	<0.2
7	Lead as Pb	mg/l	0.01	No Relaxation	<1.0
8	Mercury as Hg	mg/l	0.001	No Relaxation	<1.0
9	Manganese as Mn	mg/l	0.1	0.3	<1.0
10	Nickel (as Ni)	mg/l	0.02	No Relaxation	<1.0
11	Nitrate as NO <sub>3</sub>	mg/l	45	No Relaxation	0.82
12	Selenium as Se	mg/l	0.01	No Relaxation	<1.0
13	Silica as SiO <sub>2</sub>	mg/l	Not Specified	Not Specified	<0.1
14	Silver as Ag	mg/l	0.1	No Relaxation	<1.0
15	Total Chromium as Cr	mg/l	0.05	No Relaxation	<1.0
16	Zinc as Zn	mg/l	5	15	3.8
17	Total coliform	/100ml	Not Acceptable	Not Acceptable	Present
18	E. coli	/100ml	Not Acceptable	Not Acceptable	Present

Checked by: *Senata*

For Mitra S. K. Private Limited

*SKM*  
Authorized Signatory



At/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
 CIN: U51909WB1856PTC023037

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

Report No. MSKGL/ED/2024-25/003331


Date: 30.08.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Jalahari Nala Jurudi (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	5.2
2	Boron as B	mg/l	---	6.3
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	1
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	10.8
12	Nitrate as NO <sub>3</sub>	mg/l	10	0.93
13	Zinc as Zn	mg/l	5	27.8
14	Total coliform	/100ml	---	Present

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory

A/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/2024-25/003335


Date: 30.08.2024

**ANALYSIS REPORT OF Surface Water**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Gurubeda Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8.0
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	106
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	4.3
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	13.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	23
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	66
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	93
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.21

Checked by:   
 Limited

For Mitra S. K. Private



Authorized Signatory



Report No. MSKGL/ED/2024-25/003335


Date: 30.08.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	23.08.2024
Location	Gurubeda Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	4.2
2	Boron as B	mg/l	---	<5.0
3	Cadmium as Cd	mg/l	2	<1.0
4	Colour	Hazen	5	<1.0
5	Copper as Cu	mg/l	3	24.8
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	4.8
10	Mercury as Hg	mg/l	0.01	<1.0
11	Manganese as Mn	mg/l	2	118
12	Nitrate as NO <sub>3</sub>	mg/l	10	2.62
13	Zinc as Zn	mg/l	5	81.4
14	Total coliform	/100ml	---	Present

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory

A/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/2024-25/004002


Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

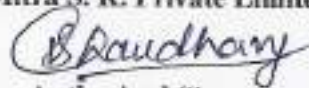
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Jalahari Nala Jurudi (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	15
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	118
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.3
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.06 PSU
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	4.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	46
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	72
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	57
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	35
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.84

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory

A/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758036  
 CIN: U51909WB1956PTC023037

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

Report No. MSKGL/ED/2024-25/004002


Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Jalahari Nala Jurudi (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluents to 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	10.3
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.94
6.	Zinc(as Zn) in mg/l	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	---	6.5
13.	Hexavalent Chromium in mg/l	APHA 24th Edition 2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24 <sup>th</sup> edtn. 9221B	---	42

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory



A/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/2024-25/004005

Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

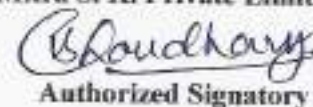
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Gurubeda Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	6
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	75
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.9
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04 PSU
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	7.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	21
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	45
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	24
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	6.9

Checked by:-

For Mitra S. K. Private Limited

  
 Authorized Signatory



Report No. MSKGL/ED/2024-25/004005


Date: 30.09.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Gurubeda Baitarani River (BIMM)

## CHEMICAL ANALYSIS OF WATER

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluents to 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	5.5
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.74
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	7.8
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 I); RA:2018	---	6.7
13.	Hexavalent Chromium in mg/l	APHA 24th Edition 2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24 <sup>th</sup> edtn. 9221B	---	160

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory

Report No. MSKGL/ED/2024-25/004003

Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Tindharia Up Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	6
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	4.3
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	80
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.7
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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04 PSU
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	7.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	25
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	50
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	28
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	27
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.95

Checked by:-



For Mitra S. K. Private Limited



Authorized Signatory



At/P.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/2024-25/004003


Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Tindharia Up Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluent to 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	10.6
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	1.23
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	8.7
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	—	9.6
13.	Hexavalent Chromium in mg/l	APHA 24th Edition 2023; 3500 Cr B	0.1	<0.05
14.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24 <sup>th</sup> edtn. 9221B	—	320

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory

Report No. MSKGL/ED/2024-25/004004


Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

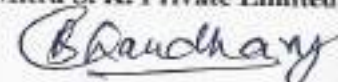
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Tindharia Down Stream Baitarani River (BIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	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 CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	77
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	---	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 C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04 PSU
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	6.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	21
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	46
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	28
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	18
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.79

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



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/2024-25/004004


Date: 30.09.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Bamebari Iron & Manganese Mines (BIMM)
Date of sampling	16.09.2024
Location	Tindharia Down Stream Baitarani River (BIMM)

**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	<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	5.2
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.79
6.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	7.6
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	---	5.8
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, 24 <sup>th</sup> edtn. 9221B	---	190

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

### Report No. :

MSKPL/FD/2024-25/1K539G\_1

### Date :

25/06/2024

### Sample No. :

MSKNB/FD/2024-25/06/0QH595\_1

### Date of receipt of sample:

08/06/2024

### Date(s) of performance:

08/06/2024 - 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	07/06/2024
5. Place of sampling	Bamebari Borewell No-1 (Near Club House) BIMM
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/1K539G\_1

Sample No. : MSKNB/FD/2024-25/06/0QH595\_1

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
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/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)	0.04
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/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:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Name

Designation

*Atanjan Saha*  
Atanjan Saha, Ms. Priya Ganguly  
Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. Soumyajit Mukherjee*  
Dr. Soumyajit Mukherjee  
Lab in charge

Head Office:

Shree Centre (8th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143000 / 22850007 Fax : 91 33 22630008  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

Opinion : NA

----- END -----

Reviewed By:

Signature

Name

Designation

*Dr. Soumyadeep Mukherjee*  
Dr. Soumyadeep Mukherjee  
Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. Soumyadeep Mukherjee*  
Dr. Soumyadeep Mukherjee  
Lab in charge

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

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

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

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline 6 (A) 1 month from the date of issue of the Test Report.

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



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West  
At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/FD/2024-25/1K539G\_1

### Date :

25/06/2024

### Sample No. :

MSKNB/FD/2024-25/06/0QH595\_1

### Date of receipt of sample:

08/06/2024

### Date(s) of performance:

08/06/2024 - 10/06/2024

### 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	07/06/2024
5. Place of sampling	Bamebari Borewell No-1 (Near Club House) BIMM
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	Mukesh Halburu

Report No. : MSKPL/FD/2024-25/1K539G\_1

Sample No. : MSKNB/FD/2024-25/06/0QH595\_1

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Mr. Maitrayee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical In charge

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

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

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

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline 5 (A) 1 month from the date of issue of the Test Report.

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

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

Report No. MSKGL/ED/2024-25/002062

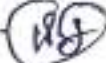
Date: 25.06.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	07.06.2024
Location	Borewell No-1, Bamebari Near Club House (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	8
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	154
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983; Rfm: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	2.9
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.75
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.08
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	7.8
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
14	Taste	None	IS 3025 (Part 8)-1983 Rfm: 2012 (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	74
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	95
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	67
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## 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/H4539N\_1

25/06/2024

MSKNB/FD/2024-25/06/YBM5BG\_1

08/06/2024

08/06/2024 - 25/06/2024

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	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Jarouli open Dug well (BIMM)
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/H4539N\_1

Sample No. : MSKNB/FD/2024-25/06/YBM5BG\_1

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
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/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)	0.03
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/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:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	0.04

Reviewed By:

Signature

Name

Designation

*Atreyee Saha P. Ganguly*

Ms. Atreyee Saha, Ms. Pooi Ganguly

Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. Abanindranath Mukherjee*

Dr. Abanindranath Mukherjee

Lab in charge



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

Opinion : NA

— END —

Reviewed By:

Signature

Name

Designation

*Aranya Saha P. Ganguly*  
: Mr. Aranya Saha, Mr. Piali Ganguly  
: Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. Soumyadeep Mukherjee*  
: Dr. Soumyadeep Mukherjee  
: Lab In charge

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

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

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

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

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

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650003  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/H4539N\_1

25/08/2024

MSKNB/FD/2024-25/06/YBM5BG\_1

08/08/2024

08/08/2024 - 10/08/2024

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	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/08/2024
5. Place of sampling	Jarouli open Dug well (BIMM)
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/H4539N\_1

Sample No. : MSKNB/FD/2024-25/06/YBM5BG\_1

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Detected
2	Total coliform	/100ml	IS 15185	Detected

Opinion : NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Meenya Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical In charge

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

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

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

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (A1) 1 month from the date of issue of the Test Report.

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

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143000 / 22550007 Fax : 91 33 22550006  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

A/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/2024-25/002069

Date: 22.06.2024

## 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	07.06.2024
Location	Opeb Dug well Near Jarouli High School (Jurudi)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	19
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	31
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	157
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	0.11
6	Odour	None	3025 (Part-5)-1983; Rfm: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	3.8
8	pH value at 23 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.88
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.08
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	8.6
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
14	Taste	None	IS 3025 (Part 8)-1983 Rfm: 2012 (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	39
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	97
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	63
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	2.7
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	1.4

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AI/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/WN5393\_1

25/06/2024

MSKNB/FD/2024-25/06/EE758F\_1

08/06/2024

08/06/2024 - 25/06/2024

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	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Bamebari Borewell No-2 (Near Jagannath Temple) (BIMM)
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/WN5393\_1

Sample No. : MSKNB/FD/2024-25/06/EE758F\_1

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
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/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)	0.03
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/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:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	0.19

Reviewed By:

Signature

Name

Designation

Ashwini Saha P. Ganguly

Ms. Ashwini Saha, Ms. Palli Ganguly

Sr. Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukherjee

Lab In charge

Head Office:

Shreeji Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

Opinion : NA

— END —

Reviewed By:

Signature : *Aravind Saha P. Ganguly*  
Name : Mr. Aravind Saha, Mr. Padi Ganguly  
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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

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

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

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

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

Head Office: Service Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India  
Tel. : 91 33 40149000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrask.com



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

### Report No. :

MSKPL/FD/2024-25/WN5393\_1

### Date :

25/06/2024

### Sample No. :

MSKNB/FD/2024-25/06/EE758F\_1

### Date of receipt of sample:

08/06/2024

### Date(s) of performance:

08/06/2024 - 10/06/2024

### 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	07/06/2024
5. Place of sampling	Bamebari Borewell No-2 (Near Jagannath Temple) (BIMM)
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-26) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu

Report No. : MSKPL/FD/2024-25/WN5393\_1

Sample No. : MSKNB/FD/2024-25/06/EE758F\_1

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Ms. Malviya Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Patra

Designation : Technical in charge

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

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

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

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

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

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22600007 Fax : 91 33 22600003  
Email : info@mitrask.com Website : www.mitrask.com



# Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6  
Dist.: Keonjhar, Odisha - 759035  
CIN: U51909WB1956PTC023037

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



Report No. MSKGL/ED/2024-25/002064

Date: 22.06.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	07.06.2024
Location	Borewell No-2, Bamebari Near Jagannath Temple (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	10
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	16
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	95
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983; Rfmm:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	2.9
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.85
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.05
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	7.8
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
14	Taste	None	IS 3025 (Part 8)-1983 Rfmm:2012, (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	20
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	59
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	36
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKPL/FD/2024-25/6R539R\_1

Date :

25/06/2024

Sample No. :

MSKNB/FD/2024-25/06/7PV5A2\_1

Date of receipt of sample:

08/06/2024

Date(s) of performance:

08/06/2024 - 25/08/2024

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	07/06/2024
5. Place of sampling	Joribar Nona Hotel Borewell (BIMM)
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/6R539R\_1

Sample No. : MSKNB/FD/2024-25/06/7PV5A2\_1

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
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/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/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/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:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature:

Name: Ms. Abhaya Saha, Sr. Executive Chemist

Designation: Sr. Executive Chemist

Authorized Signatory:

Signature:

Name: Dr. Soumitra Kumar Mishra

Designation: Lab in charge

# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal


Opinion : NA

----- END -----

Reviewed By:

Signature :   
Name : Ms. Anayee Saha, Ms. Pasi Ganguly  
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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

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

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

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

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



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/2024-25/6R539R\_1

25/06/2024

MSKNB/FD/2024-25/06/7PV5A2\_1

08/06/2024

08/06/2024 - 10/06/2024

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	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Joribar Nona Hotel Borewell (BIMM)
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/6R539R\_1

Sample No. : MSKNB/FD/2024-25/06/7PV5A2\_1

## RESULT

### Micro Biology

Sl 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 :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Signature :

Name : Mr. Sukanta Palui

Designation : Technical in charge

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

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

Report No. MSKGL/ED/2024-25/002063


Date: 22.06.2024

## ANALYSIS REPORT OF GROUND WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	07.06.2024
Location	Borewell Near Nona Hotel, Joribar (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-P	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	11
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	92
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983; Rffm:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	2.9
8	pH value at 28 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.72
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.05
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	6.9
13	Sulphate (as SO4)	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
14	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012, (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	27
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	57
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	40
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by: 

For Mitra S. K. Private Limited

Authorized Signatory 



# Mitra S. K. Private Limited

## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(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/2024-25/01538G\_1

25/06/2024

MSKNB/FD/2024-25/06/ZWC59K\_1

08/06/2024

08/06/2024 - 25/06/2024

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	Ground Water Trace Metal
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Jarouli open Dug well (BIMM)
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/01538G\_1

Sample No. : MSKNB/FD/2024-25/06/ZWC59K\_1

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	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	BDL(DL:0.01)
5	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.05
8	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
9	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

----- END -----

Reviewed By

Signature

Name

Designation

Mr. Anayee Saha P. Ganguly

Ms. Anayee Saha, Ms. Pini Ganguly

Sr. Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Subin K. Mukherjee

Lab In charge



**Address of Laboratory :**

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



Scan for Portal

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**Report No. :**

MSKPL/FD/2024-25/LT538S\_1

**Date :**

25/08/2024

**Sample No. :**

MSKNB/FD/2024-25/06/GF45AE\_1

**Date of receipt of sample:**

08/06/2024

**Date(s) of performance:**

08/06/2024 - 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 Trace Metal
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Bamebari Borewell No-2 (Near Jagannath Temple) (BIMM)
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	Mukesh Halburu

**Report No. :** MSKPL/FD/2024-25/LT538S\_1**Sample No. :** MSKNB/FD/2024-25/06/GF45AE\_1

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	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	BDL(DL:0.01)
5	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
8	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
9	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

**Opinion :** NA

— END —

Reviewed By:

Signature : 

Name : Ms. Arayee Saha, Ms. Palli Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature : 

Name : Dr. Soumyadeep Mukherjee

Designation : Lab in charge

## Address of Laboratory :

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



Scan for Portal

## Reviewed By:

Signature :   
Name : Ms. Ananya Saha, Ms. Piali Ganguly  
Designation : Sr. Executive Chemist

## Authorized Signatory:

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

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

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

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

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

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

**Address of Laboratory :**

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



Scan for Portal

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**Report No. :**

MSKPL/FD/2024-25/Z2538S\_1

**Date :**

25/06/2024

**Sample No. :**

MSKNB/FD/2024-25/06/57358W\_1

**Date of receipt of sample:**

08/06/2024

**Date(s) of performance:**

08/06/2024 - 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 Trace Metal
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Joribar Nona Hotel Borewell (BIMM)
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	Mukesh Haiburu

**Report No. :** MSKPL/FD/2024-25/Z2538S\_1**Sample No. :** MSKNB/FD/2024-25/06/57358W\_1


## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	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	BDL(DL:0.01)
5	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
8	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
9	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

**Opinion :** NA

----- END -----

Reviewed By:

Signature: 

Name: Mr. Aniruddha Saha, Mr. Pali Ganguly

Designation: Sr. Executive Chemist

Authorized Signatory:

Signature: 

Name: Dr. Subhadeep Mukhopadhyay

Designation: Lab in charge



## Address of Laboratory :

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



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West  
 At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2024-25/94538T\_1

Date :

25/06/2024

Sample No. :

MSKNB/FD/2024-25/08/45M5BZ\_1

Date of receipt of sample:

08/06/2024

Date(s) of performance:

08/06/2024 - 25/06/2024

Reference No. &amp; 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 Trace Metal
3. Unique Identification of sample(if any)	NA
4. Date of sampling	07/06/2024
5. Place of sampling	Bamebari Borewell No-1 (Near Club House) BIMM
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	Mukesh Haiburu

Report No. : MSKPL/FD/2024-25/94538T\_1

Sample No. : MSKNB/FD/2024-25/06/45M5BZ\_1


## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	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	BDL(DL:0.01)
5	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
8	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
9	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	0.03

Opinion : NA

----- END -----

Reviewed By:

Signature :   
 Name : Ms. Ananya Saha, Ms. Pooi Ganguly  
 Designation : Sr. Executive Chemist

Authorized Signatory:

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

AdP.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/2024-25/003990

Date: 30.09.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell Near Nona Hotel, Joribar (BIMM)

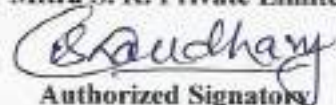
**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	11
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	12
4	Odour	Hazen	3025 (Part-5)-1983; Rf/m: 2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	100
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	2.9
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	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	---	---	0.05 PSU
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	4.14
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rf/m: 2012_(O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	25
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	62
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	40
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	6.92

Checked by:-



For Mitra S. K. Private Limited


 Authorized Signatory



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/2024-25/003990


Date: 30.09.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell Near Nona Hotel, Joribar (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl.No	Test Parameter	Test Method	Limit As Per IS 10500 :2012, RA: 2018 Amd. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
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	0.21
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	0.1	0.3	0.17
5.	Nitrate (as NO <sub>3</sub> ) in mg/l	IS 3025 (Part 34)-1986 RA: 2019	45	No Relaxation	0.63
6.	Selenium(as Se) in mg/l	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 Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	15	0.08
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	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	<0.02
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/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	—	—	<0.1
17.	Total coliform in /100ml	IS 15185	Absent	Absent	Present
18.	E. coli in /100ml	IS 15185	Absent	Absent	Absent

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory



Report No. MSKGL/ED/2024-25/003989

Date: 30.09.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell No-1, Bamebari Near Club House (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	26
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	14
4	Odour	Hazen	3025 (Part-5)-1983; Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	166
6	Iron (as Fe)	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	5.8
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	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	---	---	0.08 PSU
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	3.22
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	9.4
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	67
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	103
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	89
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	6.46

Checked by:-

For Mitra S. K. Private Limited

*Bhaudhary*  
Authorized Signatory

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/2024-25/003989


Date: 30.09.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell No-1, Bamebari Near Club House (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl.No	Test Parameter	Test Method	Limit As Per IS 10500 :2012, RA: 2018 Amd. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
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	0.2
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	0.1	0.3	0.11
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	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 Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	15	<0.02
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	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	<0.02
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/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	—	—	<0.1
17.	Total coliform in /100ml	IS 15185	Absent	Absent	Absent
18.	E. coli in /100ml	IS 15185	Absent	Absent	Absent

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



Report No. MSKGL/ED/2024-25/003988

Date: 30.09.2024

**ANALYSIS REPORT OF GROUND WATER**

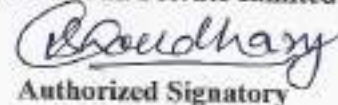
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell No-2, Bamebari Near Jagannath Temple (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 – 2012**

SL No.	Test Parameters	Unite	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	10
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983; Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	81
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	2.9
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	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 PSU
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	8.08
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	2
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012 (O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	13
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	50
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	36
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	6.66

Checked by:-

For Mitra S. K. Private Limited



Authorized Signatory



Report No. MSKGL/ED/2024-25/003988


Date: 30.09.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	17.09.2024
Location	Borewell No-2, Bamebari Near Jagannath Temple (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 – 2012

Sl.No	Test Parameter	Test Method	Limit As Per IS 10500 :2012, RA: 2018 Amd. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
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	0.14
4.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	0.1	0.3	0.08
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	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 Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5	15	<0.02
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	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	<0.02
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/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	—	—	<0.1
17.	Total coliform in /100ml	IS 15185	Absent	Absent	Present
18.	E. coli in /100ml	IS 15185	Absent	Absent	Absent

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory

**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKGL/ED/2024-25/004059

Date :

30/09/2024

Sample No. :

MSKGL/ED/2024-25/0901571

Drawn/Submitted on :

16/09/2024

Reference No. &amp; 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:

1. Description of sample (As declared by customer)	Ground Water (Trace Metal)
2. Sample Mark (if any, given by the customer)	Bamebari Iron & Mn Mine
3. Date of sampling	16/09/2024
4. Place of sampling	Bamebari borewell no.2 near jagannath temple.
5. Environmental conditions during sampling	Rainy
6. Sampling Plan & Procedures used	NA

Report No. :

MSKGL/ED/2024-25/004059

Sample No. :

MSKGL/ED/2024-25/0901571

**ANALYSIS RESULT**

Sl 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)	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	IS 3025 (Part 2)	<0.02
10	Hexavalent Chromium (as Cr+6)	mg/l	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

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

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

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

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

**Report No. :**

MSKGL/ED/2024-25/004079

**Date :**

30/09/2024

**Sample No. :**

MSKGL/ED/2024-25/09/01573

**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:

1. Description of sample (As declared by customer)	Ground Water (Trace Metal)
2. Sample Mark (if any, given by the customer)	Bamebari Iron & Mn Mine
3. Date of sampling	16/09/2024
4. Place of sampling	Borewell near Nona hotel, Joribar
5. Environmental conditions during sampling	Rainy
6. Sampling Plan & Procedures used	NA

**Report No. :**

MSKGL/ED/2024-25/004079

**Sample No. :**

MSKGL/ED/2024-25/09/01573

**ANALYSIS RESULT**

Sl 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)	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	IS 3025 (Part 2)	<0.02
10	Hexavalent Chromium (as Cr+6)	mg/l	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

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

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

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

Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008

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

Page 1 of 1





**CONSENT ORDER**  
**BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD**

Page 1 of 13

BY REGD. POST WITH AD

**STATE POLLUTION CONTROL BOARD, ODISHA**

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: [paribesh1@ospcboard.org](mailto:paribesh1@ospcboard.org), Website: [www.ospcboard.org](http://www.ospcboard.org)

**CONSENT ORDER**

No. 544 / IND-I-CON-189

Dt. 07.01.2022

**CONSENT ORDER NO. 117**

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.**

Ref: Your online application No. 3237698, Dated 20.12.2020 and Letter No. MGM/P & E/289/21 dated 22.09.2021, 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: BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD.

Name of the Occupier & Designation SRI AWNISH KUMAR, CHIEF AND AGENT

Address: AT/ PO: BAMEBARI, VIA: JODA, DIST: KEONJHAR

This consent order is valid for the period up to 31/03/2025 from the date of issue of this order.

*This consent order supersedes the earlier consent order issued vide letter No. 3623 dated 10.03.2021.*

**Details of Products Manufactured**

Sl. No	Product	Quantity
01.	Manganese Ore	0.083 MTPA

**Details of Mineral Handling Plants /Units**

01	Operation of mobile screening plant 1 X 75 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**  
BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

Page

**A. Discharge permitted through the following outlet subject to the standard**

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard				
				pH	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)	Fecal Coliform (MPN/100ml)
01	Outlet of STP (Domestic effluent)	Used for plantation	100 KLD	5.5-9.0	200	--	100	<1000
02	Mine drainage water/ surface runoff/other wastewater	On land / inland surface water body.	12,954 kl/hr (max)	5.5-9.0	100 (Rainy day) 50 (Non-Rainy day)	10	-	--

**B. Emission permitted through the following stack subject to the prescribed standard**

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard			
				PM (mg/Nm <sup>3</sup> )	SO <sub>2</sub>	NO <sub>x</sub>	
					--	--	

**C. Disposal of solid waste permitted in the following manner**

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site (TPD)	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

**D. GENERAL CONDITIONS FOR ALL UNITS**

1. 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.
2. 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.
3. 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.
6. 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.
7. 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.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. 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.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - a) Industrial cooling, spraying in mine pits or boiler feed,
  - b) Domestic purpose
  - c) Process
13. The applicant shall display suitable caution board at the place 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 leak-proof. 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 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.
19. 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.
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.
25. 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.





**CONSENT ORDER**  
**BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD**

Page No. \_\_\_\_\_

26. 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 the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be 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).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. 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 within 24 hours of occurrence.
31. 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 accessible at all times.
32. 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 within 24 hours of its occurrence.
33. 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 area.
34. 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 emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
  - i) 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.
  - ii) Controlled incineration, wherever possible in case of combustible organic material.
  - iii) Composting, in case of bio-degradable material.
36. 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 authorization shall be obtained for handling and disposal of hazardous wastes.
37. 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, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby 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 deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. 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 prior notice.
43. 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 observed and to modify/ stipulate additional conditions as deemed appropriate.
44. Grant of consent order is subject to grant of Forest Clearance under Forest (Conservation) Act, 1980.

**GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).**

1. 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, Sulphur Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide 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.
3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, 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.
  - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
  - b. Progress on planting of trees quarterly.

5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of 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 10<sup>th</sup> of every month.
  - a. Performance / progress of the treatment plant.
  - b. Monthly statement of daily discharge of domestic and/or trade effluent.

**7. Non-compliance with effluent limitations**

- a) 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 following information in writing within 5 days of such notification.
  - i) Causes of non-compliance
  - ii) A description of the non-compliance discharge including its impact on the receiving waters.
  - iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
  - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
  - v) Steps to be taken by the applicant too prevent the condition of non-compliance.
- b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
- 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.

8. 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 or alkalis arbitrarily and utilizing poles for stirring etc. should not be resorted to.
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.
11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.
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.
14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution 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 Board immediately.



**E. SPECIAL CONDITIONS :**

- 1) 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.
- 3) Mining operation is subject to availability of all other statutory clearances.
- 4) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.
- 5) Controlled blasting shall be practiced to minimize generation of dust and fly rocks.
- 6) 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.
- 7) 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.
- 8) 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.
- 9) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
- 10) 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.
- 11) Atleast four Ambient Air Quality Monitoring Stations shall be established in core zone and buffer zone for monitoring of ambient air quality at the locations of the stations as decided in consultation with the Regional Officer, State Pollution Control



Board based on the metrological data, topographical features and environmentally and ecologically sensitive targets

- 12) 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.
- 13) The ambient air quality shall remain within prescribed national ambient air quality standards.
- 14) 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.
- 15) 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.
- 16) The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations.
- 17) 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.
- 18) 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.
- 19) 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.
- 20) 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.
- 21) 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.



**CONSENT ORDER**  
**BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD**

P.

- 22) 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.
- 23) 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.
- 24) The mine shall take necessary action for compliance with the air and water quality standards as stipulated in this order.
- 25) Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of mining lease area shall not exceed 75 dB(A) during day time (6.00 AM to 9.00 PM) and 70 dB(A) during night time (9.00 PM to 6 AM).
- 26) Adequate noise barriers shall be provided surrounding the crushing and screening plants to control noise pollution and avoid impact on wildlife due to operation of crushing and screening plants during night hours.
- 27) Online noise monitoring system shall be installed to monitor noise level during night hours.
- 28) Protective barriers shall be provided for the lights to prevent illumination towards the forest area during night hours.
- 29) Ambient air quality monitoring data, noise monitoring data and water / wastewater quality monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.
- 30) Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, 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 30<sup>th</sup> April every year.

- 1) A copy of the annual return (annual return submitted to IBM, Govt. of India/ Directorate of Mines, Govt. of Odisha) shall be submitted to this Board every year.
- 32) The environmental statement report for the financial year ending 31st March shall be 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,  
BAMEBARI MANGANESE MINE,  
M/S TATA STEEL LTD.,  
AT/PO: BAMEBARI, VIA: JODA,  
DIST: KEONJHAR. PIN-758034.**

Memo No. \_\_\_\_\_ /Dt. \_\_\_\_\_ /

Copy forwarded to :

- i) Regional Officer, State Pollution Control Board, Keonjhar.
- ii) District Collector, Keonjhar
- iii) Director of Mines, Govt. of Odisha, Bhubaneswar
- iv) Director, Environment-cum-Special Secretary, F & E. Dept. Govt. of Odisha, Bhubaneswar.
- v) D.F.O, Keonjhar
- vi) Deputy Director of Mines, Joda
- vii) Additional Chief Env. Engineer, Central Lab. SPCB, Bhubaneswar
- viii) Additional Chief Env. Engineer, (Hazardous waste management cell)
- ix) Consent Register

  
**CHIEF ENV. ENGINEER (M)**  
**STATE POLLUTION CONTROL BOARD, ODISHA**





**CONSENT ORDER**  
BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS**

**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS PART –A : EFFLUENTS**

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour&odour	Colourless/Odourless as far as practicable	-----	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 Kjeldahl nitrogen (as NH <sub>3</sub> ) mg/1 max.	100	----	-----	100
11.	Free ammonia (as NH <sub>3</sub> ) mg/1 max.	5.0	----	-----	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** BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

17.	Cadmium (as Cd) mg/l 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 Se) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Ni) 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.	Phenolic compounds as (C <sub>6</sub> H <sub>5</sub> OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>8</sup> 10 <sup>7</sup>	10 <sup>7</sup> 10 <sup>6</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
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l



**NATIONAL AMBIENT AIR QUALITY STANDARDS**

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			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 *	50	20	-Improved west and Gaeke
		24 Hours **	80	80	- Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Annual *	40	30	- Modified Jacob &Hochheiser ( Na-Arsenite)
		24 Hours **	80	80	- Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM <sub>10</sub> µg/m <sup>3</sup>	Annual *	60	60	-Gravimetric
		24 Hours **	100	100	- TOEM
					- Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM <sub>2.5</sub> µg/m <sup>3</sup>	Annual *	40	40	-Gravimetric
		24 Hours **	60	60	- TOEM
					- Beta Attenuation
5.	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	8 Hours **	100	100	- UV Photometric
		1 Hours **	180	180	- Chemiluminescence
					- Chemical Method
6.	Lead (Pb) µg/m <sup>3</sup>	Annual *	0.50	0.50	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper.
		24 Hours **	1.0	1.0	- ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m <sup>3</sup>	8 Hours **	02	02	- Non Dispersive Infra Red (NDIR)
		1 Hours **	04	04	Spectroscopy
8.	Ammonia (NH <sub>3</sub> ) µg/m <sup>3</sup>	Annual*	100	100	-Chemiluminescence
		24 Hours**	400	400	- Indophenol Blue Method
9.	Benzene (C <sub>6</sub> H <sub>6</sub> ) µg/m <sup>3</sup>	Annual *	05	05	-Gas Chromatography based continuous analyzer
					- Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m <sup>3</sup>	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 equivalent filter paper
12.	Nickel (Ni),ng/m <sup>3</sup>	Annual*	20	20	-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.

\*\* 24 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. 7743 /1 WL-SSP-01/2015 Dated, Bhubaneswar, the 1<sup>st</sup> Sept 2015  
Aug, 2015

To

The Principal Chief Conservator of Forests, Odisha,  
Bhubaneswar

**Sub: Approval of Site Specific Wildlife Conservation Plan in respect of  
Bamebari 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 Bamebari 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-11015/85/2003-IA.II(M) dated 17.11.2005 and condition No.(xi) of the Forest Clearance granted by Govt. of India, MoEF vide their letter F.No. 8-72/2004-FC dated 25.1.2007.

2. The Site Specific Wildlife Conservation Plan in respect of the above project has been approved by the undersigned with financial forecast of **₹635.91 lakh** (Rupees six crore thirty-five lakh ninety-one thousand) only for the following activities.

a.	For activities to be implemented by the user agency in project area	₹166.10 lakh
b.	For activities to be implemented by DFO, Keonjhar Division in project impact area	₹469.81 lakh
<b>Grand Total:</b>		<b>₹635.91 lakh</b>

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 ₹469.81 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.

P.T.O.

- 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.

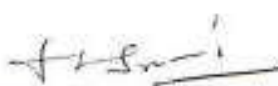
**Encl: 2 copies of approved  
site specific WL Conservation Plan**

  
**Principal Chief Conservator of Forests (WL)  
& Chief Wildlife Warden, Odisha**

Memo No. 7749 /date 01-09-2015

Copy forwarded for information and necessary action to –

1. Special Secretary to Govt. of Odisha, F&E Deptt., Bhubaneswar
2. Regional Chief Conservator of Forests, Rourkela Circle with reference to memo No.5701 dt 16.7.2015 of the DFO, Keonjhar Division
3. Divisional Forest Officer, Keonjhar Division with reference to his memo No.5700 dt 16.7.2015 alongwith a copy of the approved site specific wildlife conservation plan
- ✓ 4. The Head, M/s Bamebari 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**





Bamebari Manganese Mines of Tata Steel Limited								
Reporting period :- Apr-24 to Sep-24								
Location	Parameter	UoM	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
Near Project Office	Particulate Matter (<10um)	µg/m3	212.2	225.9	222.4	96.9	52.1	57.6
	Particulate Matter (<2.5um)	µg/m3	100.2	115.0	115.0	47.7	25.8	29.2
	Sulphur Dioxide (SO2)	µg/m3	7.3	7.8	7.2	6.0	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.5	23.4	22.4	16.0	15.4	17.3
	Carbon Monoxide (CO)	mg/m3	0.54	0.55	0.50	0.18	0.17	0.19
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	14.7	17.9	16.9	8.3	5.7	9.9
	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	0.03	0.03	0.02
	Manganese as Mn	µg/m3	0.27	0.24	0.31	0.31	0.31	0.74
	Nickel as Ni	ng/m3	6.2	5.1	5.1	<5	<5	<5
Near Weigh Bridge	Particulate Matter (<10um)	µg/m3	202.4	218.2	212.8	92.5	45.9	57.9
	Particulate Matter (<2.5um)	µg/m3	94.0	110.9	110.0	45.6	22.6	29.5
	Sulphur Dioxide (SO2)	µg/m3	7.2	7.3	6.7	6.1	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.3	22.2	22.3	14.9	15.4	14.2
	Carbon Monoxide (CO)	mg/m3	0.51	0.54	0.48	0.18	0.15	0.16
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.0	16.7	16.7	8.5	7.6	9.6
	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	0.09	0.04	0.05	0.05	0.03
	Manganese as Mn	µg/m3	0.42	0.44	0.44	0.44	0.44	0.32
	Nickel as Ni	ng/m3	8.9	8.6	6.6	6.6	6.6	<5
Near Joribar Sorting Yard	Particulate Matter (<10um)	µg/m3	198.6	210.4	206.5	91.0	47.9	44.6
	Particulate Matter (<2.5um)	µg/m3	92.8	107.0	106.9	44.9	23.6	22.9
	Sulphur Dioxide (SO2)	µg/m3	7.2	6.9	6.6	6.0	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.2	23.1	22.6	16.2	14.2	13.6
	Carbon Monoxide (CO)	mg/m3	0.48	0.49	0.40	0.20	0.13	0.15
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.6	17.5	16.8	8.4	6.8	9.7
	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	0.01	0.02	0.03	0.02	0.02	0.03
	Manganese as Mn	µg/m3	0.13	0.16	0.24	0.14	0.14	0.03
	Nickel as Ni	ng/m3	<5	<5	5.3	<5	<5	<5
Bamebari Backfilling yard	Particulate Matter (<10um)	µg/m3	208.1	223.8	218.6	97.8	48.9	47.2
	Particulate Matter (<2.5um)	µg/m3	97.9	113.6	113.3	48.3	24.3	25.3
	Sulphur Dioxide (SO2)	µg/m3	7.2	7.4	6.8	6.1	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	21.2	23.1	22.6	15.5	12.0	12.0
	Carbon Monoxide (CO)	mg/m3	0.50	0.54	0.46	0.19	0.13	0.14
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.0	17.8	17.6	8.2	7.2	10.4
	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	0.01	0.01	0.01	0.01	0.01	0.02
	Manganese as Mn	µg/m3	0.09	0.14	0.11	0.12	0.12	0.03
	Nickel as Ni	ng/m3	5.1	<5	<5	<5	<5	<5



FUGITIVE AIR

# Mitra S. K. Private Limited

Address of Branch :

P.O. Barbil DI Keonjhar Orissa 758 036



Scan for Portal

## Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2024-25/002161

05/07/2024

MSKGL/ED/2024-25/07/00025

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
3. Unique Identification of sample(if any)	Bamsheri Iron & Mn. Mines (BIMM)
4. Date of sampling	29/06/2024
5. Place of sampling	Joribar Screen Plant (BIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002161

Sample No. : MSKGL/ED/2024-25/07/00025

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)		
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		21.8
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		242
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		118
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2 (O)		242
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4: 1999 (Reaff. 2014) (O)		6.7
					480

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143006 / 22653667 Fax : 91 33 22653668  
Email : info@mitrask.com Website : www.mitrask.com

# Mitra S. K. Private Limited

Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## 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. :

Reference No. & Date :

MSKGL/ED/2024-25/002160

05/07/2024

MSKGL/ED/2024-25/07/00024

3000156017/056, Date - 15/06/2023

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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	29/06/2024
5. Place of sampling	Joriber Houl Road (BIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002160

Sample No. : MSKGL/ED/2024-25/07/00024

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)		
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		21.4
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		239
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		117
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part.2 (O)		239
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014) (O)		6.3
					454

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Shreeji Centre (28th Floor), 742, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 48143000 / 22650007 Fax : 91 33 22650006  
Email : info@mitra-s-k.com Website : www.mitsk.com



## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

Report No. :

MSKGL/ED/2024-25/002189

Date :

29/06/2024

Sample No. :

MSKGL/ED/2024-25/06/01580

Reference No. &amp; Date :

3000156017, Date - 28/09/2023

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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	22/06/2024
5. Place of sampling	Joribar Weight Bridge, BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002189

Sample No. : MSKGL/ED/2024-25/06/01580

**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)_(O)		22.4
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		241
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		108
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		241
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2_(O)		6.7
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff.2014)_(O)		458

— END —

Report Verified By

For Mitra S.K. Private Limited

Authorised Signatory

## Head Office:

Shreeji Centre (5th Floor), 799, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 46143000 / 22850007 Fax : 91 33 22850008  
Email : info@mitrask.com Website : www.mitrask.com

## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

As/To. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/002190

Date :

29/06/2024

Sample No. :

MSKGL/ED/2024-25/06/01581

Reference No. &amp; Date :

3000156017, Date - 28/09/2023

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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	22/06/2024
5. Place of sampling	Joribari Sorting Yard, BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002190

Sample No. : MSKGL/ED/2024-25/06/01581

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)_(O)		21.3
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		235
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		106
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		235
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part.2_(O)		6.9
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014)_(O)		447

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory

FUGITIVE AIR QUALITY MONITORING REPORT



## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

## TEST REPORT

Report No. :

MSKGLIED/2024-25/002748

Date :

19/07/2024

Sample No. :

MSKGLIED/2024-25/07/00432

Reference No. &amp; Date :

3000150017/056, 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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	06/07/2024
5. Place of sampling	Near Joriber Shoring Yard
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2024-25/002748

Sample No. : MSKGLIED/2024-25/07/00432


## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)		19.8
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		101
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		49.5
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		101
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2 (O)		BDL(DL:6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014) (O)		215

— END —

  
 Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory

## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

## Report No. :

MSKGL/ED/2024-25/002749

## Date :

19/07/2024

## Sample No. :

MSKGL/ED/2024-25/07/00433

## Reference No. &amp; Date :

3000156017/056, Date - 15/08/2023

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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	06/07/2024
5. Place of sampling	Near Joribar Haul Road
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002749

Sample No. : MSKGL/ED/2024-25/07/00433

**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)_(O)		20.1
2	PM <sub>10</sub> /RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		102
3	PM <sub>2.5</sub>	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		50.3
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		102
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2_(O)		BDL(DL:6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff.2014)_(O)		215

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

## Address of Branch :

P.O. Barbil Dt Koonjhar Orissa 758 035



Scan for Portal

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Pl. - Joda, Dist. - Koonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/002750

Date :

23/07/2024

Sample No. :

MSKGL/ED/2024-25/07/00434

Reference No. &amp; 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
3. Unique Identification of sample(if any)	Bambari Iron & Mn Mine
4. Date of sampling	10/07/2024
5. Place of sampling	Near Joribar Screen Plant
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

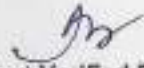
Report No. : MSKGL/ED/2024-25/002750

Sample No. : MSKGL/ED/2024-25/07/00434


**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)		18.3
2	PM <sub>10</sub> /RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		104
3	PM <sub>2.5</sub>	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		50.9
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		104
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2 (O)		BDL(DL 6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff. 2014) (O)		218

— END —


  
 Report Verified By

For Mitra S. K. Private Limited


  
 Authorised Signatory



Address of Branch :  
P.O. Barbil Dt. Keonjhar Orissa 759 035



Scan for Portal

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 759034 India Pin

**Report No. :**

MSKGL/ED/2024-25/002751

**Date :**

23/07/2024

**Sample No. :**

MSKGL/ED/2024-25/07/00435

**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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	10/07/2024
5. Place of sampling	Near Joribar Weigh Bridge
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002751

Sample No. : MSKGL/ED/2024-25/07/00435

**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)_(O)		20.8
2	PM <sub>10</sub> /RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		103
3	PM <sub>2.5</sub>	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		50.7
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		103
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2_(O)		BDL(DL-6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff.2014)_(O)		217

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

\*\*\*\*\*  
**FUGITIVE AIR QUALITY REPORT**

\*\*\*\*\*



Scan for Portal

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

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

**Report No. :**

MSKGL/ED/2024-25/003385

**Date :**

18/08/2024

**Sample No. :**

MSKGL/ED/2024-25/06/00483

**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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	10/08/2024
5. Place of sampling	Near Weight Bridge, Joribar
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2024-25/003385**Sample No. :** MSKGL/ED/2024-25/06/00483**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 7) :2005 RA2017 (O)		18.6
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182- Part 23:2006 (Reaff. 2012) (O)		92.8
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		47.2
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		92.8
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 2): 1985 (O)		BDL(DL-6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014) (O)		192

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

Report No. :

MSKGL/ED/2024-25/003386

Date :

18/08/2024

Sample No. :

MSKGL/ED/2024-25/08/00482

Reference No. &amp; 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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	10/08/2024
5. Place of sampling	Haul Road Near Joribar
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003386

Sample No. : MSKGL/ED/2024-25/08/00482

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 7) :2005 RA2017 (O)		19.2
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		95.6
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		47.9
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		95.6
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 2): 1985 (O)		6.1
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014)_(O)		197

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

Report No. :

MSKGL/ED/2024-25/003473

Date :

04/09/2024

Sample No. :

MSKGL/ED/2024-25/08/01682

Reference No. &amp; Date :

3000156017/058, 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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn Mine
4. Date of sampling	31/08/2024
5. Place of sampling	Near Joriber Screen Plant, (BIMM)
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003473

Sample No. : MSKGL/ED/2024-25/08/01682

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)_(O)		20.3
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		86.9
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		43.4
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		86.9
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 2): 1985_(O)		BDL(DL:6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014)_(O)		176

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory

## Head Office:

Shreeji Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700076, West Bengal, India.  
Tel. : 91 33 48143600 / 22680007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com

## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



Scan for Portal

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

## Report No. :

MSKGLIED/2024-25/003472

## Date :

04/09/2024

## Sample No. :

MSKGLIED/2024-25/08/01681

## Reference No. &amp; 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
3. Unique Identification of sample(if any)	Bamshari Iron & Mn Mine
4. Date of sampling	31/08/2024
5. Place of sampling	Joribar Shoring Yard, (BIMM)
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2024-25/003472

Sample No. : MSKGLIED/2024-25/08/01681


## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 5) (O)		19.9
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		78.6
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		39.8
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)		78.6
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 11255 (Part 2): 1985 (O)		BDL(DL:8.0)
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014) (O)		162

— END —

Report Verified By 

For Mitra S. K. Private Limited

  
Authorised Signatory



\*\*\*\*\*

## FUGITIVE AIR QUALITY REPORT

\*\*\*\*\*



Scan for Portal

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**Report No. :**

MSKGL/ED/2024-25/003812

**Date :**

20/09/2024

**Sample No. :**

MSKGL/ED/2024-25/09/00470

**Reference No. & Date :**

3000156017/066, Date - 15/08/2023

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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	07/09/2024
5. Place of sampling	Near screen plant joribar
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2024-25/003812**Sample No. :** MSKGL/ED/2024-25/09/00470**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)	20.1
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)	95.8
3	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part.2	6.6
4	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014)	194

— END —

Report Verified By

For Mitra S. K. Private Limited

  
Authorized Signatory

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

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



Scan for Portal

**Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

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

**TEST REPORT****Report No. :**

MSKGLIED/2024-25/003811

**Date :**

20/09/2024

**Sample No. :**

MSKGLIED/2024-25/09/00489

**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
3. Unique Identification of sample(if any)	Bahelari Iron & Mn. Mines (BIMM)
4. Date of sampling	07/09/2024
5. Place of sampling	Near joribar weigh bridge
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

**Report No. :** MSKGLIED/2024-25/003811**Sample No. :** MSKGLIED/2024-25/09/00489**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)	20.5
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)	99.2
3	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2	6.3
4	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff.2014)	202

— END —

**Report Verified By****For Mitra S. K. Private Limited****Authorized Signatory**

- \* This results relate only to the item(s) tested.
- \* This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

**Head Office:** Shree-H Centre (5th Floor), 118, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 49143000 / 22660007 Fax : 91 33 22660006  
Email : info@mitrask.com Website : www.mitrask.com





Scan for Portal

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

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

**TEST REPORT****Report No. :**

MSKGL/ED/2024-25/003810

**Date :**

20/09/2024

**Sample No. :**

MSKGL/ED/2024-25/09/00468

**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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	07/09/2024
5. Place of sampling	Houl Road Jonibar
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2024-25/003810**Sample No. :** MSKGL/ED/2024-25/09/00468**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)	22.4
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)	106
3	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part.2	6.8
4	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part4:1999 (Reaff.2014)	218

— END —

**Report Verified By****For Mitra S. K. Private Limited**  
**Authorised Signatory**

- \* This results relate only to the item(s) tested.
- \* This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

**Head Office:** Street Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700018, West Bengal, India.  
Tel : 91 33 49142000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com



Scan for Portal

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

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

**Report No. :**

MSKGL/ED/2024-25/003808

**Date :**

20/09/2024

**Sample No. :**

MSKGL/ED/2024-25/09/00467

**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
3. Unique Identification of sample(if any)	Bamebari Iron & Mn. Mines (BIMM)
4. Date of sampling	07/09/2024
5. Place of sampling	Sorting yard jorbar
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2024-25/003808**Sample No. :** MSKGL/ED/2024-25/09/00467**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6)	20.8
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012)	91.2
3	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2	6.5
4	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 4:1999 (Reaff.2014)	188

— END —

Report Verified By



For Mitra S. K. Private Limited

  
Authorised Signatory

- \* This results relate only to the item(s) tested.
- \* This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

**Head Office:** Shree Chakra (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax: 91 33 22650003  
Email : info@msk.com Website : www.msk.com

		Apr-24				May-24				Jun-24			
SL. NO.	Monitoring Location	Date of Monitoring	Noise Level in dB (A)			Date of Monitoring	Noise Level in dB (A)			Date of Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn		Ld	Ln	Ldn		Ld	Ln	Ldn
1	Inside Garage	25.04.2024	56.1	48.2	54.1	16.05.2024	55.1	45.8	53	21.06.2024	59	69.2	48.6
2	In Front of Admin Office	25.04.2024	56.4	54.9	55.9	16.05.2024	56.7	54.6	56	13.06.2024	55.2	56.1	48.4
3	Near Weigh Bridge	25.04.2024	69	55.7	66.7	16.05.2024	69.1	56.4	66.9	13.06.2024	64.8	67.3	53.2
4	Sorting Yard Rest Shelter	25.04.2024	57.1	42.7	55.4	16.05.2024	57.6	41.7	55.3	13.06.2024	60.2	57.3	53.8
5	250 meters from Screen Plant	26.04.2024	56.7	56.1	56.5	23.05.2024	57.1	55.3	56.5	21.06.2024	76.7	80	63.1
6	Inside of School Area	26.04.2024	46.1	45.5	45.9	23.05.2024	45	43.9	44.5	21.06.2024	52.8	57.3	45.2

		Jul-24				Aug-24				Sep-24			
SL. NO.	Monitoring Location	Date of Monitoring	Noise Level in dB (A)			Date of Monitoring	Noise Level in dB (A)			Date of Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn		Ld	Ln	Ldn		Ld	Ln	Ldn
1	Inside Garage	18.07.2024	80	81.9	45.2	22.08.2024	47	48.7	33.1	26.09.2024	73.9	75.6	35.9
2	In Front of Admin Office	18.07.2024	54.7	56.4	40.5	22.08.2024	41.2	42.8	31.8	26.09.2024	65.4	67.1	34.6
3	Near Weigh Bridge	18.07.2024	79.7	81.4	65.2	22.08.2024	45.5	47.2	32.5	26.09.2024	74.8	76.5	35.4
4	Sorting Yard Rest Shelter	19.07.2024	65.2	66.9	37.3	23.08.2024	61.4	62.2	59.4	25.09.2024	57.7	59.4	44.9
5	250 meters from Screen Plant	19.07.2024	75.1	76.9	40.4	23.08.2024	56.8	58.5	44	25.09.2024	53.1	54.2	49.2
6	Inside of School Area	18.07.2024	49.4	50.8	43	23.08.2024	67.6	69.3	46.4	25.09.2024	51.8	52.9	48.7



Noise

A/P.O.: BARBIL, Ward No-6  
Dist.: Keonjhar, Odisha - 758035  
CIN: U51809WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75260  
E : barbil@mitrask.co.in  
W : www.mitrask.com

Report No. MSKGL/ED/2024-25/000859

Date: 06.05.2024


## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	In side Garage	25.04.2024	56.1	48.2	54.1
2.	In Front of Admin Office	25.04.2024	56.4	54.9	55.9
3.	Near Weigh Bridge	25.04.2024	69.0	55.7	66.7
4.	Shorting Yard Rest Shelter	25.04.2024	57.1	42.7	55.4
5.	250 meter from Screen Plant	26.04.2024	56.7	56.1	56.5
6.	In Side of School Area	26.04.2024	46.1	45.5	45.9

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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by: 

For Mitra S. K. Private Limited

  
Authorised Signatory

NOISE MONITORING REPORT



# Mitra S. K. Private Limited

A/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/2024-25/001657

Date: 05.06.2024

## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	In side Garage	16.05.2024	55.1	45.8	53.0
2.	In Front of Admin Office	16.05.2024	56.7	54.6	56.0
3.	Near Weigh Bridge	16.05.2024	69.1	56.4	66.9
4.	Shorting Yard Rest Shelter	16.05.2024	57.6	41.7	55.3
5.	250 meter from Screen Plant	23.05.2024	57.1	55.3	56.5
6.	In Side of School Area	23.05.2024	45.0	43.9	44.5

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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by:-

*[Signature]*

For Mitra S. K. Private Limited

*[Signature]*  
Authorised Signatory

NOISE

Report No. MSKGL/ED/2024-25/002163

Date: 07.07.2024


## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	In side Garage	21.06.2024	59	69.2	48.6
2.	In Front of Admin Office	13.06.2024	55.2	56.1	48.4
3.	Near Weigh Bridge	13.06.2024	64.8	67.3	53.2
4.	Shorting Yard Rest Shelter	13.06.2024	60.2	57.3	53.8
5.	250 meters from Screen Plant	21.06.2024	76.7	80	63.1
6.	In Side of School Area	21.06.2024	52.8	57.3	45.2


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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



NOISE MONITORING REPORT

Report No. MSKGL/ED/2024-25/002860

Date: 03.08.2024


## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	In side Garage	18.07.2024	80	81.9	45.2
2.	In Front of Admin Office	18.07.2024	54.7	56.4	40.5
3.	Near Weigh Bridge	18.07.2024	79.7	81.4	65.2
4.	Shorting Yard Rest Shelter	19.07.2024	65.2	66.9	37.3
5.	250 meters from Screen Plant	19.07.2024	75.1	76.9	40.4
6.	In Side of School Area	18.07.2024	49.4	50.8	43.0

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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by: 

For Mitra S. K. Private Limited



Authorized Signatory

\*\*\*\*\*

## **NOISE MONITORING REPORT**

\*\*\*\*\*



Report No. MSKGL/ED/2024-25/003467

Date: 03.08.2024

## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	Joribar weigh bridge	22.08.2024	47	48.7	33.1
2.	Joribar sorting yard	22.08.2024	41.2	42.8	31.8
3.	Joribar screen plant	22.08.2024	45.5	47.2	32.5
4.	In front of admin office	23.08.2024	61.4	62.2	59.4
5.	Bamebari school area	23.08.2024	56.8	58.5	44
6.	Inside garage	23.08.2024	67.6	69.3	46.4

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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by: -

For Mitra S. K. Private Limited

Authorized Signatory

\*\*\*\*\*

## **NOISE MONITORING REPORT**

\*\*\*\*\*

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

T : +91 94370 09615, 94370 09820, 94370 75269  
 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2024-25/004108

Date: 01.10.2024


**MONITORING REPORT OF AMBIENT NOISE**

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		BAMEBARI IRON & MANGANESE MINES (BIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	Joribar weigh bridge	26.09.2024	73.9	75.6	35.9
2.	Joribar sorting yard	26.09.2024	65.4	67.1	34.6
3.	Joribar screen plant	26.09.2024	74.8	76.5	35.4
4.	In front of admin office	25.09.2024	57.7	59.4	44.9
5.	Bamebari school area	25.09.2024	53.1	54.2	49.2
6.	Inside garage	25.09.2024	51.8	52.9	48.7

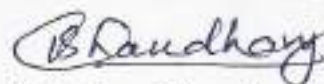
Note: Day Time: 6.00 AM - 10.00 PM, Night Time: 10.00PM - 6.00AM

**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
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by: 

For Mitra S. K. Private Limited



Authorized Signatory



## Personal Dust and Free Silica

**Test Report**

<b>Name of the Industry</b>	TATA Steel Limited	<b>Date of Monitoring</b>	17/04/2024
<b>Address</b>	Mn Group of Mines, JCDA, Odisha-India	<b>Sample Received on</b>	20/04/2024
	<b>Name of the Mine:</b> Bannebari (Joribar) Iron & Mn Mines	<b>Date of Reporting</b>	14/05/2024
	<b>Through :</b> Mitra SK Pvt Ltd AT/PC-Barbil Barbil - Keonjhor- 758035 India.	<b>Report No.</b>	STL/HR/D20/076/24
		<b>Standard Limit (DGMS)</b> Respirable Dust 3 mg/m <sup>3</sup> If Free Silica Content is < 5 %	
<b>Sampler Details</b> SKC Make Sidekick Pump Sr. No.: 22553363, 22553359, 22553180, 22553181 & 22553360		<b>Method of Analysis</b> (ST/HR/GTP 001-05) <b>Respirable Dust</b> : NIOSH 600 <b>Free Silica</b> : NIOSH 7602	<b>Sampling Flow Rate</b> 2.2 lpm <b>Sampling Time</b> 485 to 495 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	17 <sup>th</sup> April 2024	Joribar Mines B.I.M.M, B.S Mines / ST-165	Supervisor	Mr. Harihar Rath (TSP/221141/0324)	-	2.03	2.05	N.D
2		Joribar Mines B.I.M.M, B.S Mines / ST-166	Dumper Operator	Mr. Krishnakarua (TSP/222832/0324)	Dumper (OD09KJ113)	2.17	2.20	N.D
3		Joribar Mines B.I.M.M, B.S Mines / ST-167	Shovel Operator	Mr. Raghunath Sahoo (TSP/222794/0324)	Honda 215	2.61	2.64	N.D
4		Joribar Mines B.I.M.M Sorting yard / ST-168	Site Safety Supervisor	Mr. Subham Giri (TSP/237236/0324)	-	1.39	1.42	N.D
5		Joribar Mines B.I.M.M Main Gate / ST-169	Security	Mr. Haladhar Giri (TSP/071920/0124)	-	1.58	1.63	N.D

Environmental Condition: Temperature - 38.6 °C &amp; RH - more than 40 %, [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.

	<b>Compiled By</b>	<b>Authorised By</b>
<b>Name</b>	S. Nagaraju	Y. Raghavendra Chary
<b>Signature</b>		
<b>Date</b>	14/05/2024	14/05/2024



## PERSONAL DUST SAMPLING





TC-7882

**STARTECH LABS**

QUALITY SERVICE IS OUR STRENGTH

ULR-TC7882 24000000066F

**Test Report**

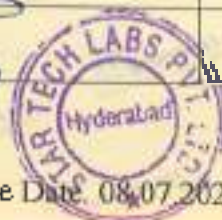
Test Report					
Name of the Industry	TATA Steel Limited	Date of Monitoring	30/05/2024		
	Mn Group of Mines, JODA, Odisha-India.	Sample Received on	03/06/2024		
	Name of the Mine: Bammabari Iron & Mn Mines	Date of Reporting	10/06/2024		
	Address	Report No.	STL/IH/F03/102/24		
	Through : Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.	Standard Limit (DGMS) Respirable Dust 3 mg/m <sup>3</sup> If Free Silica Content is < 5 %			
Sampler Details		Method of Analysis		Sampling Flow Rate	Sampling Time
SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-062, ST-EQ-IH-063, ST-EQ-IH-064, ST-EQ-IH-065 & ST-EQ-IH-066		(ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602		2.2 lpm	490 to 505 Mins.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	30 <sup>th</sup> May 2024	Joribar Mines B.I.M.M, Sorting yard / ST-218	Loader Operator	Mr. Chesurithuja Giri (TSP/221127/0124)	Loader OD09P7714	1.81	1.85	ND
2		Joribar Mines B.I.M.M, Sorting yard / ST-217	Dumper Operator	Mr. Krishna Karuva (TSP/972047/1123)	Dumper OD09K3113	1.64	1.70	ND
3		Joribar Mines B.I.M.M, Sorting yard / ST-215	Site Safety Supervisor	Mr. Lalatendu Lohar (TSP/221166/0324)	-	1.37	1.40	ND
4		Joribar Mines B.I.M.M, Sorting yard / ST-216	Security	Mr. Mandakinta Hara (TSP/030921/0124)	-	1.69	1.76	ND
5		Joribar Mines B.I.M.M, Sorting yard / ST-214	Worker	Mr. Arun Kumar Dehury (TSP/214963/0324)	-	2.21	2.32	0.0006

Environmental Condition: Temperature = 37.6 °C &amp; RH = 46 %; [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.

<b>Compiled By</b>		<b>Authorised By</b>	
Name S. Nagaraju		Y. Raghavendra Chary	
Signature 			
Date 10/06/2024		10/06/2024	



PERSONAL DUST SAMPLING



**Test Report**

<b>Name of the Industry</b> TATA Steel Limited		<b>Date of Monitoring</b> 06/06/2024
Mn Group of Mines, JODA, Odisha-India.		<b>Sample Received on</b> 08/06/2024
<b>Name of the Mine:</b> Bammabari (Joribar) Iron & Mn Mines		<b>Date of Reporting</b> 01/07/2024
<b>Through :</b> Mitra SK Pvt Ltd		<b>Report No.</b> STL/IH/F08/111/24
<b>Address</b> AT/PO-Barbil Barbil – Keonjhor- 758035 India.		<b>Standard Limit : DGMS (Tech) Circular (MAMID)/08; Date: 29/04/2020</b> <b>Respirable Dust 1 mg/m<sup>3</sup> If Free Silica Content is &lt; 5 %</b>
<b>Sampler Details</b> SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-062, ST-EQ-IH-063, ST-EQ-IH-064, ST-EQ-IH-065 & ST-EQ-IH-046		<b>Method of Analysis</b> (ST/IH/GTP 001-05) <b>Respirable Dust : NIOSH 600</b> <b>Free Silica : NIOSH 7602</b>
		<b>Sampling Flow Rate</b> 2.2 lpm
		<b>Sampling Time</b> 485 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	06 <sup>th</sup> June 2024	Joribar Mines B.I.M.M, All Mines/ ST-239	Loader Operator	Mr. cheturbhuja giri (TSP/221127/0324)	Loader 0D09P7714	0.91	0.93	N.D
2		Joribar Mines B.I.M.M, Screen plant/ ST-235	Dumper Operator	Mr. Bipin Bihari patra (TSP/992690/1223)	Volvo EX210LC	0.92	0.93	N.D
3		Joribar Mines B.I.M.M, Screen plant/ ST-236	Site Safety Supervisor	Mr. Tulupatra (TSP/101487/0124)	Dumper OD09U4669	0.93	0.94	N.D
4		Joribar Mines B.I.M.M, Screen plant/ ST-237	Security	Mr. bahadur bidhani (TSP/197115/0324)	-	0.92	0.94	N.D
5		Joribar mines Mn Main Gate / ST-238	Worker	Mr. Haladhar giri (TSP/071920/0124)	-	0.89	0.91	N.D

Environmental Condition: Temperature ~ 33.6 °C &amp; RH – more than 45.3 %, [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	
Signature		Y. Raghavendra Chary	
Date		01/07/2024	





PERSONAL DUST SAMPLING REPORT



**STARTECH LABS**

QUALITY SERVICE IN YOUR STRENGTH

ULR-TC7882 240000000966

### Test Report

<b>Name of the Industry</b> TATA Steel Limited		<b>Date of Monitoring</b> 10/07/2024
<b>Address</b> Mn Group of Mines, JODA, Odisha-India. <b>Name of the Mine:</b> Bammabari Iron & Mn Mines <b>Through :</b> Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.		<b>Sample Received on</b> 13/07/2024 <b>Date of Reporting</b> 06/08/2024 <b>Report No.</b> STL/IH/G13/128/24
<b>Sampler Details</b> 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		<b>Method of Analysis</b> (ST/IH/GTP 001-05) <b>Respirable Dust :</b> NIOSH 600 <b>Free Silica :</b> NIOSH 7602
<b>Sampling Flow Rate</b> 2.2 lpm		<b>Sampling Time</b> 485 to 500 Mints.

Sl. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	10 <sup>th</sup> July 2024	Joribar Mines B.I.M.M, All Mines / ST-317	Tipper Driver	Mr. Dillip kumar Pradhan (TSP/416000/0634)	OD09V13 46	0.90	0.91	N.D
2		Joribar Mines B.I.M.M, Screen Plant / ST-318	Loader operator	Mr. Iswari Chandra Nag (TSP/389210/0524)	OD09AA2 667	0.93	0.94	N.D
3		Joribar Mines B.I.M.M, Screen Plant / ST-319	Dumper operator	Mr. Jagannath Das (TSP/995762/1223)	OD09U45 69	0.57	0.60	N.D
4		Joribar Mines B.I.M.M, Screen Plant / ST-320	Site safety supervisor	Mr. Subham Giri (TSP/421002/0624)	-	0.67	0.68	N.D
5		Joribar Mines B.I.M.M, Sorting yard / ST-321	worker	Mr. Nirakara Patra (TSP/418897/0624)	-	0.89	0.92	N.D

Environmental Condition: Temperature - 34.6 °C & RH - 55 %, [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 samples.

<b>Name</b>	<b>Compiled By</b> Ch. Venkatesh	<b>Authorised By</b> Y. Raghavendra Chary
<b>Signature</b>	ch. V	[Signature]
<b>Date</b>	06/08/2024	06/08/2024



\*\*\*\*\*

# **PERSONAL DUST SAMPLING REPORT**

\*\*\*\*\*





TC-7882

**STARTECH LABS**

QUALITY SERVICE IS OUR STRENGTH

ULR-TC7882 24 0000001156

**Test Report**

<b>Name of the Industry</b>	TATA Steel Limited	<b>Date of Monitoring</b>	22/08/2024
<b>Address</b>	Mn Group of Mines, JODA, Odisha-India.	<b>Sample Received on</b>	26/08/2024
	<b>Name of the Mine:</b> Bammbari (Joribar)	<b>Date of Reporting</b>	04/09/2024
	Iron & Mn Mines (BIMM)	<b>Report No.</b>	STL/IH/H26/160/24
	<b>Through :</b> Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.	<b>Standard Limit (DGMS)</b> <b>Respirable Dust 1 mg/m<sup>3</sup> If Free Silica Content is &lt; 5 %</b>	
<b>Sampler Details</b> 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		<b>Method of Analysis</b> (ST/IH/GTP 001-05) <b>Respirable Dust : NIOSH 600</b> <b>Free Silica : NIOSH 7602</b>	<b>Sampling Flow Rate</b> 2.2 lpm
			<b>Sampling Time</b> 485 to 505 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	22 <sup>nd</sup> Aug 2024	Joribar Mines B.I.M.M, Mines Screen Plant/ ST-356	Loader Operator	Mr. Iswar Chandra Nag (TSP/389210/0524)	OD09AA 2669	0.40	0.41	N.D
2		Joribar Mines B.I.M.M, Mines Screen Plant/ ST-357	Dumper Operator	Mr. Tulupatra (TSP/569638/0824)	OD09U4 669	0.41	0.42	N.D
3		Joribar Mines B.I.M.M, Weighing Bridge/ ST-358	Security	Mr. Madan mohan Pradhan (TSP/071884/0124)	-	0.40	0.42	N.D
4		Joribar Mines B.I.M.M, Main Gate/ ST-359	Security	Mr. Mahendra Patra (TSP/071899/0124)	-	0.32	0.33	N.D
5		Joribar Mines B.I.M.M, Garage / ST-360	Pump Operator	Mr. Bhabani sankari Patra (TSP/574158/0824)	-	0.30	0.31	N.D

Environmental Condition: Temperature - 26.6 °C &amp; 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.

	<b>Compiled By</b>	<b>Authorised By</b>
<b>Name</b>	S. Nagaraju	Y. Raghavendra Chary
<b>Signature</b>		
<b>Date</b>	04/09/2024	04/09/2024





\*\*\*\*\*

# **PERSONAL DUST SAMPLING REPORT**

\*\*\*\*\*



**Test Report**

<b>Name of the Industry</b>	TATA Steel Limited	<b>Date of Monitoring</b>	19/09/2024
	Mn Group of Mines, JODA, Odisha-India.	<b>Sample Received on</b>	23/09/2024
	<b>Name of the Mine:</b> Bammbari (Joribar)	<b>Date of Reporting</b>	04/10/2024
	Iron & Mn Mines (BIMM)	<b>Report No.</b>	STL/IH/H23/167/24
	<b>Through :</b> Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.	<b>Standard Limit (DGMS)</b> <b>Respirable Dust 1 mg/m<sup>3</sup> If Free Silica Content is &lt; 5 %</b>	
<b>Sampler Details</b> SKC Make Sidekick Pump Sr. No.: ST-EQ-IH-064, ST-EQ-IH-063, ST-EQ-IH-062, ST-EQ-IH-065 & ST-EQ-IH-066		<b>Method of Analysis</b> (ST/IH/GTP 001-05) <b>Respirable Dust : NIOSH 600</b> <b>Free Silica : NIOSH 7602</b>	<b>Sampling Flow Rate</b> 2.2 lpm
			<b>Sampling Time</b> 483 to 495 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	19 <sup>th</sup> Sept 2024	Joribar Mines B.I.M.M, Mines Sorting Yard/ ST-380	Safety Supervisor	Mr. Lalatendu Lohar (TSP/570127/0824)	-	0.77	0.78	N.D
2		Joribar Mines B.I.M.M, Mines Sorting Yard / ST-381	Worker	Mr. Nirakara Patra (TSP/568363/0824)	-	0.84	0.84	N.D
3		Joribar Mines B.I.M.M, Mines Sorting Yard / ST-382	Loader Operator	Mr. Basanta Singh (TSP/570253/0824)	OD09K1 792	0.61	0.62	N.D
4		Joribar Mines B.I.M.M, Screen Plant/ ST-383	Loader Operator	Mr. Iswar Chandranag (TSP/646823/0924)	OD09AA 2669	0.82	0.83	N.D
5		Joribar Mines B.I.M.M, Screen Plant / ST-384	Screen plant Operator	Mr. Bahadur Bindhani (TSP/646817/0924)	-	0.93	0.96	N.D

Environmental Condition: Temperature - 28.6 °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.

<b>Compiled By</b>		<b>Authorised By</b>	
<b>Name</b>	S. Nagaraju	<b>Name</b>	Y. Raghavendra Chary
<b>Signature</b>		<b>Signature</b>	
<b>Date</b>	04/10/2024	<b>Date</b>	04/10/2024



