



By-Email

Ref.No.: MGM/P&E/513

Date: 29/11/2024

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

Subject: Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Tiringpahar 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-11015/87/2004-IA. II(M) dated 17th November 2005.
- 2) MoEFCC's notification vide S.O-5845 (E), dated 28th November 2018.

Respected Sir,

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance awarded to us vide MoEFCC's Letter Ref No: J-11015/85/2003-IA. II(M) dated 17th November 2005 in respect of Tiringpahar Iron and Manganese Mine of M/s TATA Steel Ltd. for the period from April'2024 to September'2024 for your kind perusal.

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

We believe the above submission is in order.

Thanking You,

Yours Faithfully,

F: TATA STEEL LTD.

Head (Mine Planning),
Tiringpahar 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, 5th and 6th 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

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

Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

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

Acknowledgement

Proposal Name		Tiringpahar Manganese Ore Mine of M/s Tata Steel, Dist. Keonjhar, State Odisha (Expansion in the Production of Manganese Ore from 0.43 LTPA to 0.85 LTPA)	
Name of Entity / Corporate Office		Tata Steel	
Village(s)		N/A	
District		KENDUJHAR	
Proposal No.	IA/OR/MIN/11666/2005	Category	Non-Coal Mining
Plot / Survey / Khasra No.	N/A	Sub-District	N/A
State	ODISHA	Entity's PAN	*****2803M
MoEF File No.	J-11015/87/2004-IA.II(M)	Entity name as per PAN	UTSAV KASHYAP

Compliance Reporting Details

Reporting Year 2024

Remarks (if any) Six Monthly EC Compliance in respect of Tiringpahar iron and Mn Mine Project: Metal Mining (Open Cast) Project Proponent: Tata Steel Limited.

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	1.311
Revenue Land	98.486	34.515
Forest	70.514	133.17
Others	0	0
Total	169	168.99599999999998

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	85000	55803	85000

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	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 2024 to September 2024 since mining has not advanced into any virgin land. Whenever topsoil is generated, it will be stacked in a designated place earmarked for the same. Topsoil recovered during mining operation earlier has been concurrently used for plantation over matured dumps and for roadside avenue plantation.

Date:
29/11/2024

2 Statutory compliance

Mining shall not be undertaken in areas of forestland within the lease for which forestry clearance has not been obtained.

PPs Submission: Complied

The present leasehold area of Tiringpahar Iron and Manganese Mine is 169.0 ha. Out of which, forest land and non-forest land prevails over 133.174 ha and 35.826 ha respectively. Stage-II Forest clearance has been accorded vide letter no F. No. 8-80/2004-FC dated 28.03.2007 for 52.348 ha of forest land. FC for balance forest area of 80.826 ha has been applied. Presently mining is restricted to only 52.348 ha diverted forest land, non-forestland of 15.605 ha and some portions of the broken-up SABI forestland.

Date:
29/11/2024

3 WATER QUALITY MONITORING AND PRESERVATION

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 WATER QUALITY MONITORING AND PRESERVATION

Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient & length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide

		adequate retention period to allow proper settling of silt material. Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall/super cyclone period. A separate storm water sump for this purpose should be created.
PPs Submission: Complied Existing catch drains and garland drains have been constructed all along the periphery of dump at the toe, so that silt/sediments in the surface runoff can be arrested. Size, gradient and length of the drains and the ponds are adequately made with respect to the size of the same to take care of the peak flow during the rainy season. The garland drain, catch drains and sedimentation pits are periodically de-silted and maintained properly every year before the onset of monsoon. The storm water which gets collected in the lower most areas of the leasehold, during rains, is connected to a series of drains which lead to mine pit to store the water and also recharge the ground water table.		Date: 29/11/2024
5	WATER QUALITY MONITORING AND PRESERVATION	Dimension of retaining wall at the toe of OB dumps and benches within the mine to check run-off and siltation should be based on the rainfall data.
PPs Submission: Complied While designing network of garland drains, check dams, retention walls and rain passes for slope protection as well as arresting silt and sediment during monsoon season, following factors are considered such as Rainfall (peak scenarios), catchment area, gradient slope and retention hours.		Date: 29/11/2024
6	AIR QUALITY MONITORING AND PRESERVATION	Trace Metals such as Ni, Co, As and Hg should be analyzed in dust fall and soil samples for at least one year during summer, monsoon and winter seasons. If concentrations of these metals are found below the standards then with prior approval of MOEF this specific monitoring could be discontinued.
PPs Submission: Complied Yearly monitoring of trace metals both in dust fall and soil samples for parameters like Ni, Co, As and Hg is being carried out. So far, no such trace mineral has been detected in the collected samples. Reports enclosed as Annexure-02		Date: 29/11/2024
PPs Submission: Complied Yearly monitoring of trace metals both in dust fall and soil samples for parameters like Ni, Co, As and Hg is being carried out. So far, no such trace mineral has been detected in the collected samples. Reports enclosed as Annexure-02		Date: 29/11/2024
7	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.
PPs Submission: Complied Mineral Transportation is ensured by tippers and all the trucks are covered with tarpaulins before issuance of transit permits for their onward transportation. All the despatch vehicles are mandatorily required to have Pollution under Check (PuC) certificate to enter the mine. To restrict the fugitive emissions 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 12Kl) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding		Date: 29/11/2024
8	GREENBELT	A green belt of adequate width and area of 1.9 ha should be raised by planting the native species around ML area, and in addition plantation should also be carried out along roads, OB dump sites (21.996 ha) and in other areas within the lease (47.774 ha) covering a total area of 71.67 ha in consultation with the local DFO/ Agriculture Department. The density of the trees should be not less than 2500

		plants per ha.
<p>PPs Submission: Complied</p> <p>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 34.677 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 1,86,756 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 17.36 hectares over OB dump, 14.77 ha of Avenue Planation and 2.547 ha of Safety zone plantation where the saplings have attained self-sustaining stage. Glimpses of Greenbelt and associated afforestation measures undertaken at mine level is enclosed as Annexure 3.</p>		Date: 29/11/2024
9	Statutory compliance	Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.
<p>PPs Submission: Complied</p> <p>There is no ground water interaction for the mine. Neither any borewell water is being used; nor there is any mine associated ground water seepage. There is no interception of the ground water table. Water required for operations is sourced from the adjacent mine i.e. Bamebari Iron and Mn Mine (another mine of the company).</p>		Date: 29/11/2024
10	MINING PLAN	Mining will not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.
<p>PPs Submission: Complied</p> <p>As per the approved mining plan and status thereof, it is conclusive that ultimate pit depth of the mine at the end of mine plan period will not intercept the regional ground water table.</p>		Date: 29/11/2024
11	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 & Forests and the Central Ground Water Authority quarterly.
<p>PPs Submission: Complied</p> <p>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.</p>		Date: 29/11/2024
12	WATER QUALITY MONITORING AND PRESERVATION	Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn 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.
<p>PPs Submission: Complied</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 to Sep 24 is enclosed herewith as Annexure 5.</p>		Date: 29/11/2024
13	Statutory compliance	"Consent to Operate" should be obtained from SPCB before

		expanding mining activities.
PPs Submission: Complied Consent to Operate for Production of Mn Ore for 85000 TPA and Operation of Mobile Screening Plant of 1X392 TPD and a mobile crushing plant of 1X50TPH has been accorded by SPCB, Odisha vide letter No. 536/IND/I/CON/190 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
14	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.
PPs Submission: Complied A site-specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7724/1WL-SSP-94/2015 dated 03.08.2015. Following funds have been deposited by PP to State Forest Dept till date for - - Rs. 240.47 lakhs for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other - Rs 35.7 Lakhs by user agency - Rs 7267000/- for the implementation of regional wildlife conservation as per the demand notices. A copy of the approved site-specific wildlife conservation plan is enclosed herewith as Annexure 7.		Date: 29/11/2024
15	MINING PLAN	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.
PPs Submission: Complied A Final Mine Closure Plan (FMCP) shall be prepared in accordance with the provisions laid down under the GUIDELINES FOR PREPARATION OF FINAL MINE CLOSURE PLANS as prescribed by Indian Bureau of Mines. As per the said guideline, FMCP is required to be prepared 2 years in advance from the date of closure/life of the mine. However presently during the approval of Mine Plan, a progressive mine closure plan (PMCP) is being submitted for approval. During the process of such approval, based on the area put to use for excavation and allied activities, we have deposited a sum of Rs. 5.6042 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.		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.
PPs Submission: Complied There is no change in the mining technology and scope of working of the mines. Mining is carried out as proposed by using shovel-dumper combination. Dry mobile screening is carried out with the help of a 1X392 TPD screen plant with 1X50TPH crushing plant.		Date: 29/11/2024
2	WATER QUALITY MONITORING AND	In Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the

	PRESERVATION	standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
PPs Submission: Complied For effective management of effluent following mitigative measures are ensured at the mine level: 1. Effluents from Workshop/Garage: Vehicle washing system and associated operational activities are provided with separate catchment drains and finally the effluents are collected in Oil-Water Separation system having skimming arrangements for oil and grease 2. Wastewater/runoff collected from the mine pits: Since there is no wet process thus no wastewater is generated at any stage from any process. 3. Surface runoff is channelized and accumulated in the mine pit. After adequate retention period, the same is pumped to water storage tank for sprinkling purposes. 4. Periodically water samples from mine pits and oil-water separation system are collected and analysed by an NABL accredited agency for checking compliance w.r.t applicable standards.		Date: 29/11/2024
3	MISCELLANEOUS	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.
PPs Submission: Complied Environmental Monitoring services are carried out by engaging an NABL Accredited agency having its 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.		Date: 29/11/2024
4	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 contraindications due to exposure to dust and take corrective measures, if needed.
PPs Submission: Complied Personnel Protective Equipment s (PPEs) are being mandatorily used by all the workers as per applicability. It is regularly ensured at the entry points. Safe Operating Procedure based training is imparted to all the workers apart from the initial VT training. Periodical Medical Examination of employees (departmental and contractual) are conducted as per prescribed norms of Mines Rule, 1955. Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling and Free Silica exposure assessment by a DGMS approved agency. Reports enclosed as Annexure 11.		Date: 29/11/2024
5	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.
PPs Submission: Complied 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
6	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 Bhubaneswar.
PPs Submission: Complied A dedicated cost Centre for maintaining all environmental expenditure is maintained in a separate		Date: 29/11/2024

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. 164.7 Lakhs - FY-2022-23: Rs. 163.75 Lakhs - FY-2023-24: Rs. 227.00 Lakhs			
7	MISCELLANEOUS	The Regional Office of this Ministry located at Bhubaneswar 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.	
PPs Submission: Complied 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
8	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.	
PPs Submission: Complied The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Sarpanch, Gram Panchayat, Jajang on 12.01.2006.			Date: 29/11/2024
9	Statutory compliance	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.	
PPs Submission: Complied 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
10	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 http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	
PPs Submission: Complied A copy of Environmental Clearance with regard to Tiringpahar Manganese Mine was published in Oriya News Papers Anupam Bharat and Aam Khabar dated 10.01.2006.			Date: 29/11/2024
11	MINING PLAN	No change in the calendar plan including excavation, quantum of manganese ore and waste should be made.	
PPs Submission: Complied Production and excavation quantum is regulated by the Mine Plan approved by Indian bureau of Mines (IBM). No change in the calendar plan has been made. Total annual production achieved from the mine is well within the EC limit of 0.85 Lakh tonnes per annum.			Date: 29/11/2024
12	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 ₂ , NO _x . monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Data on ambient air quality (RPM, SPM,	

		SO2 & NOx.) should be regularly submitted to the Ministry including its Regional office at Bhubaneshwar and the State Pollution Control Board I Central Pollution Control Board once in six months.
PPs Submission: 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
13	AIR QUALITY MONITORING AND PRESERVATION	Drills should be wet operated or with dust extractors and controlled blasting should be practiced.
PPs Submission: Complied Wet drilling concept is already in place and practiced. Exploratory drills have been provided with inbuilt DE system. Controlled blasting technique with NONEL is in practice. Ground vibrations are being checked for every 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
14	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.
PPs Submission: Complied Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-12Kl) 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. Report enclosed as Annexure 9.		Date: 29/11/2024
15	Noise Monitoring & Prevention	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. should be provided with ear plugs/ muffs.
PPs Submission: Complied Ear plugs and Earmuffs are provided to the workers working in mining operation and DG operations and other high noise generating equipment s. Provision of acoustic enclosures are invariably ensured before the installation of such noise generating instruments. Following monitoring measures are ensured for the regulation of noise pollution associated impacts: 1. Monitoring of Noise level (both ambient noise survey) and workplace noise survey is carried out on monthly basis using an integrated sound level meter. 2. Occupational Noise Exposure assessment is also carried out for the persons engaged in high noise generating areas on quarterly basis by sampling individual workers over eight-hour durations. Noise level monitoring data for the period during April 2024 to September 2024 is enclosed as Annexure 10.		Date: 29/11/2024
Visit Remarks		
Last Site Visit Report Date:		N/A
Additional Remarks:		
Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's		

reference purpose.

Compliance to the Environment Clearance Letter No: J-11015/87/2004-IA.II(M) dated 17th November 2005 in respect of "Expansion of Tiringpahar Manganese Mines (0.43 LTPA to 0.85 LTPA) of M/s Tata Steel Limited located in villages Guruda, Palsha, Khonbond and Jaribahal, 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 Tiringpahar Iron & Manganese Mine is 169.0 ha. Out of which, forest land and non-forest land prevails over 133.174 ha and 35.826 ha respectively. Stage-II Forest clearance has been accorded vide letter no F. No. 8-80/2004-FC dated 28.03.2007 for 52.348 ha of forest land. FC for balance forest area of 80.826 ha has been applied. Presently mining is restricted to only 52.348 ha diverted forest land, non-forestland of 15.605 ha and some portions of the broken-up SABIK forestland.
(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 2024 to September 2024 since mining has not advanced into any virgin land. Whenever topsoil is generated, it will be stacked in a designated place earmarked for the same. Topsoil recovered during mining operation earlier has been concurrently used for plantation over matured dumps and for roadside avenue plantation.
(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 Annexure 1 .
(iv)	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 &	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 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

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	<p>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>which lead to mine pit to store the water and also recharge the ground water table.</p>
(v)	<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, check dams, retention walls and rain passes for slope protection as well as arresting silt and sediment during monsoon season, following factors are considered such as Rainfall (peak scenarios), catchment area, gradient slope and retention hours.</p>
(vi)	<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. Reports enclosed as Annexure-02</p>
(vii)	<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 & 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 12KI) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding</p>
(viii)	<p>A green belt of adequate width and area of 1.9 ha should be raised by planting native species around ML</p>	<p>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</p>

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	area, and in addition plantation should also be carried around roads, OB dump sites (21.996 ha) and in other areas within the lease (47.774 ha) covering a total area of 71.67 ha in consultation with local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.	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 34.677 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 1,86,756 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 17.36 hectares over OB dump, 14.77 ha of Avenue Planation and 2.547 ha of Safety zone plantation where the saplings have attained self-sustaining stage. Glimpses of Greenbelt and associated afforestation measures undertaken at mine level is enclosed as Annexure 3 .
(ix)	Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.	There is no ground water interaction for the mine. Neither any borewell water is being used; nor there is any mine associated ground water seepage. There is no interception of the ground water table. Water required for operations is sourced from the adjacent mine i.e. Bamebari Iron & Mn Mine (another mine of the company).
(x)	Mining will 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 intercept the regional ground water table.
(xi)	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers. The monitoring should be done for quantity four times a year in pre-monsoon (April / May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forest and the Central Ground Water Authority quarterly.	A network of open dug wells and bore wells have been identified for monitoring of GW levels and quality in and around the mine areas. A copy of the abstract of GW level recorded during the monitoring period is enclosed herewith as Annexure 4 .
(xii)	Trace metals such as Fe, Cr ⁺⁶ , Cu, Se, As, Cd, Hg, Pb, Zn and Mn shall be periodically monitored at specific locations in both surface water downstream and in ground water at lower elevations from mine area, in consultation with the OSPCB and State Ground Water Board. Suitable treatment measures shall be	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 to Sep'24 is enclosed herewith as Annexure 5 .

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	undertaken in case levels are found to be higher than permissible limits.	
(xiii)	"Consent to Operate" should be obtained from SPCB before expanding mining activities.	Consent to Operate for Production of Mn Ore for 85000 TPA and Operation of Mobile Screening Plant of 1X392 TPD and a mobile crushing plant of 1X50TPH has been accorded by SPCB, Odisha vide letter No. 536/IND/I/CON/190 dated 07-01-2022 which is valid up to 31/03/2025. A copy of the valid CTO is enclosed as Annexure 6 .
(xiv)	A plan for conservation Plan for conservation of endangered fauna including the Indian Elephant found in and around the mine area shall be prepared and implemented in consultation with identified agencies/institutions and with the State Forest Department. The Plan should be dovetailed with that prepared/under implementation/ proposed for the endangered fauna found in the Reserve Forest in the buffer zone of the project site. The costs for the specific activities/tasks should be earmarked in the Conservation Plan and shall not be diverted for any other purpose. Year-wise status of the implementation of the Plan and the expenditure thereon should be reported to the Ministry of Environment & forests, RO, Bhubaneshwar.	<p>A site-specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7724/1WL-SSP-94/2015 dated 03.08.2015.</p> <p>Following funds have been deposited by PP to State Forest Dept till date for –</p> <ul style="list-style-type: none"> Rs. 240.47 lakhs for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other Rs 35.7 Lakhs by user agency Rs 7267000/- for the implementation of regional wildlife conservation as per the demand notices. <p>A copy of the approved site-specific wildlife conservation plan is enclosed herewith as Annexure 7.</p>
(xv)	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. 5.6042 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.

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 1X392 TPD screen plant with 1X50TPH crushing 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 0.85 Lakh tonnes per annum.
(iii)	<p>Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x & 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.</p> <p>Data on ambient air quality (RPM, SPM, SO₂, NO_x & 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.</p>	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 .
(iv)	Drills should be wet operated or with dust extractors and controlled blasting should be practiced.	<p>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.</p> <p>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.</p>
(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 &	Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-12KI) 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. Report enclosed as Annexure 9 .

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	unloading points should be provided 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 & Earmuffs are provided to the workers working in mining operation & 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"> 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. <p>Noise level monitoring data for the period during April 2024 to September 2024 is enclosed as Annexure 10.</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"> 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 storage tank for sprinkling purposes. 4. Periodically water samples from mine pits and oil-water separation system are collected and analysed by an NABL accredited agency for checking compliance w.r.t applicable standards.
(viii)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	Environmental Monitoring services are carried out by engaging an NABL Accredited agency having it's laboratory recognized by Ministry of Environment, Forest & 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	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 &

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	<p>aspects.</p> <p>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>	<p>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 & Free Silica exposure assessment by a DGMS approved agency. Reports enclosed as Annexure 11.</p>
(x)	<p>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.</p>	<p>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.</p>
(xi)	<p>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.</p>	<p>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:</p> <ul style="list-style-type: none"> • FY-2021-22: Rs. 164.7 Lakhs • FY-2022-23: Rs. 163.75 Lakhs • FY-2023-24: Rs. 227.00 Lakhs
(xii)	<p>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.</p>	<p>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.</p>
(xiii)	<p>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.</p>	<p>The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Sarpanch, Gram Panchayat, Jajang on 12.01.2006.</p>
(xiv)	<p>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</p>	<p>The EC documents was displayed in the office of Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.</p>

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	for 30 days.	
(xv)	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at http://envfor.nic.in . and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	A copy of Environmental Clearance with regard to Tiringpahar Manganese Mine was published in Oriya News Papers Anupam Bharat & Aam Khabar dated 10.01.2006.

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"> 1. Wet drilling (Drills with inbuilt features of wet drilling) for preventing fugitive dust generation at the working face. 2. Controlled blasting by means of pre-split blasts using both NONEL & SME for arresting fly rocks and improved fragmentation with minimal ground vibration is practiced. 3. Pre-wetting is also carried out prior to blasting to minimize dust generating potential of blasts. 4. Stationary water sprinklers and mobile water tankers are operated main/permanent haul roads. 5. Garland drains all along the periphery of dumps supported with toe walls/gabion walls and adequate no of settling pits (1.5mX1.5mX2m) for guiding effluents/surface runoff up to ETP.
(ii)	The natural water bodies and or stream which are flowing in and around the village should not be disturbed. The water table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the project authority has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug well.	Agreed. No such water bodies exists within the mine lease area and thus natural water course remains unaffected due to mining activities. Drinking water is being provided to the villagers. A network of wells have been identified in the core and buffer zone for regular water quality monitoring.
(iii)	The illumination and sound at night at project sites disturb the village in respect of both human and animal population. Consequent sleeping disorder and stress may affect the health in the village located close to mining operation. Habitations have a right to darkness and minimal noise level at night. The Project Proponents must ensure that the biological clock of the village is not disturbed by orienting the floodlights mask way from the village and keeping the noise levels well within prescribed	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-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	limits for day/ night hours.	
(iv)	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.
(v)	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 inhabited sites except with prior permission from the competent	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-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	Authority.	
(vi)	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.
(vii)	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.
(viii)	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.
(ix)	Transportation of minerals by road passing through the village shall not be allowed. A “bypass” road should be constructed (say leaving a gap of at least 200 m) for the purpose of transportation of minerals so that the	There is no transportation road passing through any village.

Six Monthly EC Compliance Report-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	<p>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&R Plan// compensation details for Project Affected People (PAP) should be furnished. While preparing the R&R plant, the relevant State/ national Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs and STs and weaker section of society in study, a need bashed</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-Tiringpahar Manganese Mine, M/s Tata Steel Limited for April'24 to September'24

SN.	EC Conditions	Status of Compliance
	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.	

Soil

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000008378F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/ED/2024-25/BW3639

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/X0JB05

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Organic Land Near Palsakha Village
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburi
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/BW3639

Sample No. : MSKNB/ED/2024-25/04/X0JB05

RESULT

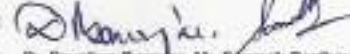
Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 8010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPM/MSK/P&E/1/4 Issue No - 04, Issue Date - January 02	5.2
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 8010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 8010 D (ICP-OES), July	27.2
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7196 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 8010 D (ICP-OES), July	15.1
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 8010 D (ICP-OES), July	32.3

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devottam Banerjee, Mr. Somnath Bardhan
Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Subodh Kumar Banerjee
Designation : Lab in charge

This results release only to the client(s) as per:

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

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

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

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



Scan for

TEST REPORT

Name & Address of Customer :
Tata Steel Ltd.(MGM)_Joda West
At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. : MSKPL/ED/2024-25/BW3639_1
Date : 13/05/2024
Sample No. : MSKNB/ED/2024-25/04/X0JB05_1
Date of receipt of sample: 08/04/2024
Date(s) of performance: 08/04/2024 - 12/05/2024
Reference No. & Date : 3000156017/056, Date - 16/09/2023

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Organic Land Near Palsakha Village
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/BW3639_1

Sample No. : MSKNB/ED/2024-25/04/X0JB05_1

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion) , EPA 6010 D (ICP-OES), July	1445.8
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)

Opinion : NA

END

Reviewed By:
Signature :
Name : Dr. Devotion Bandyopadhyay, Mr. Samrath Bandyopadhyay
Designation : Technical In charge

Authorized Signatory:
Signature :
Name : Dr. Subrata Das
Designation : Lab In charge

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000008377F



TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. : MSKPL/ED/2024-25/L5363R
Date : 13/05/2024
Sample No. : MSKNB/ED/2024-25/04/Q3UACB
Date of receipt of sample: 08/04/2024
Date(s) of performance: 08/04/2024 - 12/05/2024
Location of performance of: Permanent Facility
Reference No. & Date : 3000156017/056, Date - 16/09/2023
Discipline: Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Natural Forest Land Gurubera Forest Land
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburi
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/L5363R

Sample No. : MSKNB/ED/2024-25/04/Q3UACB

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPM/MSK/P&E/1/4 Issue No - 04, Issue Date - January 02	5.7
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	28.0
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7196 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	19.1
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	40.3

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devotion Boreja, Mr. Siddhant Borthan
Designation : Technical In charge

Authorized Signatory:

Signature : 
Name : Dr. Sourajit Kumar Mukherjee
Designation : Lab In charge



Scan for

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

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/ED/2024-25/L5363R_1

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/Q3UACB_1

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Natural Forest Land Gurubera Forest Land
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/L5363R_1**Sample No. :** MSKNB/ED/2024-25/04/Q3UACB_1**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion) , EPA 6010 D (ICP-OES), July	2348.0
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)

Opinion : NA

— END —

Reviewed By:

Signature

Name : Dr. Devottam Banerjee, Mr. Samrath Barman

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Soumyajit Choudhury

Designation : Lab In charge

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000008376F

Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

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

TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2024-25/UE362M

13/05/2024

MSKNB/ED/2024-25/04/P00AEM

08/04/2024

08/04/2024 - 12/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Fruit Plantation Land, BIMM
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition, 2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highbun
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/UE362M

Sample No. : MSKNB/ED/2024-25/04/P00AEM

RESULT


Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPM/MSK/P&E/1/4 Issue No - 04, Issue Date - January 02	BDL(DL:5.0)
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	21.1
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7196 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	14.9
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	25.6

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devdatta Banerjee, Mr. Sonnath Bardhan
Designation : Technical in charge

Authorized Signatory:

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

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

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 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: Shradhi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700019, West Bengal, India.
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TEST REPORT**Name & Address of Customer :**

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/ED/2024-25/UE362M_1

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/P00AEM_1

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Fruit Plantation Land, BMM
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition, 2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highbura
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/UE362M_1**Sample No. :** MSKNB/ED/2024-25/04/P00AEM_1**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	2957.0
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Dr. Devottam Banerjee, Mr. Samrath Bardhan

Designation : Technical In charge

Authorized Signatory:

Signature :

Name :

Designation : Lab In charge

Head Office:
 Shreeji Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India
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West Bengal
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400006375F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

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

Report No. :

MSKPL/ED/2024-25/CR362C

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/FWYABG

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Degraded Land, BIMM
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/CR362C

Sample No. : MSKNB/ED/2024-25/04/FWYABG

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPMMSK/P&E/1/4 Issue No - 04, Issue Date - January 02	BDL(DL:5.0)
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	20.9
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7198 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	11.7
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	47.7

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature :

Name : Dr. Devottam Banerjee, Mr. Somnath Bhardan

Designation : Technical In charge

Authorized Signatory:

Signature :

Name : Dr. Souvikdeep Mukhopadhyay

Designation : Lab In charge

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

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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.

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

Tata Steel Ltd. (MGM) Joda West

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

Report No. :

MSKPL/ED/2024-25/CR362C_1

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/FWYABG_1

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	Degreiled Land, BMM
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das, Mukesh Highbun
9. Field Equipments Used	N/A

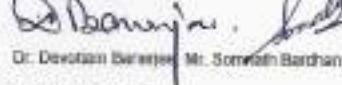
Report No. : MSKPL/ED/2024-25/CR362C_1**Sample No. :** MSKNB/ED/2024-25/04/FWYABG_1**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion) , EPA 6010 D (ICP-OES), July	17579.2
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.26)


Opinion : NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devotion Bararjee, Mr. Somnath Baradhan
Designation : Technical in charge

Authorized Signatory:

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

Address of Laboratory :

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



TC-8950



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ULR: TC-69502400008374F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

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

Report No. :

MSKPL/ED/2024-25/9N362Z

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/4E5AFE

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/04/2024
5. Place of sampling	O B Dump Bamebari
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburi
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/9N362Z

Sample No. : MSKNB/ED/2024-25/04/4E5AFE

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPM/MSK/P&E/1/4 Issue No - 04, Issue Date - January 02	5.1
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	55.2
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7195 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	16.7
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	47.7

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature :

Name : Dr. Devotion Barwaja, Mr. Soumen Barwaja

Designation : Technical In charge

Authorized Signatory:

Signature :

Name : Dr. Soumen Barwaja

Designation : Lab In charge

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

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 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.
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Email : info@mitrask.com Website : www.mitrask.com



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

Tata Steel Ltd. (MGM)_Joda West

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

Report No. :

MSKPL/ED/2024-25/9N362Z_1

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/4E5AFE_1

Date of receipt of sample:

06/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/04/2024
5. Place of sampling	O B Dump Bamebari
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/9N362Z_1**Sample No. :** MSKNB/ED/2024-25/04/4E5AFE_1**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion) , EPA 6010 D (ICP-OES), July	74800.8
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)

Opinion : NA

— END —

Reviewed By:

 Signature : 
 Name : Dr. Devotam Banerjee, Mr. Sonnatish Banerjee

Designation : Technical In charge

Authorized Signatory:

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

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000008373F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

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

Report No. :

MSKPL/ED/2024-25/UY362U

Date :

13/05/2024

Sample No. :

MSKNB/ED/2024-25/04/04UADS

Date of receipt of sample:

08/04/2024

Date(s) of performance:

08/04/2024 - 12/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/04/2024
5. Place of sampling	Mango Bagan (Near Bamebari Township)
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition ,2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/UY362U

Sample No. : MSKNB/ED/2024-25/04/04UADS

RESULT

Chemical

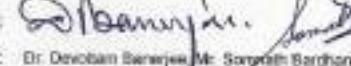
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)
2	Available Iron (as Fe)	mg/kg	TPM/MSK/P&E/1/4 Issue No - 04, Issue Date - January 02	BDL(DL:5.0)
3	Cadmium (as Cd)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:2.0)
4	Copper (as Cu)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	52.5
5	Hexavalent Chromium (as Cr+6)	mg/kg	EPA 3060 A, EPA 7196 A, July	BDL(DL:2.0)
6	Lead (as Pb)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	11.7
7	Mercury (as Hg)	mg/kg	USEPA 245.5	BDL(DL:0.1)
8	Zinc (as Zn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	38.3

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature : 
Name : Dr. Devoban Banerjee / Mr. Soumith Barshan

Designation : Technical in charge

Authorized Signatory:

Signature : 
Name : Dr. Soumith Barshan / Mr. Soumith Barshan
Designation : Lab in charge

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

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

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

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

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India
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TEST REPORT**Name & Address of Customer :**

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :**Date :****Sample No. :****Date of receipt of sample:****Date(s) of performance:****Reference No. & Date :**

MSKPL/ED/2024-25/UY362U_1

13/05/2024

MSKNB/ED/2024-25/04/04UADS_1

08/04/2024

08/04/2024 - 12/05/2024

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	Pollution & Environment
2. Description of sample	Soil
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/04/2024
5. Place of sampling	Mango Bagan (Near Bamebari Township)
6. Environmental conditions during sampling & Transport	Ambient
7. Sampling Plan & Method used	APHA 24 th Edition, 2023
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das, Mukesh Highburu
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2024-25/UY362U_1**Sample No. :** MSKNB/ED/2024-25/04/04UADS_1**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Manganese (as Mn)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	62342.3
2	Selenium (as Se)	mg/kg	EPA 3050 B (Digestion), EPA 6010 D (ICP-OES), July	BDL(DL:0.25)

Opinion : NA

----- END -----

Reviewed By:

Signature : 

Name : Dr. Devottam Banerjee, Mr. Somnath Barman

Designation : Technical In charge

Authorized Signatory:

Signature : 

Name : Dr. Gourang Das

Designation : Lab In charge

Photographs of Plantation areas of Tiringpahar Mine







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📍 FP-34, 35, Food Park, Five Star Industrial Estate,
MIDC Butibori, Nagpur, Maharashtra, India - 441 122

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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

April-2024

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Ganua Village	19/04/2024	Dugwell near road (Mr. Keshar Patra)	4.92	0.53	4.39
2	Guruda Village	19/04/2024	Dugwell near Club	5.68	0.65	5.03
3	Khondbond Village	19/04/2024	Dugwell in field (Mr. Mothua Munda)	4.53	0.70	3.83
4	OMC Colony	19/04/2024	Dugwell near road	4.46	0.50	3.96

Chemist:-

Sant

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

Authorized Signatory

Deant





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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

May-2024

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Gannua Village	13/05/2024	Dugwell near road (Mr. Kesinar Pata)	4.97	0.53	4.4
2	Guruda Village	13/05/2024	Dugwell near Club	5.81	0.65	5.2
3	Khondbond Village	13/05/2024	Dugwell in field (Mr. Mothua Munda)	4.73	0.70	4.0
4	OMC Colony	13/05/2024	Dugwell near road	4.82	0.50	4.3

Chemist:-

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

Authorized Signatory





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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

June-2024

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Gannua Village	17/06/2024	Dugwell near road (Mr. Keshar Patra)	4.83	0.53	4.30
2	Guruda Village	17/06/2024	Dugwell near Club	5.71	0.65	5.06
3	Khondbond Village	17/06/2024	Dugwell in field (Mr. Mohtra Munda)	4.59	0.70	3.89
4	OMC Colony	17/06/2024	Dugwell near road	4.63	0.50	4.13

Chemist:-

Smr

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

Authorized Signatory

Samr



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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

July-2024

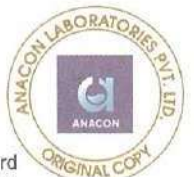
Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Gannua Village	17/07/2024	Dugwell near road (Mr. Keshar Patra)	4.51	0.53	3.98
2	Guruda Village	17/07/2024	Dugwell near Club	5.16	0.65	4.51
3	Khondbond Village	17/07/2024	Dugwell in field (Mr. Mohna Munda)	4.19	0.70	3.49
4	OMC Colony	17/07/2024	Dugwell near road	4.37	0.50	3.87

Verified by *S. B. B.*

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

Authorized Signatory

Chinnay Gaway
Deputy Quality Manager



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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

August-2024

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above Ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Gannua Village	14/08/2024	Dugwell near road (Mr. Keshar Patra)	4.16	0.53	3.63
2	Guruda Village	14/08/2024	Dugwell near Club	4.82	0.65	4.17
3	Khondbond Village	14/08/2024	Dugwell in field (Mr. Mothua Munda)	3.97	0.70	3.27
4	OMC Colony	14/08/2024	Dugwell near road	4.13	0.50	3.63

Verified by *Sanj*

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

Authorized Signatory

Chinnay Garway
Deputy Quality Manager



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Test Report

M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Ground Water Table Measurement

September-2024

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water Level Below Ground Level in Mtrs. = mbmp - magl
1	Ganua Village	16/09/2024	Dugwell near road (Mr. Keshar Patra)	3.87	0.53	3.34
2	Guruda Village	16/09/2024	Dugwell near Club	4.26	0.65	3.61
3	Khondbond Village	16/09/2024	Dugwell in field. (Mr. Mothua Munda)	3.58	0.70	2.88
4	OMC Colony	16/09/2024	Dugwell near road	3.92	0.50	3.42

Verified by

Smf

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

Authorized Signatory

Chiranjay Gargway
Deputy Quality Manager



Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on feedback@anacon.in.

Water

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000007112F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/8HWE1R

16/04/2024

MSKNB/FD/2024-25/04/0XY309

04/04/2024

04/04/2024 - 16/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/04/2024
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	Dhambudhar Das

Report No. : MSKPL/FD/2024-25/8HWE1R

Sample No. : MSKNB/FD/2024-25/04/0XY309

RESULT

Chemical

SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO ₃	mg/l	IS 3025 (Part 23)	39.2
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	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)	16.16
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16
8	Chloride as Cl	mg/l	IS 3025 (Part 32)	12.25
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 38)	6.1
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.35
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	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

Abhijeet Saha P. Ganguly
: Ms. Atrayee Saha, Ms. Piali Ganguly
: Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
: Lab In charge

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22850007 Fax : 91 33 22850008
Email : info@mitrask.com Website : www.mitrask.com

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000007112F

Report No. : MSKPL/FD/2024-25/8HWE1R

Sample No. : MSKNB/FD/2024-25/04/0XY309

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 NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.02
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	5.20
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	86
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	60.60
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	3.6
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.50 AT 24 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature : *Atrayee Saha P. Ganguly*

Name : Ms. Atrayee Saha, Ms. Piali Ganguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature :

Name :

Designation :

Dr. Soumyadeep Mukhopadhyay
Lab In charge

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

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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.

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008
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Mitra S. K. Private Limited

Address of Laboratory :

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



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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West
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/2024-25/8HWE1R_1

16/04/2024

MSKNB/FD/2024-25/04/0XY309_1

04/04/2024

04/04/2024 - 16/04/2024

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	03/04/2024
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	Dhambrudhar Das

Report No. : MSKPL/FD/2024-25/8HWE1R_1

Sample No. : MSKNB/FD/2024-25/04/0XY309_1

RESULT

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

Opinion : NA

----- END -----

Reviewed By:

Signature : *Abayee Saha P. Ganguly*
Name : Ms. Abayee Saha, Ms. Piali Ganguly
Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

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

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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.

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

Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950

Doc No.: MSK/GEN/19/07



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ULR: TC-695024000007112F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/8HWE1R

16/04/2024

MSKNB/FD/2024-25/04/0XY309

04/04/2024

04/04/2024 - 09/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/04/2024
5. Place of sampling	Jalahari Nala (Jaroli) TMM
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das

Report No. : MSKPL/FD/2024-25/8HWE1R

Sample No. : MSKNB/FD/2024-25/04/0XY309

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	2800

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

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A 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.

A 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.

A 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.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000007111F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/7YME1S

16/04/2024

MSKNB/FD/2024-25/04/OMT325

04/04/2024

04/04/2024 - 16/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/04/2024
5. Place of sampling	Gurubeda Baitarani River 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	Dhambrudhar Das

Report No. : MSKPL/FD/2024-25/7YME1S

Sample No. : MSKNB/FD/2024-25/04/OMT325

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO ₃	mg/l	IS 3025 (Part 23)	29.4
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	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)	10.10
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	12.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32)	9.80
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	78
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	6.4
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.32
15	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
16	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	3.64
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Name

Designation

Abayee Saha P. Ganguly
Ms. Abayee Saha, Ms. Piali Ganguly
Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay
Lab In charge

Head Office:

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

Address of Laboratory :

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ULR: TC-695024000007111F

Report No. : MSKPL/FD/2024-25/7YME1S

Sample No. : MSKNB/FD/2024-25/04/0MT325

RESULT**Chemical**

SI No.	Parameter	UOM	Method	Result
20	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
21	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.82
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	5.60
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	52
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	40.40
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	3.2
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	6.8 AT 26 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature : *Atrayee Saha P. Ganguly*

Name : Ms. Atrayee Saha, Ms. Piali Ganguly

Designation : Sr. Exs. Chemist, Executive Chemist

Authorized Signatory:

Signature :

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

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Mitra S. K. Private Limited

Address of Laboratory :

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



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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West
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/TYME1S_1

16/04/2024

MSKNB/FD/2024-25/04/OMT325_1

04/04/2024

04/04/2024 - 16/04/2024

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	03/04/2024
5. Place of sampling	Gurubeda Baitarani River 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	Dhambudhar Das

Report No. : MSKPL/FD/2024-25/TYME1S_1

Sample No. : MSKNB/FD/2024-25/04/OMT325_1

RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	41.1

Opinion : NA

----- END -----

Reviewed By:

Signature : *Abaya Saha P. Ganguly*
Name : Ms. Abaya Saha, Ms. Piali Ganguly
Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature : *[Signature]*
Name : Dr. Soumyadeep Mukhopadhyay
Designation : Lab In charge

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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.

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Mitra S. K. Private Limited

Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950

Doc No.: MSK/GEN/19/07



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ULR: TC-695024000007111F

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/7YME1S

16/04/2024

MSKNB/FD/2024-25/04/0MT325

04/04/2024

04/04/2024 - 09/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/04/2024
5. Place of sampling	Gurubeda Baitarani 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	Dhambrudhar Das

Report No. : MSKPL/FD/2024-25/7YME1S

Sample No. : MSKNB/FD/2024-25/04/0MT325

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	1400

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

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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.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000008388F

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/UY206M

Date :

13/05/2024

Sample No. :

MSKNB/FD/2024-25/04/WXGF3R

Date of receipt of sample:

19/04/2024

Date(s) of performance:

19/04/2024 - 13/05/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/04/2024
5. Place of sampling	Pond in palasa (kha) village
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/UY206M

Sample No. : MSKNB/FD/2024-25/04/WXGF3R

RESULT

Chemical

SI No.	Parameter	UOM	Method	Result
1	Alkalinity as CaCO ₃	mg/l	IS 3025 (Part 23)	178.2
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Biochemical Oxygen Demand (BOD)	mg/l	IS 3025 (Part 44)	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)	64.64
7	Chemical Oxygen Demand (as COD)	mg/l	IS 3025 (Part 58)	16.0
8	Chloride as Cl	mg/l	IS 3025 (Part 32)	88.17
9	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
10	Conductivity	micro S/cm	IS 3025 (Part 14)	496
11	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
13	Dissolved Oxygen	mg/l	IS 3025 (Part 38)	5.6
14	Fluoride as F	mg/l	IS 3025 (Part 60)	0.52
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)	0.17
17	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
18	Magnesium as Mg	mg/l	IS 3025 (Part 46)	14.54
19	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature :

Name :

Designation :

Ms. Atrayee Saha, Ms. Piali Ganguly
Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature :

Name :

Designation : Lab In charge

Dr. Soumyadeep Mukhopadhyay
Lab In charge

Mitra S. K. Private Limited

Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015
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TC-6950

Doc No.: MSK/GEN/19/07



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ULR: TC-695024000008388F

Report No. : MSKPL/FD/2024-25/UJ206M

Sample No. : MSKNB/FD/2024-25/04/WXGF3R

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 NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.01
22	Odour	None	IS 3025 (Part 5)	AGREEABLE
23	Oil & Grease	mg/l	IS 3025 (Part 39)	BDL(DL:1.4)
24	Phenolic Compounds as C6H5OH	mg/l	IS 3025 (Part 43) Sec1	BDL(DL:0.001)
25	Sulphate as SO4	mg/l	IS 3025 (Part 24) Sec1	20.8
26	Total Dissolved Solids	mg/l	IS 3025 (Part 16)	326
27	Total Hardness as CaCO3	mg/l	IS 3025 (Part 21)	222.20
28	Total Suspended Solids	mg/l	IS 3025 (Part 17)	6.8
29	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
30	pH	None	IS 3025 (Part 11)	7.1 AT 24 DEG C

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By:

Signature : *Atrayee Saha P. Genguly*
Name : Ms. Atrayee Saha, Ms. Piali Genguly
Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

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

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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.

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Mitra S. K. Private Limited

Address of Laboratory :

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



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TEST REPORT

Name & Address of Customer :

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Reference No. & Date :

MSKPL/FD/2024-25/UJ206M_1

13/05/2024

MSKNB/FD/2024-25/04/WXGF3R_1

19/04/2024

19/04/2024 - 13/05/2024

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	18/04/2024
5. Place of sampling	Pond in palasa (kha) village
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/UJ206M_1

Sample No. : MSKNB/FD/2024-25/04/WXGF3R_1

RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Salinity	mg/l	By Calculation	261.52

Opinion : NA

----- END -----

Reviewed By:

Signature : *Atrayee Saha P. Ganguly*
Name : Ms. Atrayee Saha, Ms. Piali Ganguly
Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

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

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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.

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Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000008388F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :**Date :****Sample No. :****Date of receipt of sample:****Date(s) of performance:****Location of performance of****Reference No. & Date :****Discipline:**

MSKPL/FD/2024-25/UJ206M

13/05/2024

MSKNB/FD/2024-25/04/WXGF3R

19/04/2024

19/04/2024 - 24/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/04/2024
5. Place of sampling	Pond in palasa (kha) village
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/UJ206M**Sample No. :** MSKNB/FD/2024-25/04/WXGF3R

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	21

Opinion : NA**Statement of Conformity** NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Palui

Designation : Technical In charge

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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.

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Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008
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WATER QUALITY MONITORING 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



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ULR: TC-695024000009091F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/P54598

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/QZ2112

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. & 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	Tindharia UP Stream
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr Setti

Report No. : MSKPL/FD/2024-25/P54598

Sample No. : MSKNB/FD/2024-25/05/QZ2112

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)	0.25
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

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name : Ms. Atrayee Saha, Ms. Priya Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature:

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

Mitra S. K. Private Limited

Doc No.: MSK/GEN/19/07

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000009091F

Reviewed By:

Signature : *Atreyee Saha P. Ganguly*
Name : Ms. Atreyee Saha, Ms. Piali Ganguly
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 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.

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

Address of Laboratory :

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



TC-6950



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ULR: TC-695024000009091F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/P54598

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/QZ2112

Date of receipt of sample:

02/05/2024

Date(s) of performance:

02/05/2024 - 07/05/2024

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	01/05/2024
5. Place of sampling	Tindharia UP Stream
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/P54598**Sample No. :** MSKNB/FD/2024-25/05/QZ2112

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	11

Opinion : NA**Statement of Conformity** 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.

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

The reserved part of sample(s) for chemical analysis (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: Shraichi 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/2023-24/0001165

Date: 21.05.2024

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	01.05.2024
Location	Tindharia Up Stream Baitarani River (TIMM)

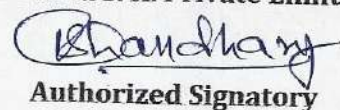
CHEMICAL ANALYSIS OF WATER

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 ₃)	mg/l	APHA (24th Edition), 2340 C	---	13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	94
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.48
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 ₆ H ₅ 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 ₄)	mg/l	APHA (24th Edition), 4500 SO ₄ 2-E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	58
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	55
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	7.4
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.13

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



TC-6950



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ULR: TC-695024000009090F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/4N4592

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/XXL44M

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. & 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	Tindharia Down Stream
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614(P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr Setti

Report No. : MSKPL/FD/2024-25/4N4592

Sample No. : MSKNB/FD/2024-25/05/XXL44M

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)	0.28
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

Statement of Conformity NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Atayee Saha, Sr. Executive Chemist

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature :

Name : Dr. Souryadeep Mukhopadhyay

Designation : Lab In charge

Head Office:

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

Mitra S. K. Private Limited

Doc No.: MSK/GEN/19/07

Address of Laboratory :

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



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ULR: TC-695024000009090F

Reviewed By:

Signature : *Atreyee Saha P. Ganguly*
Name : Ms. Atreyee Saha, Ms. Piali Ganguly
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 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.

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

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



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ULR: TC-695024000009090F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/4N4592

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/XXL44M

Date of receipt of sample:

02/05/2024

Date(s) of performance:

02/05/2024 - 07/05/2024

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	01/05/2024
5. Place of sampling	Tindharia Down Stream
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/2024-25/4N4592

Sample No. : MSKNB/FD/2024-25/05/XXL44M

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

Statement of Conformity 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.

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

The reserved part of sample(s) for chemical analysis (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.
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At/P.O.: BARBIL Ward No-6
 Dist.: Keonjhar, Odisha - 758035
 CIN: U51909WB1956PTC023037

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

Report No. MSKGL/ED/2023-24/0001166

Date: 21.05.2024

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	01.05.2024
Location	Tindharia Down Stream Baitarani River (TIMM)

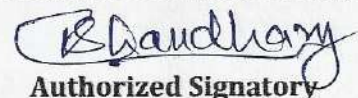
CHEMICAL ANALYSIS OF WATER

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 ₃)	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 ⁻)	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	79
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.41
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 ₆ H ₅ 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 ₄)	mg/l	APHA (24th Edition), 4500 SO ₄ -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	49
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	10.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.89

Checked by:-



For Mitra S. K. Private Limited


 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



TC-6950



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ULR: TC-695024000009087F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/2A459U

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/5WQU54

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. & 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	Jalahari Nala Jaroli
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/2024-25/2A459U

Sample No. : MSKNB/FD/2024-25/05/5WQU54

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)	0.28
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

Statement of Conformity NA

----- END -----

Reviewed By:

Signature :

Name : Ms. Atrayee Saha, Ms.Piali Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature :

Name : Dr. Soumyadeep Mukhopadhyay

Designation : Lab In charge

Address of Laboratory :

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




TC-6950



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ULR: TC-695024000009087F

Reviewed By:

Signature : 

Name : Ms. Atrayee 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.

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

The reserved part of sample(s) for chemical analysis (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



TC-6950



Scan for Portal

ULR: TC-695024000009087F

TEST REPORT

Name & Address of Customer :

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/2A459U

22/05/2024

MSKNB/FD/2024-25/05/5WQU54

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	Jalahari Nala Jaroli
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/2024-25/2A459U

Sample No. : MSKNB/FD/2024-25/05/5WQU54

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	14

Opinion : NA

Statement of Conformity 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.

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

The reserved part of sample(s) for chemical analysis (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:

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Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008
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At/P.O.: BARBIL Ward No-6
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 E : barbil@mitrask.co.in
 W : www.mitrask.com

Report No. MSKGL/ED/2024-25/0001175

Date: 21.05.2024

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	01.05.2024
Location	Jalahari Nala Jurudi (TIMM)

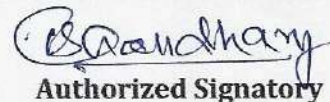
CHEMICAL ANALYSIS OF WATER

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	2.7
2	Calcium (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	8.7
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	110
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.77
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 ₆ H ₅ 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 ₄)	mg/l	APHA (24th Edition), 4500 SO ₄ -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	48
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	69
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	8.1
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.32

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



TC-6950



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ULR: TC-695024000009088F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2024-25/KK459M

22/05/2024

MSKNB/FD/2024-25/05/6VVA3C

02/05/2024

02/05/2024 - 22/05/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/05/2024
5. Place of sampling	Gurubeda Baitarni 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 Kr Setti

Report No. : MSKPL/FD/2024-25/KK459M

Sample No. : MSKNB/FD/2024-25/05/6VVA3C

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)	0.38
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	0.91
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature : *Abayee Sam P. Ganguly*

Name : Ms. Atrayee Saha, Ms. Piali 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



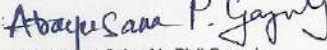
TC-6950




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ULR: TC-695024000009088F

Reviewed By:

Signature : 
Name : Ms. Atrayee 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.

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

The reserved part of sample(s) for chemical analysis (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 :

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West Bengal
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400009088F

TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/KK459M

Date :

22/05/2024

Sample No. :

MSKNB/FD/2024-25/05/6VVA3C

Date of receipt of sample:

02/05/2024

Date(s) of performance:

02/05/2024 - 07/05/2024

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	01/05/2024
5. Place of sampling	Gurubeda Baitarni 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 Kr Setti

Report No. : MSKPL/FD/2024-25/KK459M

Sample No. : MSKNB/FD/2024-25/05/6VVA3C

RESULT

Micro Biology

SI No.	Parameter	UOM	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 : 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.

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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.

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Head Office:

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Page 1 of 1

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 W : www.mitrask.com

Report No. MSKGL/ED/2024-25/0001201

Date: 21.05.2024

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	01.05.2024
Location	Gurubeda Baitarani River (TIMM)

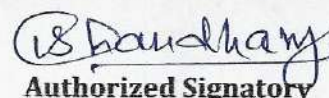
CHEMICAL ANALYSIS OF WATER

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 ₃)	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	---	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	109
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.33
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 ₆ H ₅ 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 ₄)	mg/l	APHA (24th Edition), 4500 SO ₄ 2-E	---	2.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	48
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	67
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	9.2
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.61

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



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TEST REPORT

Name & Address of Customer :

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

Report No. :

MSKPL/FD/2024-25/PY5EEG_1

Date :

13/07/2024

Sample No. :

MSKNB/FD/2024-25/07/SYX3EM_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	05/07/2024
5. Place of sampling	Pond in palasa (kha) village
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/PY5EEG_1

Lab Sample Id. : MSKKOL/2024-25/71

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	4.1
2	Boron as B	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	88.8
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	1.1
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)	0.44
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	1.4
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	2.21
13	Zinc as Zn	microgram/l	TPM/MSK/INST./93; Issue No. 1 Issue date: 20/01	9.7

Reviewed By:

Signature

Name : Ms. Anayee Saha, Ms. Pail Ganguly

Designation : Sr. Executive Chemist

Authorized Signatory:

Signature

Name : Dr. Soumyajit 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



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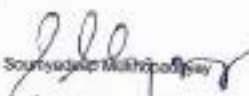
Opinion : NA

— END —

Reviewed By:

Signature : 
Name : Mr. Abhaya Senha, Ms. Priat Ganguly
Designation : Sr. Executive Chemist

Authorized Signatory:

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

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The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Wastes) 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 7044036120
Email: udayanlab@mitrask.com



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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM)_Joda West

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

Report No. :

MSKPL/FD/2024-25/PY5EEG_1

Date :

13/07/2024

Sample No. :

MSKNB/FD/2024-25/07/5YX3EM_1

Date of receipt of sample:

06/07/2024

Date(s) of performance:

06/07/2024 - 11/07/2024

Reference No. & Date :

3000156017/056, Date - 16/09/2023

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

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	05/07/2024
5. Place of sampling	Pond in pelasa (kha) village
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/PY5EEG_1

Lab Sample Id. MSK/KOL/2024-25/71

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	39

Opinion : NA

— END —

Reviewed By:

Signature :

Name : Ms. Matreya Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature :

Name : Mr. Sukanta Patra

Designation : Technical in charge

The results relate only to the item(s) tested.
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 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 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 40140000 / 22650007 Fax : 91 33 22650000
Email : info@mitrask.com Website : www.mitrask.com

Report No. MSKGL/ED/2024-25/002772

Date: 17.07.2024

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	05.07.2024
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	<2.0
2	Calcium (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	13
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<2.0
4	Chloride (as Cl ⁻)	mg/l	APHA (24th Edition), 4500 -Cl B	---	112
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	4.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	371
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.6
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	18
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 ₆ H ₅ OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.18
13	Sulphate (as SO ₄)	mg/l	APHA (24th Edition), 4500 SO42-E	---	23.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	83
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	232
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	106
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	31
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.47

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory

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

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 W : www.mitrask.com

Report No. MSKGL/ED/2024-25/003334


Date: 30.08.2024

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	23.08.2024
Location	Palasa Kha Village Pond (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	20
2	Calcium (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	19
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	65
4	Chloride (as Cl ⁻)	mg/l	APHA (24th Edition), 4500 -Cl B	---	85
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	3.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	460
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.32
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	14
9	Odour	mg/l	APHA (24th Edition), 2150B	Agrecable	Agrecable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.23
13	Sulphate (as SO ₄)	mg/l	APHA (24th Edition), 4500 SO42-E	---	16.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	225
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	286
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	107
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	28
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.5

Checked by: 
 Limited

For Mitra S. K. Private


 Authorized Signatory

Mitra S. K. Private Limited

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Report No. MSKGL/ED/2024-25/003334

Date: 30.08.2024

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	23.08.2024
Location	Palasa Kha Village Pond (TIMM)

CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per CPCB	Results
1	Arsenic as As	mg/l	0.2	3.8
2	Boron as B	mg/l	---	86.4
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	0.38
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	1.2
12	Nitrate as NO ₃	mg/l	10	2.17
13	Zinc as Zn	mg/l	5	9.4
14	Total coliform	/100ml	---	Present

Checked by: 

For Mitra S. K. Private Limited


Authorized Signatory

Report No. MSKGL/ED/2024-25/004001

Date: 30.09.2024

ANALYSIS REPORT OF SURFACE WATER

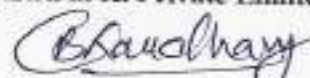
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)
Date of sampling	16.09.2024
Location	Palasa Kha Village Pond (TIMM)

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	2.6
2	Calcium (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	16
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	23.6
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	---	81
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	278
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	---	11
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 ₆ H ₅ OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.14 PSU
13	Sulphate (as SO ₄)	mg/l	APHA (24th Edition), 4500 SO ₄ -E	---	12.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	80
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	172
16	Total Hardness (as CaCO ₃)	mg/l	APHA (24th Edition), 2340 C	---	85
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	16
18	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.24

Checked by: 

For Mitra S. K. Private Limited


Authorized Signatory

Report No. MSKGL/ED/2024-25/004001

Date: 30.09.2024

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	16.09.2024
Location	Palasa Kha Village Pond (TIMM)

CHEMICAL ANALYSIS OF WATER

Sl.No	Test Parameter	Test Method	Limit as per CPCB for discharge of effluents to Inland Surface Water	Result
15.	Colour in Hazen Units	IS 3025 (Part 4): 2021	All efforts should be made to remove colour as far as practicable	15
16.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992; RA 2019	3.0	<0.02
17.	Fluoride(as F) in mg/l	APHA 24th Edition 2023, 4500 F D	2.0	<0.1
18.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2023	2.0	7.5
19.	Nitrate (as NO ₃) in mg/l	IS 3025 (Part 34)-1986, RA: 2019	10.0	0.81
20.	Zinc(as Zn) in mg/l	IS 3025(Part 49)-1994;RA: 2019	5.0	65.4
21.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 2023	2.0	<0.002
22.	Cyanide (as CN) in mg/l	IS 3025 (Part 27): 1986(RA 2019)	0.2	<0.02
23.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2019)	0.1	<0.01
24.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2019)	0.01	<0.001
25.	Total Arsenic (as As) in mg/l	IS 3025 (Part 37): 2022	0.2	<0.01
26.	Boron(as B) in mg/l	IS 13428-2005(Annex I); RA:2018	—	4.1
27.	Hexavalent Chromium in mg/l	APHA 24th Edition 2023; 3500 Cr B	0.1	<0.05
28.	Total Coliform in MPN/100 ml	Standard methods for the examination of water & waste water, 24 th edtn. 9221B	—	35

Checked by: 

For Mitra S. K. Private Limited


Authorized Signatory



STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

CONSENT ORDER

No. 536 / IND-I-CON-190

Dt. 07.01.2022

CONSENT ORDER NO. 115

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. 3235235, Dated 20-12-2020 and Online reply dated 30.12.2021, Letter No. MGM/P&E/305/21 dated 31.1.2021

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: TIRINGPAHAR 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. 3741 dated 12.03.2021.

Details of Products Manufactured

Sl. No	Product	Quantity
01.	Manganese Ore	0.085 MTPA

Details of Mineral Handling Plants /Units

01	Operation of mobile screening plant 1 X 392 TPD
02	Operation of mobile crushing plant 1 x 50 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.



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)
01	Septic tank (Domestic effluent)	Soak pit	-	5.5-9.0	200	--	100
02	Mine drainage water/ surface runoff/other wastewater	On land / inland surface water body.	4754 (max)	5.5-9.0	100 (Rainy day)	10	-
					50 (Non-Rainy day)		

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 ³)	SO ₂	NO _x	
					--	--	

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



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

Page 3 of 13

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.
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.



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

Page 4 of 13

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.

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 10th of the succeeding month.
2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphor Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-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 10th 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
 - i) A description of the non-compliance discharge including its impact on the receiving waters.
 - ii) 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.
 - iii) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
 - iv) 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 alkalies 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) The 50 TPH crusher plant shall be installed with its pollution control measures and shall be informed to Board for verification. The commissioning of the crusher plant shall be done only after the verification of adopted pollution control measures by Regional Officer, Keonjhar and permission from Board.
- 8) Dust suppression measures preferably dry fog system shall be provided at all appropriate places of mineral handling plants (crushing and screening plant). Loading the unloading areas including all the transfer points shall also have efficient dust suppression arrangements (dry fog system). These shall be properly maintained and operated.
- 9) Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
- 10) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
- 11) Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
- 12) 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

- 13) The monitoring of ambient air quality shall be carried out twice in a week (24 hourly) at a particular site and the consolidated data shall be submitted to the State Pollution Control Board, once in a year.
- 14) The ambient air quality shall remain within prescribed national ambient air quality standards.
- 15) The top soil generated shall be stored at earmarked site (s) only and stabilized with plantation or shall be used for land reclamation and plantation.
- 16) The overburden generated during the course of mining shall be stacked at earmarked dump site (s) and stabilized with plantation or used for reclamation of excavated land followed by plantation.
- 17) The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations.
- 18) Check dams and check weirs shall be constructed at appropriate places of the mine lease area to prevent direct flow of runoff to nearby water bodies. The surface runoff water from the existing runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2) of the consent order.
- 19) Retention wall shall be constructed at the toe of topsoil dump and OB dump. Garland drain shall be constructed around topsoil dumps, over burden dumps and mineral stack yards terminating at settling pit to prevent direct disposal of runoff to nearby water bodies.
- 20) Garland drain and sedimentation pit shall be de-silted after monsoon or as and when required. The runoff discharge quality from runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2) of the consent order.
- 21) Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

pH	-	6.5 -9.0
TSS	-	<100 mg/l
BOD	-	30 mg/l
Fecal Coliform	-	<1000 MPN/100 ml.



CONSENT ORDER

TIRINGPAHAR MANGANESE MINE OF M/S. TATA STEEL LTD

Page 8 of 13

- 22) ETP shall be operated at all time for workshop and wastewater generated during mining operation, if any. The quality of the treated wastewater shall conform to the prescribed standard as stated in Part A (Sl No. 2) of the consent order.
- 23) Regular monitoring of water quality of upstream and downstream of surface water bodies existed if any within 5 Km shall be carried out once in every month and record shall be maintained and submitted to the State Pollution Control Board once in every year. Monitoring shall be carried out through MoEF& CC accredited laboratory.
- 24) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), monsoon (August), post-monsoon (November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly.
- 25) The mine shall take necessary action for compliance with the air and water quality standards as stipulated in this order.
- 26) Adequate measures shall be taken for control of noise levels 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).
- 27) 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.
- 28) Online noise monitoring system shall be installed to monitor noise level during night hours.
- 29) Protective barriers shall be provided for the lights to prevent illumination towards the forest area during night hours.
- 30) 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.
- 31) 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.



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

Page 9 of 13

The annual plantation details shall be submitted to the Board by 30th April every year.

- 32) 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.
- 33) 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,
TIRINGPAHAR 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



**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 ₃) mg/1 max.	100	-----	-----	100
11.	Free ammonia (as NH ₃) 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**

TIRINGPAHAR MANGANESE MINE OF M/S. TATA STEEL LTD

Page 12 of 13

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 ₆ H ₅ 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 ⁷ 10 ⁶	10 ⁷ 10 ⁶	10 ⁸ 10 ⁷	10 ⁷ 10 ⁶
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 ₂), µg/m ³	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual * 24 Hours **	40 80	30 80	- Modified Jacob &Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual * 24 Hours **	60 100	60 100	-Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual * 24 Hours **	40 60	40 60	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O ₃) µg/m ³	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) µg/m ³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m ³	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH ₃) µg/m ³	Annual* 24 Hours**	100 400	100 400	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C ₆ H ₆) µg/m ³	Annul *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m ³	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m ³	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni),ng/m ³	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, 5TH 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. **7724** / 1 WL-SSP-94/2015 Dated, Bhubaneswar, the **3** / Aug, 2015

To

The Principal Chief Conservator of Forests, Odisha,
Bhubaneswar

Sub: Approval of Site Specific Wildlife Conservation Plan in respect of Tiringpahar 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 Tiringpahar Manganese mines in Keonjhar district in compliance to Specific Condition No.(xiv) stipulated in the Environment Clearance granted by Govt. of India, MoEF vide their letter No. J-11015/87/2004-IA.II(M) dated 17.11.2005 and condition No.(ix) & (x) of the Forest Clearance granted by Govt. of India, MoEF vide their letter No. 8-80/2004-FC dated 28.3.2007.

2. The Site Specific Wildlife Conservation Plan in respect of the above project has been approved by the undersigned with financial forecast of **₹276.17 lakh** (Rupees two crore seventy-six lakh seventeen thousand) only for the following activities.

a.	For activities to be implemented by the user agency in project area	₹35.70 lakh
b.	For activities to be implemented by DFO, Keonjhar Division in project impact area	₹240.47 lakh
Grand Total:		₹276.17 lakh

3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Keonjhar Division. A sum of ₹240.47 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. 7725 /date 31-08-2015

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.5703 dt 16.7.2015 of the DFO, Keonjhar Division
3. Divisional Forest Officer, Keonjhar Division with reference to his memo No.5702 dt 16.7.2015 alongwith a copy of the approved site specific wildlife conservation plan
- ✓ 4. The Head, M/s Tiringpahar 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**

Tiringpahar 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 Guruda Sorting Yard	Particulate Matter (<10um)	µg/m3	211.6	211.6	202.5	86.1	39.7	41.0
	Particulate Matter (<2.5um)	µg/m3	98.2	107.6	105.0	42.3	19.6	21.1
	Sulphur Dioxide (SO2)	µg/m3	7.4	6.9	6.7	6.1	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.2	22.2	22.4	15.7	13.4	12.8
	Carbon Monoxide (CO)	mg/m3	0.50	0.43	0.41	0.22	0.14	0.14
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.8	15.2	17.0	8.5	7.7	10.5
	Arsenic as (As)	ng/m3	<1	<1	<1	<1	<1	<1
	Benzo(a)Pyrene	ng/m3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzene	µg/m3	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
	Lead (as Pb)	µg/m3	0.02	0.01	0.02	0.02	0.02	0.02
	Manganese as Mn	µg/m3	0.21	0.15	0.17	0.21	0.21	0.04
	Nickel as Ni	ng/m3	6.0	<5	<5	<5	<5	<5
Near Guruda Project Office	Particulate Matter (<10um)	µg/m3	182.6	183.7	180.3	75.9	35.0	42.7
	Particulate Matter (<2.5um)	µg/m3	84.3	93.1	93.4	37.4	17.4	21.8
	Sulphur Dioxide (SO2)	µg/m3	7.0	6.8	6.6	6.0	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.1	22.1	22.3	15.8	13.1	15.0
	Carbon Monoxide (CO)	mg/m3	0.48	0.43	0.42	0.20	0.15	0.17
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.8	16.5	16.0	8.2	4.8	6.8
	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	0.01	<0.001	<0.001	0.02	0.02	0.03
	Nickel as Ni	ng/m3	<5	<5	<5	<5	<5	<5
Near Guruda View Point	Particulate Matter (<10um)	µg/m3	186.6	196.4	190.3	83.8	43.5	49.9
	Particulate Matter (<2.5um)	µg/m3	86.4	99.8	98.4	41.2	21.6	25.3
	Sulphur Dioxide (SO2)	µg/m3	6.9	7.0	6.4	6.0	<6	<6
	Nitrogen Dioxide (NO2)	µg/m3	22.7	22.1	22.1	16.0	13.7	13.7
	Carbon Monoxide (CO)	mg/m3	0.52	0.44	0.39	0.17	0.15	0.15
	Ozone (O3)	µg/m3	<20	<20	<20	<20	<20	<20
	Ammonia (NH3)	µg/m3	15.9	16.1	16.8	8.7	7.3	10.9
	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	0.03	0.03	0.10	0.10	0.11
	Manganese as Mn	µg/m3	0.32	0.31	0.34	0.32	0.32	0.31
	Nickel as Ni	ng/m3	8.6	6.1	<5	5.3	5.3	<5

FUGITIVE AIR



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/2024-25/002159

Date :

05/07/2024

Sample No. :

MSKGL/ED/2024-25/07/00023

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)	Tiringpahar Iron & Mn. Mines (TIMM)
4. Date of sampling	29/06/2024
5. Place of sampling	Near View Point Guruda (TIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002159**Sample No. :** MSKGL/ED/2024-25/07/00023**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)_(O)		20.6
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		231
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		118
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		231
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2_(O)		6.4
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)_(O)		440

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Shraichi 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

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Shraichi 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

FUGITIVE AIR QUALITY MONITORING REPORT

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. :

MSKGL/ED/2024-25/002752

Date :

26/07/2024

Sample No. :

MSKGL/ED/2024-25/07/00632

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)	Tiringpasha Iron & Mn Mine
4. Date of sampling	13/07/2024
5. Place of sampling	Near Shorting Yard Guruda (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002752

Sample No. : MSKGL/ED/2024-25/07/00632

RESULT

Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)_(O)		18.3
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		96.9
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		48.4
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		96.9
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 11255 (Part 2): 1985_(O)		BDL(DL:6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)_(O)		208

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



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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/2024-25/002758

Date :

30/07/2024

Sample No. :

MSKGL/ED/2024-25/07/01060

Reference No. & Date :

3000158017/066, 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 Mine (BIMM)
4. Date of sampling	20/07/2024
5. Place of sampling	Near Screen Plant Guruda (BIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002758

Sample No. : MSKGL/ED/2024-25/07/01060

RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)_(O)		13.9
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		98.2
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		47.1
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		98.2
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2_(O)		BOL(DL-6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)_(O)		210

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MOM) Joda West

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

Report No. :

MSKGL/ED/2024-25/002757

Date :

30/07/2024

Sample No. :

MSKGL/ED/2024-25/07/01059

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	20/07/2024
5. Place of sampling	Near Guruda View Point (BIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/002757

Sample No. : MSKGL/ED/2024-25/07/01059

RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)_(O)		14.1
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		99.3
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		47.6
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		99.3
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part 2_(O)		BOL/DL:6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part 4:1999 (Reaff.2014)_(O)		206

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

FUGITIVE AIR QUALITY REPORT

Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 756 035



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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(NGL) Joda West

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

Report No. :

MSKGL/ED/2024-25/003455

Date :

31/08/2024

Sample No. :

MSKGL/ED/2024-25/08/01385

Reference No. & 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)	Tiringpohar Iron & Mn Mine (TIMM)
4. Date of sampling	24/08/2024
5. Place of sampling	Near View point mine Guruda (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003455

Sample No. : MSKGL/ED/2024-25/08/01385

RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6) (O)		13.8
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		94.7
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		45.9
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		94.7
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part 2 (O)		BDL(DL 6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part 4:1999 (Reaff.2014) (O)		202

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



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

Tata Steel Ltd. (MGM)_Joda West

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

Report No. :

MSKGL/ED/2024-25/003454

Date :

31/08/2024

Sample No. :

MSKGL/ED/2024-25/08/01384

Reference No. & 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)	Tiringpahar Iron & Mn Mine (TIMM)
4. Date of sampling	24/08/2024
5. Place of sampling	Near Gurula screen plant (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003454**Sample No. :** MSKGL/ED/2024-25/08/01384**RESULT**

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxide (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)_(O)		14.2
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		99.8
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		48.2
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)_(O)		99.8
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2_(O)		BDL(DL 6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)_(O)		208

— END —

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For Mitra S. K. Private Limited

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TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(NGL) Joda West

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

Report No. :

MSKGL/ED/2024-25/003453

Date :

31/08/2024

Sample No. :

MSKGL/ED/2024-25/08/01383

Reference No. & 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)	Tiringpahar Iron & Mn Mine(TIMM)
4. Date of sampling	24/08/2024
5. Place of sampling	Gunada sorting yard (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003453**Sample No. :** MSKGL/ED/2024-25/08/01383

RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6) (O)		17.7
2	PM ₁₀ /RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		96.2
3	PM _{2.5}	micro gm/m ³	IS 5182 (Part 24)		47.9
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		96.2
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part 2 (O)		BDL(DL-6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part 4: 1999 (Reaff. 2014) (O)		205

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory

Address of Branch :

P.O. Barbil Di Keonjhar Orissa 758 035



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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/2024-25/003451

Date :

31/08/2024

Sample No. :

MSKGL/ED/2024-25/08/01382

Reference No. & 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	AJR
2. Description of sample	Fugitive Air
3. Unique Identification of sample(if any)	Tiringpohar Iron & Mn Mine (TIMM)
4. Date of sampling	24/09/2024
5. Place of sampling	Guruda Houl Road (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003451

Sample No. : MSKGL/ED/2024-25/08/01382

RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Nitrogen Dioxide (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6) (O)		14.9
2	PM10/RPM	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		89.5
3	PM2.5	micro gm/m ³	IS 5182 (Part 24)		43.2
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012) (O)		89.5
5	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part 2 (O)		BDL(DL-6.0)
6	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part 4:1999 (Reaff. 2014) (O)		191

— END —

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For Mitra S. K. Private Limited

Authorised Signatory

FUGITIVE AIR QUALITY REPORT



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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/2024-25/003910

Date :

25/09/2024

Sample No. :

MSKGL/ED/2024-25/09/00399

Reference No. & Date :

3000156017, Date - 26/09/2023

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)	Tiringpohar Iron & Mn Mine (TIMM)
4. Date of sampling	14/09/2024
5. Place of sampling	Near View point mine Guruda (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003910**Sample No. :** MSKGL/ED/2024-25/09/00399**RESULT**

Sl No.	Parameter	UCM	Method	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)	14.5
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)	98.5
3	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2	BDL(DL 6.0)
4	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)	201

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For Mitra S. K. Private Limited

Authorised Signatory

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Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
Tel : 91 33 40143000 / 22656007 Fax : 91 33 22656006
Email : info@mitras.com Website : www.mitrask.com



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

Tata Steel Ltd. (MGM) Joda West

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

Report No. :

MSKGL/ED/2024-25/003909

Date :

25/09/2024

Sample No. :

MSKGL/ED/2024-25/09/00988

Reference No. & 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)	Tiringpahar Iron & Mn Mine (TMM)
4. Date of sampling	14/09/2024
5. Place of sampling	Near Guruda screen plant (TMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003909**Sample No. :** MSKGL/ED/2024-25/09/00988**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)	12.8
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)	101
3	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2	BDL(DL-6.0)
4	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff.2014)	205

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Tata Steel Ltd.(MGM) Joda West

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

Report No. :

MSKGL/ED/2024-25/003908

Date :

25/09/2024

Sample No. :

MSKGL/ED/2024-25/09/00987

Reference No. & 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)	Tiringpahar Iron & Mn Mine (TIMM)
4. Date of sampling	14/09/2024
5. Place of sampling	Guruda sorting yard (TIMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003908**Sample No. :** MSKGL/ED/2024-25/09/00987**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)	13.9
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff, 2012)	94.8
3	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part.2	BDL(DL:6.0)
4	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part4:1999 (Reaff,2014)	196

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Report Verified By**For Mitra S. K. Private Limited****Authorised Signatory**

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Head Office: Shree Centre (3th Floor), 74B, A.J.C. Road, Kolkata - 700016, West Bengal, India.
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Email : info@mitrask.com Website : www.mitrask.com



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

Tata Steel Ltd.(MGM) Joda West

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

Report No. :

MSKGL/ED/2024-25/003907

Date :

25/09/2024

Sample No. :

MSKGL/ED/2024-25/09/00886

Reference No. & 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)	Tiringpahar Iron & Mn Mine (TMM)
4. Date of sampling	14/09/2024
5. Place of sampling	Guruda Houl Road (TMM)
6. Environmental conditions during sampling & Transport	Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/003907**Sample No. :** MSKGL/ED/2024-25/09/00886**RESULT**

Sl No.	Parameter	UOM	Method	Result
1	Nitrogen Dioxides (as NO ₂)	micro gm/m ³	IS: 5182 (Part 6)	13.2
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)	97.3
3	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5152: Part.2	BDL(DL 6.0)
4	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part.4:1999 (Reaff.2014)	199

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Report Verified By**For Mitra S. K. Private Limited**
Authorised Signatory

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



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

Tata Steel Ltd, (MGM) Joda West

AyPo. - 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 :

3000156017/056, 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	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 ₂)	micro gm/m ³	IS: 5182 (Part 6)	20.1
2	Respirable Suspended Particulate Matter (RSPM)	micro gm/m ³	IS 5182: Part 23:2006 (Reaff. 2012)	95.8
3	Sulphur Dioxide (as SO ₂)	micro gm/m ³	IS 5182: Part 2	6.6
4	Suspended Particulate Matter (SPM)	micro gm/m ³	IS 5182: Part 4:1999 (Reaff. 2014)	194

— END —

Report Verified By**For Mitra S. K. Private Limited**
Authorised Signatory

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Head Office: Shreeji Centre (5th Floor), 14B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.
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Page 1 of 1

		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	Guruda Pit Office	18.04.2024	56.3	49.5	54.6	17.05.2024	58.3	51	56.4	20.06.2024	61.9	63.9	47.3
2	Guruda Sorting Yard	18.04.2024	60.9	57.4	59.8	17.05.2024	57.3	53.3	56.2	14.06.2024	54.1	56.7	46
3	Guruda View Point	18.04.2024	66.7	63.2	65.7	17.05.2024	56.7	45.5	54.5	20.06.2024	65.6	67.7	44.9
4	Guruda Screen Plant	18.04.2024	60	57.9	59.3	24.05.2024	59.9	56.3	58.8	20.06.2024	63.5	65.4	52.3
5	Guruda BS Mining	19.04.2024	59.9	57.1	58.9	24.05.2024	66.2	53.7	64.5	14.06.2024	67.5	71.4	53.6
6	Guruda Weigh Bridge	19.04.2024	60.9	56.9	59.6	24.05.2024	66.6	59.9	65	14.06.2024	66	66.3	65.5

		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	Guruda Pit Office	26.07.2024	76.5	78.3	47.2	30.08.2024	60.3	62.1	42.1	27.09.2024	68.4	70.1	35.8
2	Guruda Sorting Yard	19.07.2024	68.3	70.1	37.9	30.08.2024	56.3	58	36.5	28.09.2024	67.3	69	45.3
3	Guruda View Point	25.07.2024	62.3	64.1	34.5	30.08.2024	42.5	43.8	36.8	28.09.2024	60.7	62.5	40.1
4	Guruda Screen Plant	19.07.2024	74.9	76.7	44.3	31.08.2024	61.2	63	39.8	28.09.2024	67.5	69.3	40.4
5	Guruda BS Mining	25.07.2024	64.4	66.1	36.8	31.08.2024	60.2	62	37.6	27.09.2024	60.5	62.2	40.8
6	Guruda Weigh Bridge	26.07.2024	47	48.9	40.5	31.08.2024	55	56.7	39	27.09.2024	76.7	78.4	43.4

Noise

Report No. MSKGL/ED/2024-25/000858

Date: 06.05.2024

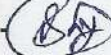
MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		TIRINGPAHAR IRON & MANGANESE MINES (TIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	Guruda Pit Office	18.04.2024	56.3	49.5	54.6
2.	Guruda Shorting Yard	18.04.2024	60.9	57.4	59.8
3.	Guruda View Point	18.04.2024	66.7	63.2	65.7
4.	Guruda Screen Plant	18.04.2024	60.0	57.9	59.3
5.	Guruda BS Mining	19.04.2024	59.9	57.1	58.9
6.	Guruda Weigh Bridge	19.04.2024	60.9	56.9	59.6

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

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/2024-25/001658

Date: 05.06.2024

MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		TIRINGPAHAR IRON & MANGANESE MINES (TIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	BS Mining Work Shop	17.05.2024	58.3	51.0	56.4
2.	In Front of Admin Office	17.05.2024	57.3	53.3	56.2
3.	Near Weigh Bridge	17.05.2024	56.7	45.5	54.5
4.	Mines View Plant	24.05.2024	59.9	56.3	58.8
5.	Shorting Yard Rest Shelter	24.05.2024	66.2	53.7	64.5
6.	250 meter from Screen Plant	24.05.2024	66.6	59.9	65.0

Note : Day Time : 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

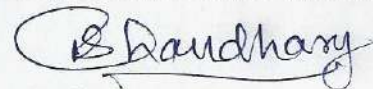
AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

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


 Authorised Signatory

NOISE

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

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W : www.mitrask.com

Report No. MSKGL/ED/2024-25/002169				Date: 07.07.2024	
MONITORING REPORT OF AMBIENT NOISE					
Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		TIRINGPAHAR IRON & MANGANESE MINES (TIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	BS Mining Work Shop	20.06.2024	61.9	63.9	47.3
2.	In Front of Admin Office	14.06.2024	54.1	56.7	46
3.	Near Weigh Bridge	20.06.2024	65.6	67.7	44.9
4.	Mines View Plant	20.06.2024	63.5	65.4	52.3
5.	Shorting Yard Rest Shelter	14.06.2024	67.5	71.4	53.6
6.	250 meters from Screen Plant	14.06.2024	66	66.3	65.5

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:



For Mitra S. K. Private Limited

Authorized Signatory

NOISE MONITORING REPORT

Report No. MSKGL/ED/2024-25/002861

Date: 03.08.2024


MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		TIRINGPAHAR IRON & MANGANESE MINES (TIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	BS Mining Work Shop	26.07.2024	76.5	78.3	47.2
2.	In Front of Admin Office	19.07.2024	68.3	70.1	37.9
3.	Near Weigh Bridge	25.07.2024	62.3	64.1	34.5
4.	Mines View Plant	19.07.2024	74.9	76.7	44.3
5.	Shorting Yard Rest Shelter	25.07.2024	64.4	66.1	36.8
6.	250 meters from Screen Plant	26.07.2024	47	48.9	40.5

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: 

For Mitra S. K. Private Limited


Authorized Signatory

NOISE MONITORING REPORT

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

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 E: barbil@mitrask.co.in
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Report No. MSKGL/ED/2024-25/003468

Date: 03.08.2024

MONITORING REPORT OF AMBIENT NOISEName of the Client **M/s. TATA STEEL LIMITED**Name of the Mines **TIRINGPAHAR IRON & MANGANESE MINES (TIMM)**

SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	Sorting Yard rest Shelter	30.08.2024	60.3	62.1	42.1
2.	Mines view point	30.08.2024	56.3	58	36.5
3.	Infront of Admin Office	30.08.2024	42.5	43.8	36.8
4.	Near Guruda screen plant	31.08.2024	61.2	63	39.8
5.	Near BS mining workshop	31.08.2024	60.2	62	37.6
6.	Near Guruda pit office weigh bridge	31.08.2024	55	56.7	39

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 09815, 94370 09820, 94370 75269
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 W : www.mitrask.com

Report No. MSKGL/ED/2024-25/004109

Date: 01.10.2024

MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		TIRINGPAHAR IRON & MANGANESE MINES (TIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ldn	Ld	Ln
1.	Sorting Yard rest Shelter	27.09.2024	68.4	70.1	35.8
2.	Mines view point	28.09.2024	67.3	69	45.3
3.	Infront of Admin Office	28.09.2024	60.7	62.5	40.1
4.	Near Guruda screen plant	28.09.2024	67.5	69.3	40.4
5.	Near BS mining workshop	27.09.2024	60.5	62.2	40.8
6.	Near Guruda pit office weigh bridge	27.09.2024	76.7	78.4	43.4

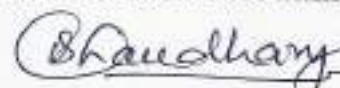
Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

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

Personal Dust and Free Silica

STARTECH LABS PVT. LTD.

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TC-7882

**STARTECH LABS**

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ULR-TC788224000000054F

Test Report

Name of the Industry	TATA Steel Limited	Date of Monitoring	18/04/2024	
	Mn Group of Mines, JODA, Odisha-India.	Sample Received on	20/04/2024	
	Name of the Mine: Tiringpahar Iron & Mn Mines.	Date of Reporting	14/05/2024	
	Through:	Report No.	STL/IH/D20/077/24	
	Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.	Standard Limit (DGMS) Respirable Dust 3 mg/m³ If Free Silica Content is < 5 %		
Address				
Sampler Details		Method of Analysis	Sampling Flow Rate	Sampling Time
SKC Make Sidekick Pump Sr. No.: 22553363, 22553359, 22553180, 22553181 & 22553360		(ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	2.2 lpm	482 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	18 th April 2024	Tiringpahar B.S mining's, Sorting yard to Dump / ST-170	Loader Operator	Mr. Bharat Chandra Mahanta (TSP/221243/0324)	Loader (OD09C 8262)	1.29	1.30	N.D
2		Tiringpahar B.S mining's, Sorting yard / ST-171	Dumper Operator	Mr. Gurucharan Naik (TSP/221220/0324)	Dumper (OD09K 6010)	1.48	1.49	N.D
3		Tiringpahar Main Gate / ST-172	Security	Mr. Harikishor Shabar (TSP/074473/0124)	-	1.63	1.67	0.0007
4		Tiringpahar Guruda Sorting yard / ST-173	Worker	Mr. Gopi Gagrai (TSP/228001/0324)	-	2.42	2.44	0.0007
5		Tiringpahar Guruda yard / ST-174	Supervisor	Mr. Sipriyan Topno (TSP/227982/0324)	-	1.57	1.59	N.D

Environmental Condition: Temperature – 37.6 °C & Rph – 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 detected in two samples but within the limit.

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature		
Date	14/05/2024	14/05/2024



PERSONAL DUST SAMPLING



TC-7882

**STARTECH LABS**

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ULR-TC7882 240000000055f

Test Report

Name of the Industry TATA Steel Limited		Date of Monitoring 29/05/2024
Address	Mn Group of Mines, JODA, Odisha-India.	Sample Received on 03/06/2024
	Name of the Mine: Tiringpahar Iron & Mn Mines.	Date of Reporting 10/06/2024
	Through: Mitra SK Pvt Ltd	Report No. STL/IH/F03/101/24
	AT/PO-Barbil Barbil - Keonjhor- 758035 India.	Standard Limit (DGMS) Respirable Dust 3 mg/m³ & Free Silica Content is < 5 %
Sampler Details 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		Method of Analysis (ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602
		Sampling Flow Rate 2.2 lpm
		Sampling Time 485 to 500 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	29 th May 2024	Tiringpahar Garuda Sorting yard / ST-209	Worker	Mr. Mukund Angariya (TSP/227981/0324)	-	1.74	1.76	N.D
2		Tiringpahar Garuda OB Dump/ ST-210	Dumper Operator	Mr. Prasanta Kumar Sahoo (TSP/228030/0324)	Dozer 21027	2.60	2.62	ND
3		Tiringpahar Garuda sorting yard/ ST-211	Supervisor	Mr. Silajetrai (TSP/079612/0620)	-	0.95	0.98	N.D
4		Tiringpahar Entry gate/ ST-212	Security	Mr. Parsati soy (TSP/075829/0124)	-	1.85	1.91	ND
5		Tiringpahar BS mines PIT-1/ ST-213	Dumper Operator	Mr. Sahru Lohra (TSP/382710/0524)	Dumper (OD09C 1374)	1.25	1.28	0.0005

Environmental Condition: Temperature - 36.6 °C & Rph - 40.65 %. [Detection Level = 0.0005 %] N. D: Not Detected

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is detected in one sample but within the limit.

Compiled By		Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature		
Date	10/06/2024	10/06/2024



PERSONAL DUST SAMPLING



TC-7882

**STARTECH LABS**QUALITY SERVICE IS OUR STRENGTH
ULR-TC788224000000076F**Test Report**

Name of the Industry TATA Steel Limited		Date of Monitoring 05/06/2024	
Mn Group of Mines, JODA, Odisha-India. Name of the Mine: Tiringpahar Iron & Mn Mines. Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil – Keonjhor- 758035 India.		Sample Received on 08/06/2024	
		Date of Reporting 01/07/2024	
		Report No. STL/IH/F08/110/24	
		Standard Limit : DGMS (Tech) Circular (MAMID)/08; Date: 29/04/2020 Respirable Dust 1 mg/m³ If Free Silica Content is < 5 %	
Address			
Sampler Details		Method of Analysis	
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		(ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	
		Sampling Flow Rate	Sampling Time
		2.2 lpm	485 to 487 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	05 th June 2024	Tiringpahar Garuda OB Dump/ ST-230	Shovel Operator	Mr. Ajith kumar Behera (TSP/227987/0324)	Shovel VOLVO EC300D L	0.89	0.90	N.D
2		Tiringpahar Garuda sorting yard/ ST-231	Supervisor	Mr. Ravikumar Gope (MW1216072415)	-	0.92	0.93	N.D
3		Tiringpahar Entry gate/ ST-232	Security	Mr. Silajirai (TSP/079612/0620)	-	0.89	0.90	N.D
4		Tiringpahar Quarry to Dump/ ST-233	Dumper Operator	Mr. Parsati soy (TSP/075829/0124)	Dumper OD09C1 374	0.80	0.80	N.D
5		Tiringpahar Iron Dump / ST-234	Loader Operator	Mr. Sahru Lohra (TSP/382710/0524)	Loader OD09C8 262	0.90	0.91	N.D

Environmental Condition: Temperature – 35.6 °C & R_pH – more than 43.6 %, [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.

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature		
Date	01/07/2024	01/07/2024



PERSONAL DUST SAMPLING REPORT

**Test Report**

Name of the Industry	TATA Steel Limited	Date of Monitoring	11/07/2024
Address	Mn Group of Mines, JODA, Odisha-India.	Sample Received on	13/07/2024
	Name of the Mine: Tiringpahar Iron & Mn Mines.	Date of Reporting	06/08/2024
	Through:	Report No.	STL/IH/G13/129/24
	Mitra SK Pvt Ltd	Standard Limit (DGMS) Respirable Dust 1 mg/m³ if Free Silica Content is < 5 %	
	AT/PO-Barbil Barbil - Keonjhor- 758035 India.		
Sampler Details		Method of Analysis	Sampling Flow Rate
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		(ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	2.2 lpm
			Sampling Time 485 to 505 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	11 th July 2024	Tiringpahar Garuda Dump / ST-322	Supervisor	Mr. Dinesh Munda (TSP/414867/0624)	-	0.79	0.80	N.D
2		Tiringpahar All Mine/ ST-323	Breaker operator	Mr. Sushanta Kumar Das (TSP/414914/0624)	SK220X DLC	0.92	0.97	N.D
3		Tiringpahar Garuda sorting yard/ ST-324	Dumper operator	Mr. Jitendra Munda (TSP/424882/0624)	OD09C3 268	0.87	0.91	N.D
4		Tiringpahar Garuda Mines Shorting yard/ ST-325	Loader operator	Mr. Bharat Chandra Mahanta (TSP/414856/0624)	OD09C8 262	0.96	0.98	N.D
5		Tiringpahar All Mine/ ST-326	Fore man	Mr. Anadi charan Patra (TSP/477208/0624)	-	0.84	0.86	N.D

Environmental Condition: Temperature - 35.6 °C & Rptl - 26 %, [Detection Level = (0.005 %)] 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 sample.

	Compiled By	Authorised By
Name	Ch. Venkatesh	Y. Raghavendra Chary
Signature	<i>Ch. Venkatesh</i>	<i>Y. Raghavendra Chary</i>
Date	06/08/2024	06/08/2024



PERSONAL DUST SAMPLING REPORT

**Test Report**

Name of the Industry TATA Steel Limited		Date of Monitoring 23/08/2024	
Address Mn Group of Mines, JODA, Odisha-India. Name of the Mine: Tiringpahar Iron & Mn Mines. Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.		Sample Received on 26/08/2024	
		Date of Reporting 04/09/2024	
		Report No. STL/IH/H26/161/24	
		Standard Limit (DGMS) Respirable Dust 1 mg/m ³ If Free Silica Content is < 5 %	
Sampler Details Make Sidekick Pump Sr. No.: ST-EQ-IH-064, ST-EQ-IH-063, ST-EQ-IH-062, ST-EQ-IH-045 & ST-EQ-IH-046		Method of Analysis (ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	
		Sampling Flow Rate 2.2 lpm	Sampling Time 485 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	23 rd Aug 2024	Garuda Sorting yard/ ST-361	Dumper Operator	Mr. Dillipkumar Hembram (TSP/568287/0824)	OD 09 V 7442	0.42	0.43	N.D
2		All Mines/ ST-362	Mines mate	Mr. Jnanaranjan Samal (181707)	-	0.50	0.51	N.D
3		Garuda Sorting yard/ ST-363	Security	Mr. Parbati Soy (TSP/075829/0124)	-	0.46	0.46	N.D
4		Main Gate/ ST-364	Security	Mr. Bharat Chandra Giri (TSP/074470/0124)	-	0.37	0.38	N.D
5		Garuda Pit/ ST-365	Civil Supervisor	Mr. Dasarathaoram (TSP/549782/0724)	-	0.52	0.52	N.D

Environmental Condition: Temperature - 25.6 °C & RH - more than 60 %. [Detection Level = 0.0005 %] N. D: Not Detected

CONCLUSION: From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature		
Date	04/09/2024	04/09/2024



PERSONAL DUST SAMPLING REPORT

**Test Report**

Name of the Industry TATA Steel Limited		Date of Monitoring 20/09/2024		
Address Mn Group of Mines, JODA, Odisha-India. Name of the Mine: Tiringpahar Iron & Mn Mines. Through: Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhor- 758035 India.		Sample Received on 23/09/2024		
		Date of Reporting 04/10/2024		
		Report No. STL/IH/H23/168/24		
		Standard Limit (DGMS) Respirable Dust 1 mg/m ³ If Free Silica Content is < 5 %		
Sampler Details		Method of Analysis	Sampling Flow Rate	Sampling Time
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		(ST/IH/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	2.2 lpm	485 to 490 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m ³)	Respirable Dust TWA (mg/m ³)	Free Silica Content (%)
1	20 th Sept 2024	Garuda Quarry-1/ ST-385	Dumper Operator	Mr. Sangramsoren (TSP/568305/0824)	OD09B7478	0.68	0.69	N.D
2		Garuda Quarry-1/ ST-386	Excavator Operator	Mr. Dillip Kumar Giri (TSP/568283/0824)	380	0.77	0.78	N.D
3		Garuda Sorting yard/ ST-387	Supervisor	Mr. Ravi Kumar Gope (TSP/568299/0284)	-	0.76	0.78	0.005
4		Garuda Sorting yard / ST-388	Worker	Mr. Selajjerai (TSP/575644/0824)	-	0.75	0.77	N.D
5		Garuda Sorting yard / ST-389	Safety Supervisor	Mr. Ahalyaram (TSP/568604/0824)	-	0.70	0.71	N.D

Environmental Condition: Temperature - 25.5 °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 detected in sample but within the prescribed limit.

	Compiled By	Authorised By
Name	S. Nagaraju	Y. Raghavendra Chary
Signature		
Date	04/10/2024	04/10/2024

