

Your (Half Yearly Compliance Report) has been Submitted with following details

Proposal No	IA/OR/MIN/240369/2020
Compliance ID	1228451980
Compliance Number(For Tracking)	EC/M/COMPLIANCE/1228451980/2026
Reporting Year	2026
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	31-05-2026
RO/SRO Name	Shri Senthil Kumar Sampath
RO/SRO Email	agmu156@ifs.nic.in
State	ODISHA
RO/SRO Office Address	Integrated Regional Offices, Bhubaneswar

Note:- SMS and E-Mail has been sent to Shri Senthil Kumar Sampath, ODISHA with Notification to Project Proponent.

**ENVIRONMENTAL CLEARANCE TO
JODA EAST IRON MINE OF TATA STEEL LIMITED**

**Vide MoEF's Letter No. J-11015/10/93-IA.II (M) dated: 18.05.1994.
EC vide Letter No. J-11015/51/2003.IA.II (M) dated: 05.04.2005.
EC vide Letter No. J-11015/215/2007-IA.II (M) dated: 12.06.2008.
EC vide Letter No. J-11015/215/2008-IA.II (M) dated: 11.03.2013.
EC vide Letter No. J-11015/215/2008-IA.II (M) dated: 29.07.2019.
EC vide Letter No. J-11015/215/2008-IA.II (M) dated:13.04.2023.**

FOR PRODUCTION OF 19.5 MTPA (ROM) OF IRON ORE

Sl. No.	EC Conditions	Compliance Status
Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II (M) dated:13.04.2023. Period of Compliance: October 2025 to March 2026		
A.	Specific conditions:	
i	The Environmental Clearance will be valid up to 31 March, 2030.	Agreed.
ii.	This Environmental Clearance will be restricted only to Joda East Iron Ore mine in the mine lease area of 612.700 ha [567.087 ha (Stage II FC available) + 45.613 ha (Non Forest land)] out of 654.743 ha [671.093 ha (Joda East Iron Ore mine) - 16.35 ha (Manmora Manganese mine)]. Mining activity will be restricted to non-forest land and the area for which Stage-II Forest Clearance (FC) available.	Being Complied. Mining operation is restricted within 567.087 ha of forest area for which diversion approval has been obtained. Additionally, we have submitted fresh application for DRP of remaining area of 32.425 ha.
iii.	The Project Proponent shall ensure that in any case total excavation should not be more than 22.94 MTPA.	We are abiding with the said condition. The total excavation during the period of FY 2025-26 is 14.10 MT.
iv.	The ground induced blasting vibrations shall be monitored regularly for every blast performed and the values of "Peak Particle Velocity" and "Air Over Pressure" shall be maintained below the permissible values prescribed by the DGMS, from time to time.	Monitoring of peak particle velocity is done during every blast and the reports are being maintained.
v.	The Project Proponent should install the continuous ambient air quality monitoring stations in such numbers as per the scientific study and in consultation with CPCB.	2 nos. Continuous Ambient Air Quality monitoring system is installed inside Mining Lease area for monitoring PM ₁₀ , PM _{2.5} , SO ₂ , NO _x and CO in the core zone on daily basis.
vi.	The Project Proponent shall get a study conducted to explore the feasibility of installation of sensor-based water sprinklers and based on the recommendations. the same shall be implemented.	Installation of Sensor based water sprinklers is under progress length. The Dust Monitoring sensor is currently under trial and the integration of sensor with the water sprinkler line is under progress.
vii.	The budget of Rs 62.21 Cr to address the concerns raised by the public including in the public hearing to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes.	Being complied. All the commitment made during PH are being implemented.

viii.	The Project Proponent shall undertake the plantation by planting the seedling of 10 ft height with at least 90% survival rate and the entire peripheral plantation and the safety barrier plantation and gap plantation shall be completed within 6 months from the start of mining operations. The casualties of each year shall be replaced every year with new saplings and such number of saplings shall not be counted in the number of saplings proposed to plant in that year. The data for such saplings should be furnished during six monthly compliance report along with the progressive plantation. PP shall undertake the progressive bench plantation up to HFL for eco restoration of water bodies. PP shall ensure that the afforestation should be only of Sal which is a native species.	Complied. Adequate number of saplings have been planted in the safety zone. More than 3000 nos. of saplings were planted during the period April to September 2025 against the target of 1573 nos. of saplings. Gap filling plantation is also carried out to replace the casualties. Sal plantation is also carried out within the mining lease area. Photographs of Plantation is attached as Annexure-1.
ix.	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training. for the assessment of the training program should be analyzed periodically and improved accordingly.	Tata Steel is conducting/ organizing apprenticeship/ internship program with stipend for local youth and other programs to enhance the skill of the local people.
x.	The Project Proponent should obtain permission for withdrawal of surface water before starting mining operations.	
xi.	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations.	Initial Medical Examination & Periodic Medical Examinations are conducted for all employees at the TSL health facility periodically and records are maintained. This is being carried in compliance to Mines Act, 1952 & Rules 1956 and amendments thereto.
B.	<u>Recommendation of CSIR-NEERI Report on "Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining Activity in Keonjhar, Sundargarh and Mayurbhanj districts of Odisha State:</u> The Committee has also deliberated the various specific recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and/or manganese in the State of Odisha. There are recommendation which needs to be implemented by the State Govt. of Odisha and Project Proponent. Based on detailed deliberations on the recommendations of the carrying capacity study report, the Committee has also recommended the following specific conditions viz.	
1)	Project Proponent and Department of Steel & Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and/or manganese in the State of Odisha.	Noted and shall be complied.
2)	Department of Steel & Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.	Noted and Agreed. TSL will adopt the necessary environmental protection measures and abide by the sustainable annual production limit mentioned in regional plan prepared by Department of Steel & Mines, Govt. of Odisha.

3)	Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road with minimum 300 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel & Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.	Being Complied. Construction of cement concrete road of length of more than 500 meters within the mine is completed.
4)	The Committee observed that as per the recommendations of NEERI report the PP needs to do regular vacuum cleaning of all mineral carrying roads aiming at "zero dust re-suspension" within 3 months. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.	Being Complied. Work order for deployment of mechanical sweeper was placed and the mechanical sweeper has been deployed. Photograph of vacuum sweeping machine is attached as Annexure-2 .
5)	Project Proponent shall monitor the environmental quality parameters as per EC and CTE/CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable Acts.	Being Complied. Mine is ensuring the strict compliance to monitoring of environmental quality parameters and implementation of air pollution control measures as per EC and CTE/CTO conditions. Joda East iron mine is regularly submitting the Half-yearly EC and compliance reports to respective authorities. TSL will continue to furnish the required information and extend all support during the site visits by statutory agencies.
6)	Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Government of Odisha. All existing mines should ensure adoption of SOTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years.	Complied. As per the Suggested Ore Transport Mode (SOTM) 100 % mineral transportation is done through rails. And mineral transportation from mines to Railway wagon is done through closed conveyers.
7)	The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/ pipelines etc. shall be submitted periodically to Regional office of the MoEF&CC.	Noted.

8)	Project Proponent shall develop the parking plazas for trucks with roper basic amenities/ facilities inside the mine. This should be done within one year for existing mines and new mines should have since beginning. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.	Not Applicable. As 100 % mineral transportation is done through rails. And mineral transportation from mines to Railway wagon is done through closed conveyers.
9)	Department of Steel & Mines shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with roadside plantation to be carried out. This shall be completed within 2 Years.	Noted and Agreed. TSL will extend any support if desired by the State Government.
10)	Regular vacuum cleaning of all minerals carrying roads aiming at "Zero Dust Re- suspension" shall be adopted by PWD/NHAI/ Mine Lease Holders within a time Period of 3 months for existing roads. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.	Being Complied. Mechanical road sweeping machine has been deployed.
11)	In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt. i.e., Dept. of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine-wise annual production scenario so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.	Noted and Agreed. TSL will abide by the guidelines issued by the Department of Steel & Mines, Govt of Odisha in this regard.
12)	R&D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of Steel & Mines, Individual Mine Lease Holders.	Being Complied. The ROM including sub-grade ore shall be beneficiated in the proposed Iron-ore processing plant being installed to beneficiate low-grade ores. Further Tata Steel's R&D Department is currently researching the technology for briquetting of slimes/ tailings.
13)	The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor	Noted and Agreed. We will abide by the directions of Department of Steel & Mines, Govt of Odisha in this regard.

	<p>belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network conveyor system for 8 mines (under SOTM 1 & 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Joda region) and Rory railway sidings in Koira region. Responsibility: Dept. of Steel & Mines, Govt. of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel & Mines, Govt. of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.</p>	
14)	<p>State Govt. of Odisha shall make all efforts to ensure exhausting all the iron & manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept. of Steel & Mines, Govt. of Odisha.</p>	<p>Noted and Agreed. We will work according to the instructions given by the Department of Steel & Mines, Govt of Odisha in this regard.</p>
15)	<p>Mining Operations/Process Related: Project Proponent shall implement the following mitigation measures: (i) Appropriate mining process and machinery (viz.right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste. e.g. drills should either be operated with dust extractors or equipped with water injection system. (ii) After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, waste water and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders. (iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders. (iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre,</p>	<p>Being complied. (i) Mining activities are carried out as per IBM approved mining plan. Due diligence is exercised for machinery selection. All drilling machines are equipped with in-built dust extraction/ suppression system which has an interlock which prohibits drilling without water. (ii) The fleet of dumpers has been continually upgraded and currently we only have 100T L&T Komatsu make HD785 dumpers which are fuel-efficient, generate very less noise and contribute to less GHG emissions. Timely maintenance schedule is maintained, and records are maintained. (iii) A state-of-the-art Fleet Management System has been adopted which gives a real-time information of fuel consumption, productivity and health of the machinery (dumpers, excavators, drills, dozers, etc). This digitalization initiative contributes significantly to monitor and reduce fuel consumption and increase productivity. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles are being done as per manufacturer's instructions/ recommended time schedule and record is maintained. Digital processing of the entire lease area using remote sensing technique is being carried out annually with inputs from ORSAC for monitoring the land use pattern and the mining activity and also the area</p>

	Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted/ authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders. Responsibility: Individual Mine Lease Holders.	excavated in Pits is being demarcated based on the remote sensing analysis. TSL has engaged ORSAC for the same.
16)	<p>Air Environment Related: Project Proponent shall implement the following mitigation measures: (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard. (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10, PM2.5, SO2, NOx and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity. (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PM10, PM2.5, SO2, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral. (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate), Responsibility: Individual Mine Lease Holders and SPCB.</p>	<p>Being Complied.</p> <p>i) Fugitive dust emissions from all the sources are being controlled regularly on daily basis. The fugitive dust monitoring report is attached as Annexure-3. A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned. All feed hoppers where ore is unloaded, and all transfer chutes have been provided with dry-fog dust suppression system. The photographs of same are attached as Annexure-4. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms.</p> <p>ii) 2 nos. Continuous Ambient Air Quality monitoring system is installed inside Mining Lease area for monitoring PM₁₀, PM_{2.5}, SO₂, NOx and CO in the core zone on daily basis. Four manual ambient air quality monitoring stations have been established in the core zone for PM₁₀, PM_{2.5}, SO₂, NOx and CO monitoring. Monitoring is done by NABL accredited lab and the reports are submitted to Board regularly. AAQ Monitoring report is attached as Annexure-5.</p> <p>(iii) We have one CAAQMS station in the buffer zone and the data is transmitted to SPCB server.</p> <p>(iv) Vehicular emission checks of all the wheel mounted HEMMs are done at regular intervals. Maintenance of mining equipment is done on regular basis. It is mandatory for any vehicle entering the mine premises to have a valid fitness certificate.</p>
17)	Noise and Vibration Related: Project Proponent shall implement the following mitigation measures: (i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. (ii)	<p>i) Blasting operation are being carried out during daytime only. Blasting is done using the controlled blasting technique. In this regard, one study has been made by CIMFR (Central Mining & Fuel Research Institute), Dhanbad and recommendations therein are being followed.</p>

	<p>Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs. (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored atleast once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.</p>	<p>Initiation system is through either NONEL/electronic detonation system so as to ensure minimal ground vibration.</p> <p>ii) Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy operations have been identified and persons engaged in such operations are provided with ear plugs/muffs.</p> <p>(iii) Monitoring of Noise level are being done regularly at the identified major sources of noise generation within core zone.</p> <p>Necessary efforts are made to maintain the noise level with in the acceptable limits of CPCB (CPCB, 2000). We will follow these instructions accordingly.</p> <p>iv) All efforts are taken to ensure that blast-induced ground vibrations remain within safe limits by using NONEL/ electronic detonation system. Vibration monitoring is done for every blast and records maintained thereof and their recommendations are strictly followed. CIMFR also studies the ground-vibration and suggests the mine management best blasting practices.</p>
18)	<p>Water/Wastewater Related: Project Proponent shall implement the following mitigation measures: (i) In general, the mining operations should be restricted to above ground watertable and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro-geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately. (ii) Natural watercourse and/or water resources should not be outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately. (ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis.(iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis. (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater</p>	<p>Being Complied.</p> <p>i) Based on observations from nearby wells and water bodies, the water table in the area is about 498.3 mRL. Whereas the maximum depth at conceptual stage is considered to be 580 mRL. Hence, throughout the course of mining operations, the ground water table will remain undisturbed, and the mining operation will not intersect ground water table.</p> <p>ii) No perennial nala / stream passes through the mining lease area.</p> <p>iii) Regular monitoring of ground water level on monthly basis and its quality on quarterly basis is being carried out within the mine lease area and surrounding areas. A network of dug wells and borewells with piezometers already exists for this purpose.</p> <p>iv) During monsoon, accumulated mine pit water is not discharged outside and is allowed to seep through to augment the ground water resources.</p> <p>v) Due to area constraint inside the mine lease area rainwater harvesting ponds have been constructed in the buffer zone for ground water recharge. Further all the surface runoff generated is directed to mine pit where it is allowed to settle and augment ground water table.</p> <p>vi) Appropriate mitigation measures (viz. garland drains, retaining walls, collection of runoff etc.) are taken to prevent pollution of nearby river/other water bodies. The water quality monitoring is being carried out regularly by NABL accredited laboratory.</p>

	<p>harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region. (vi) Appropriate mitigation measures (viz. ETP, P, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable. (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable. (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization. (x) Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls. (xi) Trenches/garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis. (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.</p>	<p>vii) There is no industrial wastewater being generated at Joda East iron mine. Maintenance of HEMMs is done centrally at Workshop and treated water is reused for vehicle washing purpose.</p> <p>viii) A 20 along with Oil and Grease trap is installed to treat all the effluent generated from washing of HEMM's in workshop. STPs have been installed in the township located outside Joda East Iron mine lease areas.</p> <p>ix) Through a series of retention wall, garland drain, settling pits and check dams, it is ensured that no silt originating due to mining activity is transported in the surface water course or any other water body.</p> <p>x) Adequate measures to prevent soil erosion like grass plantation/ coir matting on dump slopes are practiced. Further plantation with native species is done on all dump slopes. Dumps are protected by retaining walls.</p> <p>xi) Garland drains are constructed at the foot of the dumps to arrest silt. Check dams have been constructed for retention of suspended solids and allowing flow of clear water. This prevents contamination of outside water bodies from the wash-offs of the lease area. The check dams are periodically de-silted to keep them efficient.</p> <p>xii) The mine pit water is utilized for water sprinkling on haul roads and for plantation activities.</p> <p>xiii) There is zero waste-water discharge by the mine and it will be maintained in the future as well.</p> <p>Optimization of the water consumption will be done to reduce the specific water consumption year-on-year.</p>
19)	<p>Land/ Soil/ Overburden Related: Project Proponent shall implement the following mitigation measures: (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately. (ii) Fodder plots should be</p>	<p>Being Complied.</p> <p>i) Preservation of topsoil: No topsoil generated during the reporting period. Previously generated topsoil has been utilized for the purpose of green belt development, dump stabilization & horticulture activities.</p> <p>ii) Its being followed.</p>

	<p>developed in the non-mineralized area in lieu of use of grazing land, if any. (iii) Over burden/ low grade ore should be stacked at earmarked dump site (s) only and should not be kept active for long period. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run o. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc. (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil. OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals. (v) Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating. (vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed off as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual Mine Lease Holders.</p>	<p>iii) OB/ low grade Ore are stacked at earmarked dump sites as per the approved Mining Plan. Dump stability studies have been conducted by CIMFR, Dhanbad scientists and as per the recommendation of their experts, the height of the dump will be maintained. The measures for dump management as suggested are already being implemented to take care of any erosion and for its stabilization. The plantation is monitored and maintained till it becomes self-sustaining. The records pertaining to plantation – species name, growth, area coverage is maintained at the mine.</p> <p>iv) Garland drains, Check dams and settling pits have been provided at appropriate places to arrest silt and sediment flows to ensure that only clear water will leave from lease boundary. The water collected is used for dust suppression and green belt development. The structures are regularly de-silted and maintained properly. Garland drains has been already constructed for the dumps as per the approved mine plan. Settling pits of adequate capacity has already been provided.</p> <p>v) Back filling of the area will be done as per the approved mining Plan.</p> <p>The afforestation of the dumps will be done accordingly.</p> <p>vi) Hazardous wastes management is being done as per the provisions of Hazardous Waste Management Rules, 2016.</p>
20)	<p>Ecology/Biodiversity (Flora-Fauna) Related: Project Proponent shall implement the following mitigation measures: (i) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department. (ii) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the</p>	<p>Being Complied.</p> <p>i) A detailed Site-Specific Wildlife Conservation Plan has been approved.</p> <p>ii) We are taking all the suggested measures like selection of the correct local species mix, fruit-species plantation, etc. to enhance the biodiversity of the region.</p> <p>iii) Green belt development done is monitored till it becomes self-sustaining. Relevant records as mentioned are being maintained by the horticultural specialist.</p> <p>iv) We have a Biodiversity Management Plan prepared by IUCN experts. It contains the list of native species suited for plantation in all conditions including for dust removal/ dust capturing plants.</p>

	<p>biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner. (iii) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species/grass species/scrubs etc., distance between the plants and survival rate should be recorded. (iv) Greenbelt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation. (v) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value. (vi) Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details. Responsibility: Individual Mine Lease Holders and State Forest & Wildlife Department.</p>	<p>v) In consultation with IIT Kharagpur, Tata Steel has undertaken vetiver plantation in order to stabilize OB dumps. vi) This is under the scope of State Forest Department.</p>
21)	<p>Socio-Economic Related: Project Proponent shall implement the following mitigation measures: (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region. (ii) Land outeers and land losers/affected people, if art should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation. (iii) The socio-economic development in the region should be focused and aligned with the guidelines/initiatives of Govt. of India/ NITI Aayog around prosperity. equality, justice, cleanliness, transparency. employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for "Samagra Vikas of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY), notified by Ministry of Mines, Govt. of India, vide letter no. 16/7/2017-M.VI (Part),</p>	<p>Being Complied. i) We have a separate wing named Tata Steel Foundation who take care of the social welfare activities and for the well-being and upliftment of the people residing near the project. They interact regularly with the local communities to identify their needs and requirement and accordingly plan the yearly activities in all the listed themes. ii) There is no case of displacement of people due to the project. iii) TSL is already supporting the State Government in facilitating the development of schools, conducting health camps, construction of medical facilities, provision of training and skill development programs, etc. and will continue to extend support in future too.</p>

	dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders.	
22)	Road Transport Related: Project Proponent shall implement the following mitigation measures: (i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC capacity within next 5 years. (ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the mine. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport. (iii) Transportation of ore should be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takes place. Further, air quality in terms of dust, PM10 should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Holders and Dept. of Steel & Mines.	Being Complied. i) Joda East Iron Mine is abiding by the SOTM system. ii) 400 meters of concrete road within the mine lease area is completed. Maintenance of all roads under TSL control is being done regularly to ensure dust-free road transport. iii) Transportation of final product is done through rail.
23)	Occupational Health Related: Project Proponent shall implement the following mitigation measures: (i) 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 periodically. (ii) Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed. (iii) Occupational health and safety measures related awareness programs including identification of work related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer).	Being Complied. i) Personal Protective Equipment for working in dusty areas are provided to all personnel. Periodic training on safety and health aspects is carried out at the training center. ii) Initial Medical Examination & Periodic Medical Examinations are conducted for all employees at the TSL health facility periodically and records are maintained. This is being carried in compliance to Mines Act, 1952 & Rules 1956 and amendments thereto. The occupational health surveillance shows that there is no occurrence of any kind of occupational health diseases. iii) Awareness programs on Occupational Health and Safety are being done regularly by our central medical team located at Jamshedpur. Similar programs are arranged at site level to include all the contract workers as well. A Central Hospital located at Joda caters to Joda East iron mine. A full-time Occupational Health Specialist has been appointed in the hospital for periodic health check-up of employees and contractual workers. A program called Wellness-at-Workplace is being conducted at the mine and health of all mine workers is checked and monitored every month. All the health records are maintained. We will follow and implement the additional suggestions as provided.
C.	Standard Conditions	
I.	Statutory Compliance	
(1)	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.	Noted.
(2)	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ	Noted and complied.

	Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.	
(3)	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any. for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2 August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus. Union of India & Ors.	Noted and complied.
(4)	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".	Complied. All the conditions mentioned in the MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014 are being followed.
(5)	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any. from whom suggestion / representation has been received while processing the proposal.	Complied. A copy of EC was given to MS, OSPCB and Addl. PCCF was provided. EC copy was also given to President, ZP Keonjhar and Chairman, Joda.
(6)	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.	Compiled from State Pollution Control Board, Odisha.
(7)	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.	Complied. Details of Environmental Clearance about Joda East Iron Mine was published in local newspapers (English Daily, New Indian Express and in Oriya (Dainik Jagran).
(8)	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.	Noted.
II.	Air quality monitoring and preservation	
(9)	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for	Being Complied. Three continuous ambient air quality monitoring stations are installed in the core zone(two) and buffer zone(one) of mine lease area. Various parameters such as PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO are being monitored as per guidelines. Four manual ambient air quality

	<p>mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.</p>	<p>monitoring stations are installed at prominent places such as magazine, main-gate etc. and monitoring is done on regular basis. The data is also been displayed using electronic display board in public domain.</p>
(10)	<p>Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.</p>	<p>Being Complied. Fugitive dust emissions from all the sources are being controlled regularly on daily basis. A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire width of the haul road has been commissioned. All feed hoppers where ore is unloaded, and all transfer chutes have been provided with dry-fog dust suppression system. HINCOL dust-a-side chemical is being used for better effectiveness of dust control by water sprinkling. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms.</p>
III.	Water quality monitoring and preservation	
(11)	<p>In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.</p>	<p>Being Complied. Based on observations from nearby wells and water bodies, the water table in the area is about 498.3 mRL. Whereas the maximum depth at conceptual stage is considered to be 580 mRL. Hence, throughout the course of mining operations, the ground water table will remain undisturbed, and the mining operation will not intersect ground water table. Currently, the mining operation is restricted above the ground water table and shall not intersect the ground water table, in case of working below prior approval from MoEF&CC & CGWA shall be obtained. For domestic use and other purposes, the mine has been granted renewal of CGWA NOC (460m3/day) issued vide no. CGWA/NOC/MIN/REN//2/2025/10891, dated 22.02.2025.</p>
(12)	<p>Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State</p>	<p>Being Complied. Ground water quality and Ground water level are being monitored periodically in and around the lease areas. All the monitoring results are being submitted to regulatory agencies.</p>

	Groundwater Department / State Pollution Control Board.	
(13)	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.	Being Complied. No perennial nallah/stream present in the mine lease area. Water quality monitoring of nallahs present outside the mine lease area is done regularly and the reports are submitted to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
(14)	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS). Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.	Being Complied. A workshop is present in the mine lease area, the wastewater generate from washing ramp is treated through 10 KL capacity ETP and the treated water is reused for vehicle washing purpose and there is no generation of wastewater. All the surface runoff is allowed to pass through garland drains, check dams and then settling pit. The monitored data is displayed on an electric display board. The photograph of the display board is attached as Annexure-6 .
(15)	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.	Being Complied. Due to area constraint inside the mine lease area multiple ponds have been constructed in the buffer zone for ground water recharge. Further all the surface runoff generated is directed to mine pit where it is allowed to settle and augment ground water table
(16)	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.	Being Complied. A ETP is of 10 KLD capacity with Oil and grease trap facility is installed for treating the effluent generated from common workshop at Joda East iron mine.
(17)	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional	Being Complied.

	Office of the MoEF&CC and State Pollution Control Board/Committee.	There is zero waste-water discharge by the mine, and it will be maintained in the future as well. Water audit is carried out by an accredited consultant from CGWA, and the improvements suggested are being carried out to reduce consumption of water. Optimization of the water consumption will be done to reduce the specific water consumption year-on-year.
IV.	Noise and vibration monitoring and prevention	
(18)	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.	Being Complied. Monitoring of peak particle velocity is done during every blast and the reports are being maintained.
(19)	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day/night hours.	Being Complied. The illumination & sound has been done in such a way that the villagers are not disturbed. In addition to this we are planning to install noise barriers around the crushing and screening plant to significantly reduce the noise.
(20)	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.	Being Complied. Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy operations have been identified and persons engaged in such operations are provided with ear plugs/muffs.
V.	Mining plan	
(21)	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.	Being Complied. Total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining etc. shall be adhered to the Mine Plan.
(22)	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and	Noted. Land-use of the mine lease area shall be governed as per the approved mining plan. Excavation, backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area are governed as per approved mining plan. Report on plantation

	management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.	activities is being submitted regularly to the Board along with monthly reports.
VI.	Land reclamation	
(23)	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB/waste dumps/topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.	Being Complied. Over burden is stacked at the earmarked places only. The slopes of the OB dumps are terraced, and the overall slope angle is maintained. Generation of topsoil is very minimal because no fresh area is being broken for mining and the topsoil generated, is being kept at the earmarked site(s) only inside the mining lease area and is being used for plantation & other vegetation & grassing activities. The inactive dump slopes are covered with geo-textile coir-mat and vegetated with native species, grass seeds and vetiver grass for better slope stabilization.
(24)	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ levelling of dump mass. In critical areas, use of geo textiles/geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.	Being Complied. Slope of the dumps are being stabilized by coir matting and vetiver grassing etc.
(25)	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.	Being Complied. There is no discharge of any industrial effluent outside the mine lease. All the garland drains, settling pits and check dams of appropriate size, gradient and length been constructed both around the mine pit and over burden dump(s) to prevent run off water and flow of sediments directly into water bodies. Photographs of toe wall, garland drain and settling pits are attached as Annxure-7 .
(26)	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/sumps shall be constructed at the comers of the garland drains.	Being Complied. All the garland drains, settling pits and check dams of appropriate size, gradient and length been constructed as per progressive mine closure plan both around the mine pit and over burden dump(s) to prevent run off water and flow of sediments directly into water bodies.
VII.	Transportation	

(27)	<p>No Transportation of the minerals shall be allowed in case of roads passing through villages/habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].</p>	<p>Not applicable. As transportation is being carried out by railways.</p>
(28)	<p>The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.</p>	<p>Being Complied. A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned. All feed hoppers where ore is unloaded, and all transfer chutes have been provided with dry-fog dust suppression system. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms.</p>
VIII.	Green Belt	
(29)	<p>The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.</p>	<p>Being Complied. The green belt has been developed with native species on all along the safety zone and other area.</p>
(30)	<p>The Project Proponent shall carryout plantation/afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local</p>	<p>Being Complied. The species include Calotropis gigantean, ficus species, Pedilanthus, <i>Cynodon dactylon</i>, <i>Saccharum spontaneum</i>, <i>Bougainvilleas</i>, <i>Yellow durenta</i>, etc. are planted. <i>Saccharum spontaneum</i> planted on slime pond, shown encouraging results, which control the erosion bind the material and adequately covers the ground vegetation.</p>

	people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.	
(31)	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/protected against felling and plantation of such trees should be promoted.	No grazing land has been acquired.
IX.	Public hearing and human health issues	
(32)	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.	Being Complied. Township has been developed at Joda West Mn Mines (adjacent to Joda East mine) for workers with all the adequate facilities such as hospital, schools, STP etc.
X.	Corporate Environment Responsibility (CER)	
(33)	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.	Being Complied. Time bound action plan for undertaking the activities during Public Consultation has already been followed and submitted.
XI.	Miscellaneous	
(34)	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.	Being Complied. The digital processing of entire lease area is being carried out regularly. The current land use pattern is made by M/s Geo Consultants Pvt. Ltd. the authorized agency by ORSAC, Bhubaneshwar.
(35)	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable. Joda East iron mine is an operational Iron mine of Tata Steel Ltd from last several decades. Thus financial closure & it's approval is not applicable.
(36)	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental	Being Complied. Six monthly compliance reports are being submitted regularly on the status of

	safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.	implementation of the stipulated environmental safeguards to the MoEF&CC, its Regional Office Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.
(37)	A separate 'Environmental Management Cell with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.	Being Complied. A separate environmental management cell is in place with people having relevant qualification on environmental science. Organization has adequate environmental reporting system for adequate decision making.
(38)	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.	Full cooperation shall be extended to the officers in furnishing the requisite data/ information/ monitoring reports.
(39)	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.	Being Complied. Shall be complied after ceasing of mining operations. Although concurrent grassing of the area is undertaken which has been already explained earlier.
(40)	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Noted.
(41)	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.
D.	Standard EC Conditions for Mineral Beneficiation Plants:	
I.	Statutory compliance:	
1)	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.	Complied. Mining operation is restricted within 567.087 ha of forest area for which diversion approval has been obtained. Additionally, we have submitted fresh application for DRP of remaining area of 32.425 ha.
2)	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not applicable.
3)	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be Implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance	Complied. A detailed Site-Specific Wildlife Conservation Plan has been approved.

	report. (in case presence of schedule-I species in the study area).	
(4)	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.	Noted. We shall abide by the said condition.
(5)	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water from the competent authority concerned in case of drawl of surface water required for the project.	Being Complied. For domestic use and other purposes, the mine has been granted renewal of CGWA NOC (460m ³ /day) issued vide no. CGWA/NOC/MIN/REN//3/2025/10891, dated 22.02.2025.
(6)	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.	Complied. Hazardous wastes Authorization has been obtained as per the provisions of Hazardous Waste Management Rules, 2016.
II.	Air quality monitoring and preservation	
(7)	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.	Not applicable. There is no stack emission from Joda East iron mine.
(8)	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120°each). covering upwind and downwind directions.	Being Complied. Fugitive dust emissions from all the sources are being controlled regularly on daily basis. The fugitive dust monitoring report is attached as Annexure-8 .
(9)	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120°each), covering upwind and downwind directions.	Being Complied. Two nos. Continuous Ambient Air Quality monitoring system is installed inside Mining Lease area for monitoring PM ₁₀ , PM _{2.5} , SO ₂ , NO _x and CO in the core zone on daily basis.
(10)	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional	Not applicable. There are no stack emission from Joda East iron mine.

	Office of SPCB along with six-monthly monitoring report.	
(11)	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	Being Complied. A network of fixed water sprinklers has been laid on permanent haul roads. Mobile water tankers of large capacity namely 50 KL which can cover the entire the entire width of the haul road has been commissioned. All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system. Mist cannons have placed at strategic points to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms.
(12)	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.	Not applicable. As transportation is carried out by railways.
(13)	Wind shelter fence and chemical spraying shall be provided on the raw material stockpiles.	Being Complied. Mist cannon is being deployed for wetting of raw material stockpiles.
(14)	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.	Not applicable.
III.	Water quality monitoring and preservation	
(15)	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Not applicable. We are practicing ZLD from Joda East iron mine.
(16)	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.	Being Complied. Ground water quality and Ground water level are being monitored periodically in and around the lease areas. All the monitoring results are being submitted to regulatory agencies.
(17)	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Being Complied. Ground water quality and Ground water level are being monitored periodically in and around the lease areas. All the monitoring results are being submitted to regulatory agencies.
(18)	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.	Being Complied. After mineral processing in wet plant, the slime slurry is thickened in the thickener and pumped to the slime pond, where slime settles down and decanted water is recycled back to circuit. All the slime slurry is sent only to mined-out voids which have been converted

		into in-pit slime ponds. The decanted water from the slime pond is completely recycled & reused in the beneficiation plant and generated slime is stored for future use like briquette making. Thus, no water is being discharged to outside mining lease area.
(19)	Adhere to 'Zero Liquid Discharge	Being Complied. There is zero waste-water discharge by the mine and it will be maintained in the future as well.
(20)	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	Being Complied. One STP of capacity 10 KLD has been established.
(21)	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Being Complied. Garland drains with settling pits have been constructed all along the OB dumps. Settling pits have also been provided to arrest the silt flow from mines area. The de-siltation of these check dams, settling pits are done regularly and properly maintained. Sedimentation pits have been constructed at the corners of the garland drains to take care of run-off of water even during peak rain fall and they are being de-silted regularly before and after the monsoon. Garland drains, settling tanks and Check dams had been constructed both around the mine pit and over burden dump(s).
(22)	The project proponent shall practice rainwater harvesting to maximum possible extent.	Being Complied. Due to area constraint inside the mine lease area 96 nos. of ponds have been constructed in the buffer zone for ground water recharge.
(23)	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.	Not applicable.
IV.	Noise monitoring and prevention	
(24)	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	Being Complied. Noise monitoring is carried out on monthly basis.
(25)	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.	Being Complied. And the noise results are well within the prescribed norms.
V.	Energy Conservation measures	
(26)	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.	Being Complied. Solar lights are provided for all common areas, street lights etc.
(27)	Provide LED lights in their offices and residential areas.	Complied. LED bulbs are provided at all office and residential areas.

VI.	Waste management	
(28)	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.	Being Complied. Hazardous wastes management is being done as per the provisions of Hazardous Waste Management Rules, 2016.
(29)	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant.	Being Complied. Organic Waste converter has been installed to convert kitchen waste to compost which further gets used in plantation.
VII.	Green Belt and EMP	
(30)	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant	Being Complied. Green belt development done is monitored till it becomes self-sustaining. Relevant records as mentioned are being maintained by the horticultural specialist.
(31)	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	Being Complied. GHG emission inventory is being prepared and plan for reduction of the same including carbon sequestration including plantation.
VIII.	Public hearing and Human health issues	
(32)	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Being Complied The company's commitment in the area of Health & Safety is well supported by implementation of: Safety Principles & Occupational Health Policy Occupational Health & Safety Management System (ISO 45001:2018). Hazards in work place are identified as a part of occupational health policy and appropriate control measures are in place to protect the health and well-being of workers. Various awareness programs regarding health, sanitation etc. have been conducted with the help of Tata Steel Foundation (TSF). The health-related initiatives in place are- <ul style="list-style-type: none"> • Megahealth camps, Malaria parasite control programme, Cataract surgery camp, Prenatal care. • MANSI project: Reducing infant and maternal mortality. • Providing financial assistance and waivers for needy patients, on a case-to-case basis.
(33)	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.	Being Complied. All the personnel working in dusty areas are provided with protective respiratory devices such as masks and also provided adequate training and information on safety and health aspects.
(34)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Being Complied Township has been developed for workers with all the adequate facilities such as hospital, schools, STP etc.

(35)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	<p>Being Complied.</p> <p>Pre-placement medical examination and periodical examination of the workers engaged is being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 45 years and once in 5 years for the employees of age less than 45 years.</p> <p>Some of the best practices related to occupational health adopted in mine are:</p> <ul style="list-style-type: none"> • Employees' health check-up under Wellness @ workplace program • Health awareness classes on weekly basis for shop floor employees • Officers' health check-up on yearly basis for lifestyle disease • Counselling to high blood pressure, sugar cholesterol, hypertension employees through medical board • Observation of important health days like World No Tobacco Day, AIDS day, Heart Day, Diabetic day etc • Display of calorie chart in canteens alongside the menu.
IX.	Corporate Environment Responsibility	
(36)	The Project Proponent shall submit the time bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.	<p>Being Complied</p> <p>All the activities proposed during Public Consultation are being implemented.</p>
(37)	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation/violation of the environmental / forest I wildlife norms/conditions and/or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	A well laid down environment policy has been approved by the Board of Directors
(38)	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	<p>Being Complied</p> <p>A separate environmental management cell is in place with people having relevant qualification on environmental science. Organization has adequate environmental reporting system for adequate decision making.</p>
(39)	Action plan for implementing EMP and environmental conditions along with responsibility	Being Complied

	matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and account and id not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.	All the activities proposed in EMP are being implemented
(40)	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.	Being Complied. Annual Self-environmental audit is being conducted. Third party environmental audit shall be carried out by 3 rd party.
(41)	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.	Shall be complied.
X.	Miscellaneous	
(42)	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Being Complied. Details of Environmental Clearance about Joda East Iron Mine was published in local newspapers (English Daily, New Indian Express and in Oriya (Dainik Jagran) on 16.03.2013.
(43)	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	Complied. A copy of EC was given to MS, OSPCB and Addl. PCCF was given vide letter MD/ENV/104/102/2013. and MD/ENV/105/102/2013 respectively. EC also given to President, ZP Keonjhar and Chairman, Joda.
(44)	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	Being Complied. Six monthly compliance reports are being submitted regularly on the status of implementation of the stipulated environmental safeguards on the company website.
(45)	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	Being Complied. Four manual ambient air quality monitoring stations have been established in the core zone for PM ₁₀ , PM _{2.5} , SO ₂ , NOx and CO monitoring. Monitoring is done by NABL accredited lab, and the reports are submitted to Board regularly.
(46)	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Being Complied. Six monthly compliance reports are being submitted regularly on the status of implementation of the stipulated environmental safeguards to the MoEF&CC, its Regional Office Bhubaneswar, Central Pollution Control Board and State Pollution Control Board and on PARIVESH portal.
(47)	The project proponent shall submit the environmental statement for each financial year in	Being Complied.

	Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Annual environment statement in Form-V is submitted to concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 and the same is uploaded on company website.
(48)	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.	Not applicable. Joda East is an operational Iron mine of Tata Steel Ltd from last several decades. Thus, financial closure & it's approval is not applicable.
(49)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.	Noted.
(50)	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee. art	Being Complied All the activities proposed during Public Consultation are being implemented.
(51)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Noted.

Plantation Photographs



Mechanical Sweeping Machine



Summarised Fugitive Dust Monitoring Report					
Joda East Iron Ore Mine of M/s Tata Steel Limited					
Period: October 2025 to March 2026					
Mine Location	Sampling Location	Month	Unit	Results	Norms
Joda East Iron Ore Mine	Crushing & Screening Plant	October 2025	µg/m3	522.90	1200
		November 2025	µg/m3	568.50	1200
		December 2025	µg/m3	510.00	1200
		January 2026	µg/m3	497.00	1200
		February 2026	µg/m3	688.28	1200
		March 2026	µg/m3	685.30	1200
	Loading & Stacking	October 2025	µg/m3	466.10	1200
		November 2025	µg/m3	478.00	1200
		December 2025	µg/m3	533.00	1200
		January 2026	µg/m3	529.00	1200
		February 2026	µg/m3	595.28	1200
		March 2026	µg/m3	644.15	1200
	Haul Road	October 2025	µg/m3	420.90	1200
		November 2025	µg/m3	405.50	1200
		December 2025	µg/m3	637.00	1200
		January 2026	µg/m3	515.00	1200
		February 2026	µg/m3	621.66	1200
		March 2026	µg/m3	518.61	1200
	Waste Dump Site	October 2025	µg/m3	388.70	1200
		November 2025	µg/m3	430.00	1200
		December 2025	µg/m3	569.00	1200
		January 2026	µg/m3	536.00	1200
		February 2026	µg/m3	784.24	1200
		March 2026	µg/m3	721.36	1200
Mining Face (Near Drill)	October 2025	µg/m3	599.00	1200	
	November 2025	µg/m3	616.00	1200	
	December 2025	µg/m3	533.00	1200	
	January 2026	µg/m3	503.00	1200	
	February 2026	µg/m3	526.26	1200	
	March 2026	µg/m3	560.93	1200	

Air Quality Management: JEIM

Use of fixed watersprinklers at haul roads for dust suppression



Use of water Mist Canon for dust suppression



Use of Dry fog system at all transfer points in plants



Use of mobile tankers for water sprinkling on haul roads



**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Oct- 25	60.9	22.0	12.0	21.9	BDL	53.1	23.8	11.9	20.5	BDL	59.8	20.9	12.0	20.8	BDL	60.7	21.6	11.6	22.2	BDL
Nov- 25	56.1	25.6	8.4	15.3	BDL	49.3	20.3	7.6	12.9	BDL	55.6	22.6	8.6	14.0	BDL	60.5	27.8	10.0	18.7	BDL
Dec- 25	57.7	19.6	11.9	21.3	BDL	68.2	28.7	10.5	24.1	BDL	64.5	22.8	10.9	23.2	BDL	59.2	23.6	13.8	20.7	BDL
Jan- 26	59.8	21.8	18.7	24.3	BDL	56.8	19.9	14.9	18.4	BDL	64.0	21.4	21.3	23.4	BDL	62.7	24.4	18.3	20.2	BDL
Feb- 26	70.1	32.1	14.5	22.0	BDL	67.2	30.3	13.3	26.7	BDL	73.9	31.8	13.9	25.2	BDL	72.8	34.9	12.7	22.9	BDL
Mar- 26	73.5	35.7	13.9	19.7	BDL	70.7	31.9	11.9	16.8	BDL	69.8	29.6	13.0	18.0	BDL	70.9	32.8	12.8	17.0	BDL

BDL (LOQ-0.5)

AVERAGE AIR QUALITY REPORT

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Oct- 25	59.6	20.1	11.0	20.9	BDL	58.2	23.6	11.5	22.2	BDL	50.8	20.1	9.3	18.0	BDL	60.5	21.4	11.2	23.1	BDL
Nov- 25	52.5	22.8	8.1	14.3	BDL	52.1	20.0	8.2	15.5	BDL	63.0	28.1	10.6	17.9	BDL	61.1	30.2	9.8	18.4	BDL
Dec- 25	66.9	24.5	11.2	23.5	BDL	58.7	23.0	14.0	24.4	BDL	59.0	22.3	15.2	23.9	BDL	59.3	24.0	13.9	23.6	BDL
Jan- 26	59.6	20.9	11.5	21.7	BDL	59.4	22.2	15.1	23.9	BDL	59.3	22.1	15.4	23.6	BDL	58.4	21.7	8.7	15.6	BDL
Feb- 26	60.3	21.5	9.1	17.0	BDL	59.8	22.6	10.3	17.2	BDL	59.9	22.7	7.7	18.1	BDL	58.8	22.1	7.4	14.3	BDL
Mar- 26	60.0	22.5	6.5	12.2	BDL	59.4	23.2	7.0	13.5	BDL	60.2	23.8	6.9	12.8	BDL	59.2	23.1	7.5	9.8	BDL

BDL (LOQ-0.5)

Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Digital Display Board



Garland Drains, Toe Walls, Settling Pits: JEIM

Garland Drains, Toe wall & Settling pits



**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Apr 25	66.2	23.8	12.2	23.8	BLQ	53.2	20.9	11.7	22.1	BLQ	64.1	28.0	11.4	24.3	BLQ	62.7	23.3	11.5	21.9	BLQ
May 25	67.1	24.4	13.1	23.2	BLQ	62.1	21.8	12.3	22.2	BLQ	62.0	22.0	12.6	24.0	BLQ	64.3	23.6	13.6	23.0	BLQ
Jun 25	65.3	24.0	13.4	23.2	BLQ	65.7	26.3	13.6	23.6	BLQ	63.8	23.8	13.4	23.4	BLQ	61.9	21.9	12.7	21.4	BLQ
Jul 25	62.7	25.8	12.5	22.3	BLQ	62.7	25.3	12.8	26.0	BLQ	59.5	25.0	11.5	23.4	BLQ	63.5	24.8	13.3	22.6	BLQ
Aug 25	60.8	23.2	13.9	23.1	BLQ	55.1	21.0	10.6	19.3	BLQ	55.2	20.7	11.1	20.4	BLQ	54.5	20.6	10.9	19.8	BLQ
Sept 25	60.3	25.9	11.5	30.3	BLQ	65.6	28.1	12.9	28.5	BLQ	54.4	22.6	8.7	26.7	BLQ	60.0	26.7	10.2	29.8	BLQ

BLQ (LOQ-0.5)

AVERAGE AIR QUALITY REPORT

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Apr 25	50.1	17.3	8.8	19.4	BLQ	50.4	17.3	12.0	19.8	BLQ	58.9	24.3	13.4	22.6	BLQ	49.0	19.5	13.2	22.1	BLQ
May 25	59.9	21.4	12.1	24.0	BLQ	57.7	20.5	10.8	21.7	BLQ	57.8	19.9	10.9	22.6	BLQ	55.2	18.0	8.4	19.4	BLQ
Jun 25	58.6	19.8	10.7	20.0	BLQ	59.4	21.3	11.8	20.4	BLQ	60.3	20.8	12.0	22.7	BLQ	53.3	20.5	11.1	18.6	BLQ
Jul 25	56.6	21.9	12.4	22.8	BLQ	63.5	24.2	13.0	24.6	BLQ	52.9	21.2	13.1	20.6	BLQ	53.8	20.5	12.5	21.0	BLQ
Aug 25	59.1	22.4	10.8	18.1	BLQ	52.4	20.9	11.3	20.9	BLQ	51.1	18.9	9.8	19.1	BLQ	58.5	21.0	10.5	20.3	BLQ
Sept 25	58.7	23.0	11.0	19.6	BLQ	58.6	20.5	11.5	18.9	BLQ	61.5	24.2	11.4	21.7	BLQ	59.9	28.9	12.6	23.5	BLQ

BLQ (LOQ-0.5)

Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
A	Specific Condition	
(i)	<p>The mining activity will be restricted to the mine lease area for which the earlier EC is granted (i.e. (567.9087 ha (Forest Clearance available) + 62.187 ha= 629.274 ha.). Furthermore, no mining activity will be allowed in remaining forest land (41.819 ha) till PP get the forest clearance.</p>	<p>The present mining operation is restricted within 567.087 ha of forest land for which Forest Clearance has been obtained under the Forest (Conservation) Act, 1980 vide letter no. F. No. 8-32/1993-FC (vol-II), date: 24.09.2007</p>
(ii)	<p>PP mentioned that the processing of ore at beneficiation plant (old and proposed) will be same as the existing EC capacity (12 MTPA). Three beneficiation units shall be operated at maximum capacity of 5 MTPA for dry processing and 7 MTPA for wet processing (i.e. existing 2.4 MTPA capacity for processing high quality grade of ROM and proposed 4.6 MTPA capacity for processing low quality grade of ROM), respectively, in order, ensure that at any given time, the total beneficiation capacity from all three plants (old dry + old wet + proposed) should not exceed the granted EC capacity of 12 MTPA.</p>	<p>It is being ensured that at any given time, the total beneficiation capacity from all three plants (old dry + old wet + proposed) should not exceed the granted EC capacity of 12 MTPA.</p>
(iii)	<p>PP should submit an undertaking through affidavit that the total beneficiation capacity from all the three units shall not exceed the granted EC capacity of 12 MTPA at any given time. The operation of this EC amendment is subjected to submission of said affidavit.</p>	<p>This has been noted and complied. The undertaking through affidavit that the total beneficiation capacity from all the three units shall not exceed the granted EC capacity of 12 MTPA at any given time has been submitted.</p>

Sl. No.	EC Conditions	Compliance Status
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(iv)	State Pollution Control Board should ensure that the processing capacity of beneficiation plants (all three units) should not exceed the granted EC capacity of 12 MTPA at any given time.	Noted and Agreed Upon.
(v)	The amendment in EC shall be operational after submission of an undertaking through affidavit to MoEF&CC within 15 days of receipt of this letter, for compliance of all the conditions prescribed herein and mentioned in EC dated 11.03.2013 and 07.09.2018.	An undertaking through affidavit has been sent to MoEF&CC.

Sl. No.	EC Conditions	Compliance Status
Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026		
B.	General Condition	
1.	Project Proponent and Department of Steel & Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t mining proposal of Iron Ore and/or Manganese in the State of Odisha.	All efforts are being made to ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI. Compliance status has been uploaded to i3ms website as well.
2.	Department of Steel & Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.	Noted.
3.	Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system	Complied.

Sl.No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
	<p>and green belt development along the roads and also construction of road minimum 300 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel & Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested above.</p>	<p>Black top road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads has already been constructed and also road minimum 300 m inside the mine is present.</p>
4.	<p>The Committee observed that as per the recommendations of NEERI report the PP need to ensure Regular vacuum cleaning of all mineral carrying roads aiming at “Zero Dust Resuspension” within 3 months for existing roads .</p>	<p>Complied.</p> <p>Since the Ore dispatch from mining lease is 100% through railway siding only hence, we don't have any mineral carrying road other than the mining haul road. Regular water sprinkling through fixed and mobile water sprinklers are carried out on haul roads to minimize dust resuspension.</p>
5.	<p>Project Proponent shall monitor the environmental quality parameters as per EC and CTE/CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control has to ensure the compliance of CTE/CTO. Regional office of the MOEF&CC, Bhubaneswar shall monitor the compliance of the EC Conditions. Regional office of Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of the applicable acts.</p>	<p>Complied</p> <p>Continuous monitoring of different environmental quality parameters as per EC and CTE/CTO conditions with respect to air, noise, water (surface & ground water) and soil quality is already being done via third party agency and monthly reports are submitted to SPCB RO office.</p>
6.	<p>Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Government of Odisha. All existing Mines should ensure adoption of SOTM within the</p>	<p>Complied</p> <p>EC Capacity based Suggested Ore Transport Mode (SOTM) is 100% by private railway siding which is already in action.</p>

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Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026		
	<p>next 5 years. New Mines or Mines seeking expansion should incorporate provisions of SOTM in the beginning itself and should have system in place within the next 5 years.</p>	
7.	<p>The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulder shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, the regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/ pipelines etc. shall be submitted periodically to Regional Office of the MOEF&CC.</p>	Noted
8.	<p>Project Proponent shall develop the parking plazas for trucks with proper basic amenities/ facilities inside the mine. This should be done within one year for existing mines and new mines should have since beginning.</p>	Not applicable as we don't have truck dispatch. All the dispatch is through railway siding only.
9.	<p>Department of Steel & Mine shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side</p>	Noted.

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	<p>plantation to be carried out. This shall be completed within 2 years.</p>	
10.	<p>Regular vacuum cleaning of all minerals carrying roads aiming at “Zero Dust Resuspension” shall be adopted by PWD / NHAI/ Mine Lease Holders within the time Period of 3 months for existing roads.</p>	<p>Complied. Since the Ore dispatch from mining lease is 100% through railway siding only hence we don't have any mineral carrying road other than the mining haul road. Regular water sprinkling through fixed and mobile water sprinklers are carried out on haul roads to minimize dust resuspension.</p>
11.	<p>In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept. of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine- wise annual production scenario as suggested in Table, so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.</p>	<p>Noted.</p>
12.	<p>R&D studies towards utilization of low- grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and</p>	<p>Complied. R&D studies are already going for commercial utilization of low grade ore. We are also in process of installation of 4.6 MTPA Low Grade iron ore Beneficiation plant for which the Environmental Clearance has been granted.</p>

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	<p>environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of Steel & Mines, Individual Mine Lease Holders</p>	
13.	<p>The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network/ conveyor system for 8 mines (under SOTM 1 & 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Jodaregion) and Roxy railway sidings in Koira region. Responsibility: Dept. of Steel & Mines, Govt. of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel & Mines, Govt. of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.</p>	Noted.

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14.	<p>State Govt. of Odisha shall make all efforts to ensure exhausting all the iron & manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept. of Steel & Mines, Govt. of Odisha</p>	Noted and Agreed Upon.
15.	<p>Mining Operations/Process Related: Project Proponent shall implement the following mitigation measures:</p> <p>(i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste. e.g. drills should either be operated with dust extractors or equipped with water injection system.</p> <p>(ii) After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, waste water and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders.</p> <p>(iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power</p>	Complied

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	<p>consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders.</p> <p>(iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted/ authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders.</p>	
16)	<p>Air Environment Related: Project Proponent shall implement the following mitigation measures:</p> <p>(i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard.</p>	Applicable conditions are being Complied With.

Sl. No.	EC Conditions	Compliance Status
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	<p>(ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10, PM2.5, SO2, NOx and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity.</p> <p>(iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PM10, PM2.5, SO2, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable.</p> <p>(iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral.</p> <p>(v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of using closed container trucks should be explored for direct to destination movement of iron ore.</p>	

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	<p>Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate)</p>	
17.	<p>Noise and Vibration Related: Project Proponent shall implement the following mitigation measures:</p> <p>(i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.</p> <p>(ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs.</p> <p>(iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000)</p> <p>(iv) Similarly, vibration at various sensitive locations should be monitored at least once in month and mapped for any significant changes due to successive mining operations.</p>	Being Complied With.
18.	<p>Water/Wastewater Related: Project Proponent shall implement the following mitigation measures</p>	Being Complied With.

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	<p>(i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro-geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately.</p> <p>(ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis.</p> <p>(iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis.</p> <p>(iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB).</p> <p>(v) Suitable rainwater harvesting measures on long term basis should be planned and</p>	

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	<p>implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region.</p> <p>(vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/NABET approved water testing laboratory. However, the report should be vetted by SPCB.</p> <p>(vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable.</p> <p>viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable.</p> <p>(ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization.</p> <p>(x) Erosion from dumps site should be protected by providing geo-textile matting</p>	

Sl. No.	EC Conditions	Compliance Status
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	<p>or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls.</p> <p>(xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis.</p> <p>(xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc.</p> <p>(xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years.</p> <p>Responsibility: Individual Mine Lease Holders, SPCB and CGWB.</p>	
19.	<p>Land/ Soil/ Overburden Related: Project proponent shall implement the following mitigation measures:</p> <p>(i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the</p>	Being Complied With.

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
	<p>mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately.</p> <p>(ii) Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any.</p> <p>(iii) Over burden/ low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for long period. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc.</p> <p>"(iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil. OB and mineral dumps and sump capacity should be</p>	

Sl. No.		
	<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>	
	<p>designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals."</p> <p>(v) Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating.</p> <p>(vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed off as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time.</p> <p>Responsibility: Individual Mine Lease Holder.</p>	
20.	<p>Ecology/Biodiversity (Flora-Fauna) Related: Project Proponent shall implement the following mitigation measures. (i) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department.</p>	<p>Being Complied With.</p> <p>All precautionary measures towards conservation and protection of endangered flora and fauna is being taken.</p>

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
	<p>(ii) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner.</p> <p>(iii) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded.</p> <p>(iv) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation.</p>	

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<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
	<p>(v) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value.</p> <p>(vi) Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details.</p> <p>Responsibility: Individual Mine Lease Holders and State Forest & Wildlife department.</p>	
21	<p>Socio-Economic Related: Project Proponent shall implement the following mitigation measures:</p> <p>(i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region.</p> <p>(ii) Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation.</p> <p>(iii) The socio-economic development in the region should be focused and aligned with the guidelines/initiatives of Govt. of India/ NITI Aayog / Hon'ble Prime Minister's Vision centring around prosperity, equality,</p>	Being Complied With.

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 29.07.2019. Period of Compliance: October 2025 to March 2026</p>		
	<p>justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for “Samagra Vikas” of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY). Notified by Ministry of Mines, Govt. of India, vide letter no. 16/7/2017- M.VI part dated September 16, 2015.</p> <p>Responsibility: District Administration and Individual Mine lease holder.</p>	
22.	<p>Road Transport Related: Project Proponent shall implement the following mitigation measures:</p> <p>(i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its d</p> <p>(ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the mine, as suggested in Chapter 10. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport.</p> <p>(iii) Transportation of ore should be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takesplace. Further, air quality in terms of dust, PM10 should be monitored near the roads towards entry & exit gate on</p>	Complied.

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	<p>regular basis, and be maintained within the acceptable limits.</p> <p>Responsibility: Individual Mine Lease Holders and Department of Steel and Mines.</p>	
23.	<p>Occupational Health Related: Project Proponent shall implement the following mitigation measures</p> <p>(i) 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 periodically.</p> <p>(ii) Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed.</p> <p>(iii) Occupational health and safety measures related awareness programs including identification of work-related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full-time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health</p>	Being Complied With.

Sl. No.	EC Conditions	Compliance Status
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	<p>centre should be established near mine site itself.</p> <p>Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer).</p>	

Sl. No.	EC Condition	Compliance Status
Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 7.09.2018. Period of Compliance: October 2025 to March 2026		
1	The Environmental Clearance will not be operational till such time the project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated the 2 nd August 2017 in Writ (Civil)No.114 of 2014 in the matter of common cause verses Union of India and Ors.	Noted and is complied
2	Department of Mining & Geology, State govt shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the project proponent through their respective department of mining geology in strict compliance of judgement of Hon'ble Supreme Court dated the 2 nd August 2017 in petition(Civil) No. 114 of 2014 in the matter of common cause versus union of India and Ors.	Noted
3	Monitoring of ambient air quality to be carried out based on the 2009 notification, as amended from time to time by the central pollution control board.	Noted & is complied
4	The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain PUC certificate for all the vehicles from authorized pollution testing center; washing of all transport vehicle should be done inside the mining lease.	Not applicable as 100 % mineral transportation is done through rails. And mineral transportation from mines to Railway wagon is done through closed conveyers.
5	The activities and budget earmarked for Environmental Responsibility (CER) shall be as per Ministry's O.M No. 22-65/2017-IA.II(M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted to the Regional Office of the Ministry and State Pollution Control Board.	Agreed.

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II (M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
A.	Specific Condition	
1	No mining activities will be allowed in forest area for which the FC is not available.	<p>Being Complied With.</p> <p>The present mining operation is restricted within 567.087 ha of forest land for which Forest Clearance has been obtained vide letter no. F. No. 8- 32/1993-FC (vol- II), date: 24.09.2007.</p>
2	The project proponent shall seek and obtain approval under the FC Act for diversion of the entire forest land located within the mining lease within a period of two years w.e.f. 01.02.2013, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.	<p>Complied</p> <ul style="list-style-type: none"> • Mining operation is restricted within 567.087 ha of forest area for which diversion approval has been obtained. In addition, we have also submitted fresh DRP for remaining forest area of 32.425 ha.
3	The project proponent shall abide by the guidelines dated 01.02.2013 vide no. 1 362/12012-FC put in place by the FC Division of MoEF in respect of cases of mines where at	<p>Complied.</p> <p>MoEF & CC has issued a Guideline F. No. 11-599/2014-FC, dated: 01.04.2015 in supersession of the Guideline F. No. 11-362/2012-FC, dated: 01.02.2013.</p>

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	<p>present the forest clearance is available to only a part of the forest land involved in the mine</p>	
4	<p>Environmental clearance is subject to obtaining Clearance as may be necessary under the Wildlife (Protection) Act, 1972 from the competent authority.</p>	<p>No specific clearance under the Wildlife (Protection) Act, 1972 is required for the project.</p>
5	<p>The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board., Orissa and effectively implement all the conditions stipulated therein.</p>	<p>Complied.</p> <p>CTE has been obtained from OSPCB vide letter no. 21271/IND-II- NOC-5144, dated: 08.07.2011. CTO has also been obtained from SPCB, Orissa vide letter No. 4280/IND-I-CON- 184, dtd: 28.03.2026.</p>
6	<p>The Company shall submit Within 3 months their policy towards Corporate Environment. Responsibility which should inter-alia provide for (i) Standard operating process /process to bring into focus any infringement /deviation /violation of the environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with the environmental issues and for ensuring compliance With the EC conditions and (iii)System of reporting of non-compliances /violations of environmental norms to the Board of Directors of the company and / or Shareholders or stakeholders.</p>	<p>Complied.</p> <p>Details on Tata Steel's Policy on Corporate Environment Responsibility and other requirements have been submitted to the MoEF&CC vide letter no. MD/ENV/233A/102/2 Dated. 8th June, 2013.</p>
7	<p>The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.</p>	<p>Complied.</p> <p>The mining operation is restricted to above GW table. The lowest working depth of our mine pits is at 580 mRL, whereas the presence of ground water table has been estimated to be at 498.30 mRL.</p>

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		Being Complied With.
8	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	No natural watercourse or water resources are obstructed due to our mining operations. Further, no first order or the second order streams are emanating.
9	The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept Unutilized for long. The topsoil shall be used for land reclamation and plantation.	<p>Being Complied With.</p> <p>Since there is very little lateral expansion of mining operations topsoil generation is minimal. Topsoil generated before was stacked at earmarked place and has already been used for plantation purpose. Topsoil being generated is being used concurrently for plantation purpose.</p>
10	As part of Ambient Air Quality monitoring during operational phase of the project the air samples shall also be analysed for their mineralogical composition and records maintained.	<p>Being Complied With.</p> <p>As a part of Ambient Air Quality monitor during operational phase of the project the air is also analyzed for mineralogical composition. The report is maintained periodically.</p>
11	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water from the plant goes into the Kundra nallah or any other water body	<p>Being Complied With.</p> <p>The slime is stored in the zero-discharge slime pond. The decanted water from the slime pond is completely recycled back to beneficiation plant within the mine, ensuring zero outside discharge.</p>
12	The filter cake shall be disposed at the earmarked site, which shall be above highest water table and shall be lined to prevent any leaching from the filter cake disposal site into groundwater. Efforts shall also be made to gainfully utilize the filter	There is no filter cake generation in our operations.

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	<p>cake so generated in an environmentally compatible manner</p>	
<p>13</p>	<p>Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Being Complied With. The detailed report on the compliance is attached as Annexure- 1.</p>
<p>14</p>	<p>The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and should not be kept active for long period. There shall be one external OB dump having maximum projected height of 30m with three terraces of 10m each. The overall slope of the dump shall not exceed 27°. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of</p>	<p>Being Complied With. The detailed compliance to the condition is attached as Annexure- 2.</p>

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
	<p>Environment & Forests and its Regional Office Located at Bhubaneswar on six monthly basis.</p>	
<p>15</p>	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working, soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted particularly after monsoon and maintained properly. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and OB dump and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) 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. Sedimentation pits should be constructed at the corners of the garland drains and designed at regular intervals.</p>	<p>Being Complied With.</p> <p>Adequate catch drains and siltation ponds were provided. The photographs are attached as Annexure- 3. The project proponent shall practice suitable rainwater harvesting.</p>
<p>16</p>	<p>Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.</p>	<p>Being Complied With.</p> <p>Toe wall of adequate length and height has been constructed at all dumps and product stockpile to prevent any runoff. This is being effective to meet the purpose even during peak rainfall. Photographs of the same is attached as Annexure- 4.</p>
<p>17</p>	<p>Plantation shall be raised in an area of 11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dump, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/Agriculture Department.</p>	<p>Being Complied With.</p> <p>Plantation has already been raised in an area of 11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dump, reclaimed area etc. in consultation with the local DFO/Agriculture Department.</p>

Sl. No.	EC Conditions	Compliance Status
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<p>18</p>	<p>Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Being Complied With. Effective measures are taken. The monitoring report attached as Annexure- 5.</p>
<p>19</p>	<p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board.</p>	<p>Complied. The detailed compliance to the condition is attached as Annexure- 6.</p>

Sl. No.	EC Conditions	Compliance Status
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20	<p>Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring (at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in in each season) shall be carried out in consultation with the State Ground Water Board/ Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out</p>	<p>Being Complied With.</p> <p>Regular monitoring is done and reports are submitted. The report is attached as Annexure- 7.</p>
21	<p>The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water required for the project.</p>	<p>Complied.</p> <p>Joda East Iron mine has current surface water drawl permission of 8531 KLD which was granted from Office of Tahasildar: Barbil via Order No. 423/Dated Barbil the 16th Feb' 1996.</p>
22	<p>The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010 dated 11.06.2010 shall be effectively implemented.</p>	<p>Complied.</p> <p>The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/21010, dated: 11.06.2010 has been effectively implemented.</p>

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23	<p>The project proponent shall practice suitable rainwater harvesting measures on long term basis and work out a detailed scheme for rainwater harvesting, in consultation with the Central Ground Water Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhubneswar.</p>	<p>Complied.</p> <p>The detailed compliance is attached as Annexure- 8.</p>
24	<p>Vehicular emission shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.</p>	<p>Being Complied With.</p> <p>Regular vehicular emission testing is being conducted once in every 6 months. The vehicles those who do not meet the emission standard, are withdrawn from operation and maintained properly.</p>
25	<p>No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practices. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.</p>	<p>Being Complied With.</p> <p>Blasting is carried out during daytime only. Controlled Blasting is carried out for control of ground vibrations and to arrest fly rocks, as per the recommendations of CIMFR, Dhanbad.</p>
26	<p>Drills shall either be operated with the dust extractors or equipped with water injection system.</p>	<p>Being Complied.</p>

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		Wet drilling is in practice and all drills are also provided with dust suppression system.
27	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and Unloading area including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Being Complied With. Effective and high efficiency dust extraction systems are in place at the mineral handling plant. Loading and unloading areas including transfer points have been provided with dust suppression facility.
28	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the Workshop and wastewater generated during the mining Operation.	Complied. The detailed compliance is attached as Annexure-9 .
29	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Being Complied With. Pre-placement medical examination and periodical examination of the workers engaged are being conducted & record maintained.

Sl. No.	EC Conditions	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
30	<p>Provision shall be made for the housing of construction labour within the site with necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may in the form of temporary structures to be removed after the completion of the project.</p>	<p>All constructional activities for the project have been completed and there was no requirement for construction of temporary housing since the mine has permanent infrastructural facilities.</p>
31	<p>The project proponent shall take all precautionary measures during mining operation for conservation and Protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site and approved by the Chief Conservator of Forest, (Wildlife) shall be effectively implemented. A copy of Wildlife Conservation Plan shall be submitted to the Ministry of Environment and Forest and its Regional Office Bhubaneswar.</p>	<p>Being Complied With. The detailed report of the compliance is attached as Annexure- 10.</p>
32	<p>The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NO in the ambient air within the impact zone, peak particle Velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, pH and total suspended solids (TSS)]. The monitored data shall be uploaded on the website of the Company as well as display on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest which is available on the website of the Ministry</p>	<p>Being Complied With. The detailed compliance is attached as Annexure- 11.</p>

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	www.envfor.nic.in shall also be referred in this regard for its compliance.	
33	A Final Mine closure Plan along with detail of Corpus fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Being Complied With. A progressive mine closure plan approved by IBM is in place. The final mine closure plan along with details of Corpus fund shall be submitted to the Ministry 5 years in advance.

General Conditions

Sl. No.	Condition	Compliance
Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026		
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests	Being Complied With. We are operating as per the approved mining technology and scope of working mentioned in EC granted to us and no change in mining technology and scope shall be done.
2	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Being Complied With. Calendar plan (IBM Approved Mining Plan) prepared for the mine is being strictly adhered to and we are well within the limits specified in Mining Plan as well as EC and CTO granted capacity.

Sl. No.	Condition	Compliance
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
3	<p>At least four ambient air quality-monitoring stations should be established in the core Zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e. PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.</p>	<p>Complied.</p> <p>Ambient air quality monitoring is regularly being carried out at four different stations within the core zone. The stations were located in consultation with the visiting officers of SPCB. AAQ monitoring report is attached as Annexure- 12.</p>
4	<p>Data on Ambient Air Quality (RSPM(particulate matter with size less than 10 micron i.e. PM10) and NOx] should be regularly submitted to the Ministry including its Regional office located at Bhubaneshwar and the State Pollution Control Board / Central Pollution Control Board once in six months</p>	<p>Being Complied With.</p> <p>The Ambient Air Quality reports are submitted to Regional office, MoEF, Bhubaneswar and SPCB Orissa, monthly and also once in every six months with this report as Annexure- 13.</p>
5	<p>Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.</p>	<p>Being Complied With.</p> <p>Effective water sprinkling is being done on haul roads and at loading and unloading points. Dust suppression systems in the drills have been provided for effective functioning.</p>
6	<p>Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc should be provided with ear plugs / muffs</p>	<p>Being Complied With.</p> <p>High noise areas are earmarked and people working there are provided with ear protection equipment's and the system is ensured by certification to ISO 45001 and regular field audits.</p>
7	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the</p>	<p>Being Complied With.</p>

Sl. No.	Condition	Compliance
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
	<p>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>	<p>Oil & Grease separation pits have been provided to take care of effluents from the workshop. The same water quality is monitored regularly, and the parameters meet the prescribed standard.</p>
<p>8</p>	<p>Personnel Working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p>	<p>Being Complied With.</p> <p>Adequate dust masks are provided to employees engaged in dusty areas. The employees are also given regular awareness training on safety and health aspects as part of implementation process of ISO 45001 systems.</p>
<p>9</p>	<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>Complied.</p> <p>A separate environmental management cell is in place with the people having relevant qualification on environmental science. The Head of the environment department reports to General Manager.</p>
<p>10</p>	<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>Being Complied With.</p> <p>Funds allocated for environmental management are spent only for environment related purposes and not diverted to any other purpose. During the year 2025-26 an amount of Rs.1646.557 lakhs (approx.) spent Annexure- 14.</p>
<p>11</p>	<p>The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closing and final</p>	<p>This is a running mine. No specific date for start of land development work can be assigned. However, the copy of the EC has been sent to the, RO, MoEF & CC, BBSR for kind information.</p>

Sl. No.	Condition	Compliance
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
	<p>approval of the project by the concerned authorities and the date of start of land development work.</p>	
12	<p>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.</p>	<p>We extend full co- operation to the officers of the Regional Office during their visit and furnish the required data, information and monitoring reports.</p>
13	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar, the respective Zonal Officer of CPCB and the SPCB.</p>	<p>Being Complied With.</p> <p>The reports on six monthly compliance is submitted religiously to the concerned offices.</p>
14	<p>A copy of the clearance letter shall be sent by the proponent to Concerned Panchayat, Zila Parisad / Municipal Corporation Urban Local Body and the Local NGO, if any, from whom suggestions/ representations if any, were received while processing the proposal. The Clearance letter shall also be put on the website of the Company by the proponent.</p>	<p>Complied.</p> <p>A copy of EC was given to MS, OSPCCB and Addl. PCCF was given vide letter MD/ENV/104/102/2013 & MD/ENV/105/102/2013 respectively. EC also given to President, ZP Keonjhar and Chairman, Joda.</p>

Sl. No.	Condition	Compliance
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M), Dated: 11.03.2013. Period of Compliance: October 2025 to March 2026</p>		
15	<p>The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.</p>	<p>Complied.</p> <p>Compiled from State Pollution Control Board, Odisha.</p>
16	<p>The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by email.</p>	<p>Being Complied With.</p> <p>The Annual Environmental statement is submitted religiously and also displayed on company website.</p>
17	<p>The project authority should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 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 also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar</p>	<p>Details of Environmental Clearance about Joda East Iron Mine was published in local newspapers (English Daily, New Indian Express & in oriya (Dainik Jagran) on 16.03.2013.</p>

EC compliance vide letter no J-11015/215/2008-IA.II(M) dated: 7.09.2018

Sl. No.	EC Condition	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Clearance Letter No.: J-11015/215/2008-IA.II(M) dated: 7.09.2018. Period of Compliance: October 2025 to March 2026</p>		
1	<p>The Environmental Clearance will not be operational till such time the project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated the 2nd August 2017 in Writ (Civil)No.114 of 2014 in the matter of common cause verses Union of India and Ors.</p>	<p align="center">Noted and is complied</p>
2	<p>Department of Mining & Geology, State govt shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the project proponent through their respective department of mining geology in strict compliance of judgement of Hon'ble Supreme Court dated the 2nd August 2017 in petition(Civil) No. 114 of 2014 in the matter of common cause versus union of India and Ors.</p>	<p align="center">Noted</p>
3	<p>Monitoring of ambient air quality to be carried out based on the 2009 notification, as amended from time to time by the central pollution control board.</p>	<p align="center">Noted & is complied</p>
4	<p>The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain PUC certificate for all the vehicles from authorized pollution testing center; washing of all transport vehicle should be done inside the mining lease.</p>	<p>Not applicable as 100 % mineral transportation is done through rails. And mineral transportation from mines to Railway wagon is done through closed conveyers.</p>
5	<p>The activities and budget earmarked for Environmental Responsibility (CER) shall be as per Ministry's O.M No. 22-65/2017-IA.II(M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted to the Regional Office of the Ministry and State Pollution Control Board.</p>	<p align="center">Agreed.</p>

Air Quality Management: JEIM

<p>Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Being Complied With.</p> <p>For dust Suppression effective safeguard measures such as regular water sprinkling on the haul roads, loading & unloading points is being done. Fixed water sprinklers of cumulative length over 3 Km have been installed on main and arterial haul roads and in addition two Komatsu HD 465-7 Water Carts of capacity 50 KL & one 28 KL Water Cart of Caterpillar make have been pressed into service for suppression of fugitive dust. Dust suppressants are added to sprinkling water for effective dust suppression. Photographs of Mobile and Fixed water sprinklers, mist canon is attached. All transfer points are equipped with dry fog water sprinkling arrangement. Ambient Air Quality is monitored regularly, and the results are well within the limits prescribed. The results are also sent to the OSPCB office, reports are also attached. Results are also sent to the OSPCB office, Bhubaneswar once in every month.</p>
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Use of fixed watersprinklers at haul roads for dust suppression



Use of water Mist Canon for dust suppression



Use of Dry fog system at all transfer points in plants



Use of mobile tankers for water sprinkling on haul roads



**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT (CORE ZONE)**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Apr 24	69.4	26.4	11.8	23.0	BDL	60.0	21.4	10.6	19.5	BDL	65.9	28.8	12.0	27.0	BDL	64.4	27.9	12.1	20.7	BDL
May 24	67.9	23.9	12.4	21.6	BDL	61.6	22.2	11.2	20.7	BDL	67.7	27.6	11.6	22.9	BDL	63.6	28.8	11.7	25.0	BDL
Jun 24	62.1	23.2	11.2	22.2	BDL	59.2	20.3	9.6	20.3	BDL	63.9	25.6	11.5	23.4	BDL	59.9	24.2	11.0	21.0	BDL
Jul 24	55.6	21.5	11.1	20.5	BDL	51.2	21.4	10.1	20.3	BDL	55.7	21.9	11.2	20.2	BDL	58.4	22.0	10.3	18.7	BDL
Aug 24	60.2	22.7	10.5	20.6	BLQ	50.9	20.2	11.6	19.2	BLQ	50.9	20.2	11.6	19.2	BLQ	59.4	24.9	11.3	20.7	BLQ
Sept 24	59.3	24.6	11.6	22.7	BLQ	51.8	18.6	10.9	19.0	BLQ	60.0	23.6	13.1	23.1	BLQ	54.3	22.4	11.3	21.6	BLQ

BDL - BDL (DL-0.5)

AVERAGE AIR QUALITY REPORT (BUFFER ZONE)

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Apr 24	60.1	18.0	7.2	16.1	BDL	60.6	19.9	12.1	18.2	BDL	59.8	17.9	10.4	17.1	BDL	54.9	18.1	7.5	17.8	BDL
May 24	60.0	18.1	8.0	17.1	BDL	60.5	20.0	11.0	17.6	BDL	60.0	20.5	9.0	17.8	BDL	52.2	17.9	7.9	18.8	BDL
Jun 24	57.3	16.9	7.6	18.4	BDL	55.2	16.9	10.1	16.9	BDL	55.7	16.3	7.0	16.5	BDL	51.1	17.0	7.2	18.9	BDL
Jul 24	49.2	17.5	8.2	17.1	BDL	49.6	17.7	9.1	16.3	BDL	50.1	17.0	8.2	16.0	BDL	49.4	17.7	10.3	17.0	BDL
Aug 24	46.1	16.3	7.9	16.9	BLQ	51.0	18.0	8.9	16.7	BLQ	50.6	16.3	7.0	15.4	BLQ	51.1	18.0	10.4	17.0	BLQ
Sept 24	49.6	17.2	8.9	17.0	BLQ	49.2	16.9	7.2	16.2	BLQ	49.3	17.1	7.2	15.1	BLQ	50.5	18.1	10.9	17.8	BLQ

Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Shubham
Manager Environment
JEIM
TATA STEEL LTD.

Manage (Environment), OMQ

OB Dump Management: JEIM

The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and should not be kept active for long period. There shall be one external OB dump having maximum projected

height of 30m with three terraces of 10m each. The overall slope of the dump shall not exceed 27°. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office Located at Bhubaneswar on six monthly basis.

Being Complied With.

The OB and mineral rejects are being dumped as per the approved mining plan and at

earmarked dumping area only. The slopes of the OB dumps are terraced and the overall slope is maintained so as to not exceed 27°. The inactive dump slopes are vegetated with native species. In critical areas, use of geo textiles has been undertaken for stabilization of the dump. The compliance status report is regularly sent to the Regional office, MoEF, Bhubaneswar and SPCB, Orissa once in every six months. OB dump Plantation has been shown.



Shubham
Manager Environment
JEIM
TATA STEEL LTD.

Garland Drains, Toe Walls, Settling Pits: JEIM

Garland Drains, Toe wall & Settling pits



Shubham
Manager Environment
JEIM
TATA STEEL LTD.

Settling pit



Garland Drain



Toe wall



**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Oct- 25	60.9	22.0	12.0	21.9	BDL	53.1	23.8	11.9	20.5	BDL	59.8	20.9	12.0	20.8	BDL	60.7	21.6	11.6	22.2	BDL
Nov- 25	56.1	25.6	8.4	15.3	BDL	49.3	20.3	7.6	12.9	BDL	55.6	22.6	8.6	14.0	BDL	60.5	27.8	10.0	18.7	BDL
Dec- 25	57.7	19.6	11.9	21.3	BDL	68.2	28.7	10.5	24.1	BDL	64.5	22.8	10.9	23.2	BDL	59.2	23.6	13.8	20.7	BDL
Jan- 26	59.8	21.8	18.7	24.3	BDL	56.8	19.9	14.9	18.4	BDL	64.0	21.4	21.3	23.4	BDL	62.7	24.4	18.3	20.2	BDL
Feb- 26	70.1	32.1	14.5	22.0	BDL	67.2	30.3	13.3	26.7	BDL	73.9	31.8	13.9	25.2	BDL	72.8	34.9	12.7	22.9	BDL
Mar- 26	73.5	35.7	13.9	19.7	BDL	70.7	31.9	11.9	16.8	BDL	69.8	29.6	13.0	18.0	BDL	70.9	32.8	12.8	17.0	BDL

BDL (LOQ-0.5)

AVERAGE AIR QUALITY REPORT

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Oct- 25	59.6	20.1	11.0	20.9	BDL	58.2	23.6	11.5	22.2	BDL	50.8	20.1	9.3	18.0	BDL	60.5	21.4	11.2	23.1	BDL
Nov- 25	52.5	22.8	8.1	14.3	BDL	52.1	20.0	8.2	15.5	BDL	63.0	28.1	10.6	17.9	BDL	61.1	30.2	9.8	18.4	BDL
Dec- 25	66.9	24.5	11.2	23.5	BDL	58.7	23.0	14.0	24.4	BDL	59.0	22.3	15.2	23.9	BDL	59.3	24.0	13.9	23.6	BDL
Jan- 26	59.6	20.9	11.5	21.7	BDL	59.4	22.2	15.1	23.9	BDL	59.3	22.1	15.4	23.6	BDL	58.4	21.7	8.7	15.6	BDL
Feb- 26	60.3	21.5	9.1	17.0	BDL	59.8	22.6	10.3	17.2	BDL	59.9	22.7	7.7	18.1	BDL	58.8	22.1	7.4	14.3	BDL
Mar- 26	60.0	22.5	6.5	12.2	BDL	59.4	23.2	7.0	13.5	BDL	60.2	23.8	6.9	12.8	BDL	59.2	23.1	7.5	9.8	BDL

BDL (LOQ-0.5)

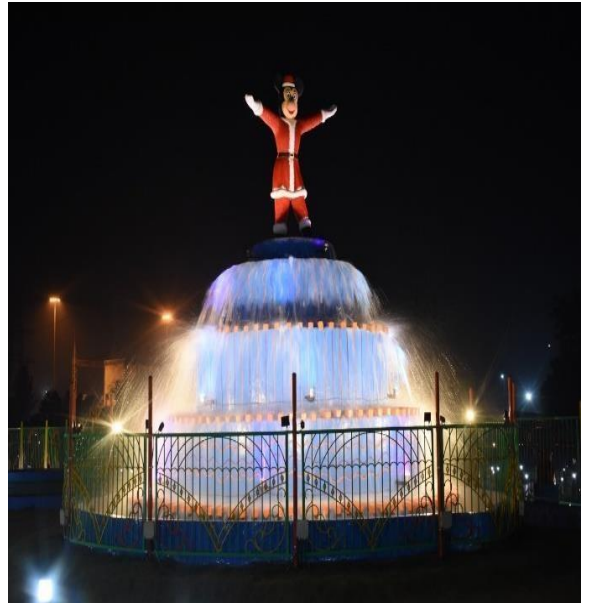
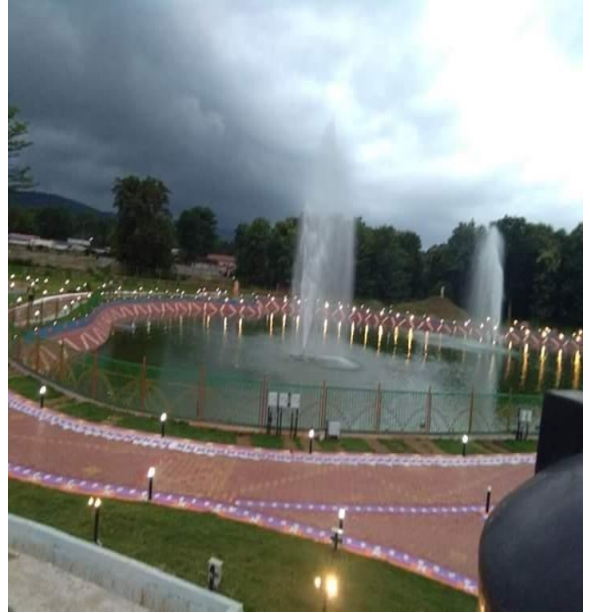
Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Ground water Augmentation: JEIM

<p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board.</p>	<p>Complied.</p> <p>We have submitted Rainwater Harvesting Scheme to CGWB vide letter no. MD/ENV/214/102/2013, dated: 31.05.2013 and same was forwarded to CGWA by CGWB for necessary action vide letter no. 5-22/SER/CGWA/2013-539, dated: 17.06.2013.</p> <p>Rainwater harvesting structures has been constructed at the mine site by the engagement of expertise of M/s. KRG Rainwater Foundation, Chennai and is operational. Photograph of Rain water harvesting pond at JEIM and Joda town is attached.</p>
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Shubham
Manager Environment
JEIM
TATA STEEL LTD.

***Rain Water Harvesting Structure Developed
Joda East Iron Mine, Tata Steel Ltd***



GROUND WATER QUALITY REPORT (APRIL 2024 TO SEPTEMBER 2024) ANNEXURE-7

JODA EAST IRON MINE

May 2024

	Prameter	Komar Joda Village (Nr. Road Side)	Banaikala Village (Gov.)	Hudi Sahi Village (Mr. Jagbandhu Nayak)	Ramjan Hutting Basti	Khuntapani Village (Nr. School)	JEIM - Nr. Chief Office	JEIM - Nr. RC Gate
I	Biological Testing 1.Water							
1	<i>Escherichia coli</i>	Absent	Absent	Absent	Absent	Absent	Absent	Absent
II	Chemical Testing 1.Water							
2	Total Alkalinity (as CaCO ₃)	143.52	138.92	161.82	156.39	184.39	197.26	157.81
3	Anionic surface active agents (as MBAS)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
4	Colour	1	1	1	1	1	1	1
5	Cyanide (as CN)	BDL (DL - 0.005)	BDL (DL - 0.005)	BDL (DL - 0.005)	BDL (DL - 0.005)	BDL (DL - 0.005)	BDL (DL - 0.005)	BDL (DL - 0.005)
6	Chloride (as Cl)	21.94	23.58	26.43	21.43	26.59	32.58	26.43
7	Calcium (as Ca)	43.58	51.29	43.71	49.26	52.17	52.61	48.39
8	Free residual chlorine	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)	BDL (DL - 0.1)
9	Fluoride (as F)	0.16	0.18	0.21	0.18	0.16	0.27	0.21
10	Magnesium (as Mg)	12.68	13.67	12.58	11.64	13.27	13.94	14.52
11	Nitrate (as NO ₃)	4.71	BDL(DL-2)	BDL(DL-2)	BDL(DL-2)	BDL(DL-2)	BDL(DL-2)	5.93
12	Odor	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
13	pH	8.16	7.93	6.87	7.21	7.18	7.31	7.28
14	Phenolic compounds (as C6H5OH)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
15	Sulphate (as SO ₄)	12.68	9.52	9.36	11.46	9.17	11.64	13.68
16	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	471	451	471	428	468	487	487
18	Turbidity	0.7	0.3	BDL (DL - 0.1)	0.7	0.4	0.6	0.3
19	Total hardness (as CaCO ₃)	161.02	184.36	160.94	170.95	184.92	188.77	180.61
II	Chemical Test 2. Residues In Water							
20	Arsenic (as As)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
21	Aluminum (as Al)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
22	Barium (as Ba)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
23	Boron (as B)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
24	Copper (as Cu)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
25	Cadmium (as Cd)	BDL (DL - 0.002)	BDL (DL - 0.002)	BDL (DL - 0.002)	BDL (DL - 0.002)	BDL (DL - 0.002)	BDL (DL - 0.002)	BDL (DL - 0.002)
26	Iron (as Fe)	0.26	0.13	0.28	0.09	0.28	0.26	0.18
27	Lead (as Pb)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
28	Manganese (as Mn)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
29	Mercury (as Hg)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)


 Manager Environment
 JEIM
 TATA STEEL LTD.

GROUND WATER QUALITY REPORT (APRIL 2023 TO SEPTEMBER 2023)
JODA EAST IRON MINE
May 2024

Parameter		Komar Joda Village (Nr. Road Side)	Banaikala Village (Gov.)	Hudi Sahi Village (Mr. Jagbandhu)	Ramjan Hutting Basti	Khuntapani Village (Nr. School)	JEIM - Nr. Chief Office	JEIM - Nr. RC Gate
29	Selenium (as Se)	BDL (DL-0.01)	BDL (DL-0.01)	BDL (DL-0.01)	BDL (DL-0.01)	BDL (DL-0.01)	BDL (DL-0.01)	BDL (DL-0.01)
31	Total Chromium (as Cr)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
32	Zinc (as Zn)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)	BDL (DL - 0.02)
33	Polynuclear aromatic hydrocarbon PAH	BDL(DL-0.03)	BDL(DL-0.03)	BDL(DL-0.03)	BDL(DL-0.03)	BDL(DL-0.03)	BDL(DL-0.03)	BDL(DL-0.03)
34	Mineral Oil	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)	BDL (DL - 0.001)
II	Pesticide Residues Organochlorine							
i	Alpha-HCH	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)	BDL (DL - 0.01)
ii	Beta HCH	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
iv	Delta- HCH	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
v	Alachlor	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
vi	Aldrin	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
vii	Dieldrin	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
viii	Butachlor	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
ix	p,p'-DDE	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
x	o,p'-DDE	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xi	p,p'-DDD	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xii	o,p'-DDD	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xiii	o,p'- DDT	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xiv	p,p'- DDT	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xv	Monocrotophos	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xvi	Atrazine	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xvii	Parathion Methyl	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xviii	Paraoxon methyl	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xix	Malathion	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xx	Malaaxon	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xxi	Ethion	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)
xxii	Chlorpyrifos	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)	BDL (DL - 0.03)

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GROUND WATER QUALITY REPORT (APRIL 2023 TO SEPTEMBER 2023)

JODA EAST IRON MINE

August 2024

	Prameter	Komar Joda Village (Nr. Road Side)	Banaikala Village (Gov.)	Hudi Sahi Village (Mr. Jagbandhu Nayak)	Ramjan Hutting Basti	Khuntapani Village (Nr. School)	JEIM - Nr. Chief Office	JEIM - Nr. RC Gate
I	Discipline : Biological							
1	<i>Escherichia coli</i>	Absent	Absent	Absent	Absent	Absent	Absent	Absent
II	Discipline : Chemical							
2	Total Alkalinity (as CaCO ₃)	182.94	156.29	162.94	176.31	152.91	147.68	191.26
3	Anionic surface active agents (as MBAS)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)
4	Colour	2	BLQ (LOQ-1)	2	1.8	1.7	BLQ (LOQ-1)	2
5	Cyanide (as CN)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)	BLQ (LOQ-0.005)
6	Chloride (as Cl)	32.64	28.43	28.46	27.93	21.47	21.53	32.67
7	Calcium (as Ca)	51.29	47.36	47.39	51.37	52.61	43.91	47.39
8	Free residual chlorine	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)	BLQ (LOQ-0.1)
9	Fluoride (as F)	0.26	0.18	0.18	0.16	0.16	0.17	0.14
10	Magnesium (as Mg)	12.68	11.37	11.64	9.57	8.27	12.64	12.67
11	Nitrate (as NO ₃)	4.17	BDL(DL-2)	5.17	7.24	4.3	6.27	7.21
12	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
13	pH	7.82	6.92	8.16	7.21	7.91	7.18	6.91
14	Phenolic compounds (as C ₆ H ₅ OH)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
15	Sulphate (as SO ₄)	9.21	8.24	9.31	8.41	8.37	7.39	12.64
16	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	428	453	462	437	416	417	472
18	Turbidity	0.4	0.3	0.6	0.3	0.6	0.7	0.6
19	Total hardness (as CaCO ₃)	180.30	165.09	166.28	167.73	165.49	161.68	170.51
III	Discipline : Chemical							
20	Arsenic (as As)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
21	Aluminium (as Al)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
22	Barium (as Ba)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
23	Boron (as B)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
24	Copper (as Cu)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
25	Cadmium (as Cd)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)	BLQ (LOQ-0.002)
26	Iron (as Fe)	0.21	0.18	0.26	0.23	0.24	0.16	0.24
27	Lead (as Pb)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
28	Manganese (as Mn)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)


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GROUND WATER QUALITY REPORT (APRIL 2024 TO SEPTEMBER 2024)

JODA EAST IRON MINE

AUGUST 2024

	Prameter	Komar Joda Village (Nr. Road Side)	Banaikala Village (Gov.)	Hudi Sahi Village (Mr. Jagbandhu)	Ramjan Hutting Basti	Khuntapani Village (Nr. School)	JEIM - Nr. Chief Office	JEIM - Nr. RC Gate
29	Mercury (as Hg)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
30	Selenium (as Se)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
31	Total Chromium (as Cr)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
32	Zinc (as Zn)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)	BLQ (LOQ-0.02)
33	Polynuclear aromatic hydrocarbon (PAH)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
IV	Discipline : Chemical							
34	Mineral Oil	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)	BLQ (LOQ-0.001)
V	Discipline : Chemical							
i	Alpha-HCH	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)	BLQ (LOQ-0.01)
ii	Beta HCH	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
iii	Gamma - HCH (Lindane)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
iv	Delta- HCH	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
v	Alachlor	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
vi	Aldrin	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
vii	Dieldrin	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
viii	Butachlor	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
ix	p,p'-DDE	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
x	o,p'-DDE	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xi	p,p'-DDD	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xii	o,p'-DDD	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xiii	o,p'- DDT	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xiv	p,p'- DDT	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xv	Monocrotophos	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xvi	Atrazine	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xvii	Parathion Methyl	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xviii	Paraoxon methyl	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xix	Malathion	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xx	Malaaxon	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xxi	Ethion	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)
xxii	Chlorpyrifos	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)	BLQ (LOQ-0.03)

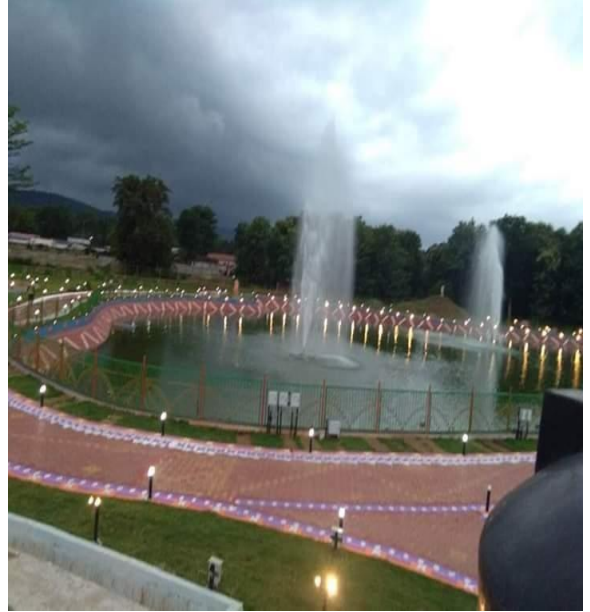

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Rainwater Harvesting: JEIM

<p>The project proponent shall practice suitable rainwater harvesting measures on long term basis and work out a detailed scheme for rainwater harvesting, in consultation with the Central Ground Water Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.</p>	<p>Complied.</p> <p>After getting NOC from CGWA for ground water withdrawal vide letter no. 21-4(343)/CGWA/SER/2011-956, dated: 27.07.2011, we have submitted Rain Water Harvesting Scheme to CGWB vide letter no. MD/ENV/214/102/2013, dated: 31.05.2013 and same was forwarded to CGWA by CGWB for necessary action vide letter no. 5-22/SER/CGWA/2013-539, dated: 17.06.2013. We have the current NOC of Rainwater harvesting structures has been constructed at the mine site by the engagement of expertise of M/s. KRG Rainwater Foundation, Chennai and is now operational. Photograph of Rain water harvesting pond at JEIM and Joda town is attached</p>
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Rain Water Harvesting Structure Developed Joda East Iron Mine, Tata Steel Ltd



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STP: JEIM

Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the Workshop and wastewater generated during the mining Operation.

Complied.

6 nos. of Sewage treatment plant have been constructed with capacity 10 KLD, 50 KLD and 630 KLD in residential colony. Further two more STP with 150 KLD is constructed for community. Apart from these STPs in residential colony, Soak pits have been provided inside the mining area because STP constructed is not feasible in the hilly topography of the mine. A 10 KLD ETP has been installed in JEIM for treatment of wastewater generated. The oil catchment pit has also been constructed inside mining area. Photographs of the STPs and Oil catchment pit are shown here.



Conservation of Flora & Fauna: JEIM

<p>The project proponent shall take all precautionary measures during mining operation for conservation and Protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site and approved by the Chief Conservator of Forest, (Wildlife) shall be effectively implemented. A copy of Wildlife Conservation Plan shall be submitted to the Ministry of Environment and Forest and its Regional Office Bhubaneswar.</p>	<p>Being Complied With.</p> <p>Tata Steel is taking all precautionary measures towards conservation and protection of endangered flora and fauna. We have also deposited a sum of Rs. 1,00,66,395/- with the forest department for implementation of the wildlife management plan in order to protect them within our mine and its periphery. Besides that, the mine had prepared Site Specific Wild Life Conservation Plan and it has been approved by the Principle Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden vide letter no. 3195/1WL-SSP-97/2016, dated: 25.04.2016.</p>
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The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NO in the ambient air within the impact zone, peak particle Velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, pH and total suspended solids (TSS)]. The monitored data shall be uploaded on the website of the Company as well as display on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

Being Complied With.

Ambient Air Quality is monitored regularly, and the results are submitted to OSPCB, CPCB & MoEFCC. No water is discharged out of the mine premises. Monitoring data is being uploaded on the Company's website www.tatasteelindia.com as part of this report and displayed on a display board at the main entrance gate of the mine. The photograph of display board is attached.



**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Oct- 25	60.9	22.0	12.0	21.9	BDL	53.1	23.8	11.9	20.5	BDL	59.8	20.9	12.0	20.8	BDL	60.7	21.6	11.6	22.2	BDL
Nov- 25	56.1	25.6	8.4	15.3	BDL	49.3	20.3	7.6	12.9	BDL	55.6	22.6	8.6	14.0	BDL	60.5	27.8	10.0	18.7	BDL
Dec- 25	57.7	19.6	11.9	21.3	BDL	68.2	28.7	10.5	24.1	BDL	64.5	22.8	10.9	23.2	BDL	59.2	23.6	13.8	20.7	BDL
Jan- 26	59.8	21.8	18.7	24.3	BDL	56.8	19.9	14.9	18.4	BDL	64.0	21.4	21.3	23.4	BDL	62.7	24.4	18.3	20.2	BDL
Feb- 26	70.1	32.1	14.5	22.0	BDL	67.2	30.3	13.3	26.7	BDL	73.9	31.8	13.9	25.2	BDL	72.8	34.9	12.7	22.9	BDL
Mar- 26	73.5	35.7	13.9	19.7	BDL	70.7	31.9	11.9	16.8	BDL	69.8	29.6	13.0	18.0	BDL	70.9	32.8	12.8	17.0	BDL

BDL (LOQ-0.5)

AVERAGE AIR QUALITY REPORT

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Oct- 25	59.6	20.1	11.0	20.9	BDL	58.2	23.6	11.5	22.2	BDL	50.8	20.1	9.3	18.0	BDL	60.5	21.4	11.2	23.1	BDL
Nov- 25	52.5	22.8	8.1	14.3	BDL	52.1	20.0	8.2	15.5	BDL	63.0	28.1	10.6	17.9	BDL	61.1	30.2	9.8	18.4	BDL
Dec- 25	66.9	24.5	11.2	23.5	BDL	58.7	23.0	14.0	24.4	BDL	59.0	22.3	15.2	23.9	BDL	59.3	24.0	13.9	23.6	BDL
Jan- 26	59.6	20.9	11.5	21.7	BDL	59.4	22.2	15.1	23.9	BDL	59.3	22.1	15.4	23.6	BDL	58.4	21.7	8.7	15.6	BDL
Feb- 26	60.3	21.5	9.1	17.0	BDL	59.8	22.6	10.3	17.2	BDL	59.9	22.7	7.7	18.1	BDL	58.8	22.1	7.4	14.3	BDL
Mar- 26	60.0	22.5	6.5	12.2	BDL	59.4	23.2	7.0	13.5	BDL	60.2	23.8	6.9	12.8	BDL	59.2	23.1	7.5	9.8	BDL

BDL (LOQ-0.5)

Unit of measurement for all parameters except CO is $\mu\text{g}/\text{m}^3$. Co is in mg/m^3

**JODA EAST IRON MINE
AVERAGE AIR QUALITY REPORT**

Month	Manmora Slime Dam					Near Rainwater Harvesting					Near Magazine					Near Equipment Maintenance				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO
Oct- 25	60.9	22.0	12.0	21.9	BDL	53.1	23.8	11.9	20.5	BDL	59.8	20.9	12.0	20.8	BDL	60.7	21.6	11.6	22.2	BDL
Nov- 25	56.1	25.6	8.4	15.3	BDL	49.3	20.3	7.6	12.9	BDL	55.6	22.6	8.6	14.0	BDL	60.5	27.8	10.0	18.7	BDL
Dec- 25	57.7	19.6	11.9	21.3	BDL	68.2	28.7	10.5	24.1	BDL	64.5	22.8	10.9	23.2	BDL	59.2	23.6	13.8	20.7	BDL
Jan- 26	59.8	21.8	18.7	24.3	BDL	56.8	19.9	14.9	18.4	BDL	64.0	21.4	21.3	23.4	BDL	62.7	24.4	18.3	20.2	BDL
Feb- 26	70.1	32.1	14.5	22.0	BDL	67.2	30.3	13.3	26.7	BDL	73.9	31.8	13.9	25.2	BDL	72.8	34.9	12.7	22.9	BDL
Mar- 26	73.5	35.7	13.9	19.7	BDL	70.7	31.9	11.9	16.8	BDL	69.8	29.6	13.0	18.0	BDL	70.9	32.8	12.8	17.0	BDL

BDL (LOQ-0.5)

AVERAGE AIR QUALITY REPORT

Month	Baneikela					Lohanda					Khuntpani					Joda Hospital				
	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NOX	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Oct- 25	59.6	20.1	11.0	20.9	BDL	58.2	23.6	11.5	22.2	BDL	50.8	20.1	9.3	18.0	BDL	60.5	21.4	11.2	23.1	BDL
Nov- 25	52.5	22.8	8.1	14.3	BDL	52.1	20.0	8.2	15.5	BDL	63.0	28.1	10.6	17.9	BDL	61.1	30.2	9.8	18.4	BDL
Dec- 25	66.9	24.5	11.2	23.5	BDL	58.7	23.0	14.0	24.4	BDL	59.0	22.3	15.2	23.9	BDL	59.3	24.0	13.9	23.6	BDL
Jan- 26	59.6	20.9	11.5	21.7	BDL	59.4	22.2	15.1	23.9	BDL	59.3	22.1	15.4	23.6	BDL	58.4	21.7	8.7	15.6	BDL
Feb- 26	60.3	21.5	9.1	17.0	BDL	59.8	22.6	10.3	17.2	BDL	59.9	22.7	7.7	18.1	BDL	58.8	22.1	7.4	14.3	BDL
Mar- 26	60.0	22.5	6.5	12.2	BDL	59.4	23.2	7.0	13.5	BDL	60.2	23.8	6.9	12.8	BDL	59.2	23.1	7.5	9.8	BDL

BDL (LOQ-0.5)

Unit of measurement for all parameters except CO is µg/m³. Co is in mg/m³

Environmental Expenditure for 2025-26

Sl. No.	Activity for FY26	Amount (in Lakhs)
1	Maintenance & Operation STP/WTP/ETP	276.36
2	Expenses in operation and maintenance of Dry Fog System, Dust Suppression system in Plant	54.91
3	Operation and maintenance of water sprinkler	24
4	Environment related study	3.50
5	Construction and maintenance of Toe wall, Garland drain, settling pit, concrete road and lease line maintenance	18.90
6	Blasting technology with electronic detonators	738.21
7	Housekeeping of plant and township area	204
8	Environment monitoring and awareness expenses	36
9	Disposal of Bio-medical waste	9.60
10	Plantation expenses	281.07
Total Environmental Expenditure (in Lakhs)		1646.557

Sl. No.	EC Condition	Compliance Status
Name of Project: Joda East Iron Mine of Tata Steel Limited. Vide MoEF's Letter No. J-11015/215/2007-IA.II (M) dated: 12.06.2008. Period of Compliance: October 2025 to March 2026		
A.	Specific Condition	
(i)	All the conditions stipulated by the State Pollution Control Board, Orissa in their consent to establish shall be effectively implemented.	Being complied. All conditions stipulated in Consent to Establish/Operate issued by SPCB are being strictly implemented. Regular monitoring, periodic reporting and internal audits are carried out to ensure continuous compliance with statutory norms.
(ii)	Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 608.906 ha forest land shall be obtained before starting mining operation in that area. Environmental clearance is subject to grant of forestry clearance.	Being complied. Forestry clearance has been obtained and all stipulated conditions are being followed. Mining activities are restricted to approved forest land areas with compliance to Forest Conservation Act provisions.
(iii)	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests-and Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Being complied. Mining activities are restricted above groundwater table. Periodic monitoring of pit depth and groundwater levels ensures no intersection occurs.
(iv)	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	Being complied. Natural drainage systems are maintained, and no obstruction is caused due to mining operations. Adequate diversion channels and drainage arrangements are provided.
(v)	The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for a period more than 3years. The topsoil shall be used for land reclamation and plantation.	Being complied. Topsoil is stored separately at earmarked locations and utilized for reclamation and plantation activities within the stipulated time frame.
(vi)	The over burden (OB) and mineral rejects generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for long period of time. Proper terracing of OB dumps shall be carried out so that the overall slope of dump should not exceed 27°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its	Being complied. Overburden dumps are developed with proper terracing, slope stabilization and plantation using native species. Erosion control measures are implemented.

	Regional Office located at Bhubaneswar on six monthly basis.	
(vii)	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and OB dumps to prevent run off of water and flow of sediments directly into Baitarni River and Kundra nallah. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into Baitarni River and Kundra nallah and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) 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. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	Being complied. Garland drains, check dams, siltation ponds and settling tanks are constructed and regularly desilted to control runoff and sediment discharge.
(viii)	Dimension of the retaining wall at the toe of dumps and over burden benches within the mine to check run-off and siltation should be based on the rain fall data.	Being complied. Retaining structures are constructed based on rainfall data to prevent slope failure and siltation.
(ix)	The void left unfilled in an area of 28.203ha during the post mining stage shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.	Being complied. Progressive closure planning ensures mined-out voids are converted into water bodies with stabilized benches and plantation.
(x)	Plantation shall be raised in an area of 606.229ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dumps, backfilled area, roads etc. by planting the native species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per ha.	Being complied. Plantation is carried out over lease area including safety zones, dumps, roads, and reclaimed areas with native species.

(xi)	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Being complied. Effective dust suppression measures such as water sprinkling, enclosures and monitoring systems are in place. Air quality remains within permissible limits.
(xii)	Mine water discharge and/or any wastewater should be properly treated to meet the prescribed standards before reuse /discharged. The run-off from OB dumps and other surface run off should be analysed for iron and in case its concentration is found higher than the permissible limit, the wastewater should be treated before discharge/reuse.	Being complied. Mine discharge water is treated through settling systems before reuse/discharge ensuring compliance with standards.
(xiii)	The decanted water from the tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.	Being complied. Decanted and treated water is completely recycled within the system ensuring zero external discharge.
(xiv)	Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.	Being complied. Flow and condition of nearby nallahs and water bodies are monitored regularly, and records maintained.
(xv)	Regular monitoring of water quality upstream and downstream of Kundra nallah shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Being complied. Regular monitoring is conducted upstream and downstream, and reports are submitted to regulatory authorities.
(xvi)	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Being complied. Water conservation structures such as recharge pits, check dams and ponds are developed to augment groundwater.

(xvii)	Regular monitoring of ground water level and quality should be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year ? pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.	Being complied. Groundwater level and quality are monitored seasonally through wells and piezometers and reported.
(xviii)	Appropriate mitigative measures should be taken to prevent pollution of Baitarani River in consultation with the State Pollution Control Board.	Being complied. Adequate control measures are implemented to prevent pollution and protect nearby river systems.
(xix)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water for the project. Ground water shall not be used for the mining operations.	Being complied. Groundwater is not used for mining operations. Required permissions would be taken if needed.
(xx)	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Being complied. Rainwater harvesting structures have been developed and maintained within lease area.
(xxi)	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Being complied. Vehicles are maintained with valid PUC and covered transport ensuring minimal emissions and dust.
(xxii)	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Being complied. Controlled blasting is undertaken during daytime with all safety precautions to minimize vibration and fly rock.
(xxiii)	Drills shall either be operated with dust extractors or equipped with water injection system.	Being complied. Drills are equipped with wet drilling/dust extraction systems to control dust at source.

(xiv)	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Being complied. Crushing and conveying systems are enclosed with dust extraction arrangements and regularly maintained.
(xxv)	Consent to operate should be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	Complied. Valid Consent to Operate has been obtained and is periodically renewed from SPCB.
(xxvi)	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated during mining operation.	Being complied. Sewage and effluent treatment systems are installed and operated effectively to meet discharge norms.
(xxvii)	Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to MOEF and its regional office.	Being complied. Satellite monitoring of land use is carried out once in three years and reports submitted.
(xxviii)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as elephant etc. spotted in the study area and contribute towards the cost of rentation of the plan and/or Regional Wildlife Management Plan for conservation of flora and fauna so prepared by the State Forest and Wildlife Department. The amount so contributed shall be included in the project cost. A copy of action plan may be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.	Being complied. Wildlife conservation measures including elephant management are implemented in coordination with Forest Department.
(xxix)	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.	Being complied. Final Mine Closure Plan will be submitted within stipulated timeline along with corpus fund provisions.
B.	General Condition	
(i)	No change. in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Being complied. The mining technology and scope of operations are being strictly followed as per the Environmental Clearance granted by MoEF&CC. No changes have been made without obtaining prior approval from the Ministry. Periodic internal reviews are conducted to ensure adherence to approved mining parameters.

(ii)	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Being complied. Mining operations including excavation schedules, production of iron ore, and generation of waste are being carried out strictly in accordance with the approved calendar plan. No deviation has been made from the approved quantities.
(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , & NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Being complied. Adequate ambient air quality monitoring stations have been established in core and buffer zones as per guidelines. The locations are selected based on meteorological conditions, topography, and sensitive receptors in consultation with SPCB. Monitoring is conducted regularly as per prescribed frequency.
(iv)	Data on ambient air quality (RPM, SPM, SO ₂ , & NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Being complied. Ambient air quality monitoring data (PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , etc.) is regularly compiled and submitted to MoEF&CC Regional Office, Bhubaneswar, SPCB, and CPCB on a six-monthly basis. All records are maintained systematically.
(v)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Being complied. Effective dust control measures such as regular water sprinkling on haul roads, loading/unloading points, and transfer points are implemented. Dust suppression systems are properly maintained to minimize fugitive emissions.
(vi)	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Being complied. Noise levels are maintained below 85 dB(A) through proper maintenance of machinery and operational controls. Workers in high-noise areas are provided with earplugs/earmuffs, and compliance is monitored regularly.
(vii)	Industrial waste water (workshop and waste water 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.	Being complied. Industrial wastewater from workshops and mine operations is treated through appropriate systems including oil and grease traps and settling tanks to meet standards prescribed under GSR 422(E). Treated water is reused or discharged as per norms.
(viii)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety health. Occupational health surveillance program of the workers should be	Being complied. Personnel working in dusty areas are provided with appropriate respiratory protective equipment. Regular training programs on health and safety are conducted. Periodic occupational

	undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	health surveillance, including medical check-ups, is carried out to detect and prevent occupational diseases.
(ix)	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.	Complied. A dedicated Environmental Management Cell with qualified personnel has been established. The cell operates under a senior executive and reports directly to top management, ensuring effective implementation of environmental safeguards.
(x)	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.	Being complied. Funds earmarked for environmental protection are maintained in a separate account and utilized exclusively for environmental management activities. Year-wise expenditure details are documented and submitted to MoEF&CC Regional Office.
(xi)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Being complied. Relevant information regarding financial closure, project approval, and commencement of land development activities has been communicated to the MoEF&CC Regional Office, Bhubaneswar as required.
(xii)	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.	Being complied. Full cooperation is extended to officials of the MoEF&CC Regional Office during inspections and monitoring visits. All required documents, monitoring data, and reports are furnished promptly.
(xiii)	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	Being complied. Six-monthly compliance reports on implementation of environmental safeguards are prepared and regularly submitted to MoEF&CC, Regional Office, CPCB, and SPCB as per prescribed timelines.
(xiv)	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	Being complied. Six-monthly environmental compliance reports are consistently submitted to all concerned authorities, ensuring transparency and regulatory compliance.
(xv)	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied. Copies of the Environmental Clearance letter have been shared with concerned Panchayats and local stakeholders wherever applicable during the project approval stage.

(xvi)	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.	Complied. The clearance letter has been displayed by the State Pollution Control Board at designated public offices for information dissemination as per the guidelines.
(xvii)	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 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 also site of the http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.	Complied. Public notice regarding grant of Environmental Clearance was published in two widely circulated newspapers, including one in the vernacular language, within the stipulated time. A copy of the advertisement was submitted to the MoEF&CC Regional Office.

Sl. No.	EC Condition	Compliance Status
Name of Project: Joda East Iron Mine of Tata Steel Limited. EC vide Letter No. J-11015/51/2003.IA.II (M) dated: 05.04.2005. Period of Compliance: October 2025 to March 2026		
A.	Specific Condition	
(i)	Overburden and mineral rejects should be stacked at earmarked site(s) /storage dumps of an area of 19.928 ha only. The OB dumps shall be stabilised and terraced and reclaimed by plantation. 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.	Being Complied. Overburden and mineral rejects are being stacked strictly within the earmarked area of 19.928 ha. The OB dumps are systematically terraced, stabilized, and progressively reclaimed through plantation. Retaining walls and benches have been designed and constructed based on site-specific rainfall data to effectively control runoff and prevent siltation.
(ii)	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.	Being Complied. Catch drains and siltation ponds of adequate capacity have been constructed to arrest silt and sediment flow from soil, OB, and mineral dumps. Regular desilting and proper maintenance are carried out. Garland drains and sump capacities are designed with more than 50% safety margin considering peak rainfall intensity. Adequate retention time is ensured for sedimentation. A dedicated storm water management system, including separate storm water sump, is in place to handle high rainfall events.
(iii)	Mine water discharge and/or any wastewater should be properly treated to meet the prescribed standards before reuse/discharge. Run-off from OB dumps and other surface run-off should be analysed for iron and in case its concentration is found higher than the permissible limit, the water should be treated before discharge/reuse.	Being Complied. Mine discharge water and wastewater are treated through appropriate treatment systems to meet prescribed standards prior to reuse or discharge. Surface runoff from OB dumps is regularly monitored for iron content and, wherever required, treated before discharge or reuse.
(iv)	There shall be no discharge of water/effluents from the mineral beneficiation plant and the entire water shall be recycled.	Being Complied. The mineral beneficiation plant operates on a zero-discharge principle. Entire process water is recycled and reused within the system, ensuring no effluent is discharged outside the plant premises.
(v)	Groundwater shall not be used for the mining operations. Prior permission shall be taken from the SGWB and from the MOEF.	Being Complied. Groundwater is not being utilized for mining operations. Necessary compliances are maintained, and permissions would be obtained from SGWB/MoEF if required in future.

(vi)	Drills should be wet operated with dust extractors and controlled blasting shall be practised.	Being Complied. Wet drilling with suitable dust extraction systems is being practiced. Controlled blasting techniques are adopted to minimize dust generation and vibration impacts.
(vii)	Dust fall and soil samples should be analysed for trace elements and metal ions, for at least three years during summer and winter seasons. If concentrations of these elements are found below the standards then, with prior approval of MOEF, this specific monitoring could be discontinued.	Being Complied. Dust fall and soil samples are being collected and analysed for trace elements and metal ions during summer and winter seasons. Monitoring is ongoing as per stipulated duration.
(viii)	A total area of 375 ha shall be afforested. This will include reclamation of 75 ha of mined out area/benches where iron ore is exhausted and sub-grade and OB dumps, slime dam slopes, etc. Plantation should also be raised along the roads, dump sites, all around the ML area, safety zone, etc, by planting native plant species in consultation with local DFO/Agriculture Department. At least 2000 plant species/ha should be planted.	Being Complied. Afforestation over 375 ha is being implemented in a phased manner, including reclamation of mined-out areas, OB dumps, and other disturbed areas. Plantation is also being undertaken along roads, safety zones, and lease boundaries using native species in consultation with local authorities. Plantation density of approximately 2000 plants/ha is maintained.
(ix)	Water harvesting and water conservation measures such as construction of check dams, ponds, water holes, in and around the mining lease area shall be undertaken. A total of 29.781 ha shall be diverted for rainwater harvesting.	Being Complied. Rainwater harvesting and conservation measures such as check dams, ponds, and water holes have been developed in and around the lease area. The designated area of 29.781 ha is being effectively utilized for water conservation structures.
(x)	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 of ground water level should be done at least four times a year in pre-monsoon (April / May), monsoon (August), post-monsoon (November) and winter (January) seasons and for groundwater quality once (May). Data thus collected should be submitted to the Ministry of Environment & Forests and to Regional Office of the CGWB regularly.	Being Complied. Groundwater level and quality monitoring is being carried out through a network of wells and piezometers. Monitoring is conducted seasonally (pre-monsoon, monsoon, post-monsoon, and winter), and quality analysis is done annually. Data is regularly submitted to MoEF&CC and CGWB authorities.
(xi)	Digital processing of the entire lease area using remote sensing techniques should be done regularly once in 3 years for monitoring land use pattern and report submitted to MOEF and its Regional Office at Bhubaneswar.	Being Complied. Digital monitoring of the lease area using remote sensing techniques is being conducted once every three years to assess land use changes. Reports are submitted to MoEF&CC and the Regional Office at Bhubaneswar.

(xii)	A "Consent to Operate" should be obtained from SPCB before expanding mining activities.	Being Complied. Valid Consent to Operate has been obtained from the State Pollution Control Board prior to undertaking and expanding mining activities, and the same is being renewed periodically.
(xiii)	The Conservation Plan prepared for conservation of endangered fauna including the Indian Elephant found in and around the mine area shall be implemented in consultation with identified agencies/institutions and 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.	Being Complied. The Conservation Plan for endangered fauna, including the Indian Elephant, is under implementation in coordination with the State Forest Department and other agencies. Funds have been earmarked and are utilized exclusively for the purpose. Periodic progress and expenditure reports are submitted to MoEF&CC, Regional Office Bhubaneswar.
(xiv)	Water harvesting and water conservation measures such as construction of check dams, ponds, water holes, in and around the mining lease area shall be undertaken. A total of 29.781 ha shall be diverted for rainwater harvesting.	Being Complied. Water harvesting and conservation initiatives, including development of check dams and ponds over 29.781 ha, are being effectively implemented and maintained.
(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.	Being Complied. Preparation of the Final Mine Closure Plan, including corpus fund provisions, will be undertaken, and submitted to MoEF&CC well in advance (5 years prior to mine closure) as per regulatory requirements.
(xvi)	The Proponent shall earmark a separate fund of 1% subject to a minimum of Rs. 50,000/- of the total project cost for eco development measures including community welfare measures in the project area. The amount shall be deposited by the Company in a separate account within three months to be maintained by the Orissa State Pollution Control Board (SPCB). The action plan in this regard shall be submitted to the SPCB as well as to MOEF and its Regional Office at Bhubaneshwar within three months of issue of this letter. After approval of the action plan by the SPCB, the amount deposited- shall be released in two instalments to the project authorities based on progress of implementation. The SPCB shall ensure that implementation of the action plan for eco-	Being Complied. A separate fund as per the prescribed guidelines has been earmarked and deposited with the SPCB. Eco-development and community welfare activities are being implemented as per the approved action plan. The progress is monitored, and funds are utilized strictly for intended purposes, with interest accrued also being used for eco-development.

	development measures is completed within two years from date of its approval by SPCB. Further, the interest accrued during this period on the amount deposited by the proponent with the SPCB shall be ploughed back to the same eco-development fund.	
B.	General Conditions	
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Being complied. Mining technology and scope of operations are strictly maintained as per approved Environmental Clearance. No changes have been undertaken without prior approval from MoEF&CC. Periodic internal reviews ensure adherence.
(ii)	No change in the calendar plan including excavation, quantum of iron ore and waste produced should be made.	Being complied. Mining operations including excavation schedule, mineral production and waste generation are carried out strictly in line with the approved mining plan without deviation.
(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , 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.	Being complied. Ambient air quality monitoring stations have been established in core and buffer zones. Locations are finalized in consultation with SPCB considering meteorology and sensitive receptors.
(iv)	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office at Bhubaneswar and to the State Pollution Control Board / Central Pollution Control Board once in six months.	Being complied. Monitoring data for PM ₁₀ , PM _{2.5} , SO ₂ , NO _x etc. is collected regularly and submitted to SPCB and MoEF&CC Regional Office on a six-monthly basis.
(v)	Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dumpers/trucks, loading & unloading points should be provided and properly maintained. Crusher, conveyors shall be enclosed and provided with dust extraction systems near the sources generation.	Being complied. Effective dust suppression measures such as regular water sprinkling on haul roads, enclosures of crushers, and dust extraction systems are implemented and monitored.
(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.	Being complied. Noise levels are maintained below 85 dBA. PPE such as earplugs are provided and annual audiometric testing is conducted.

	Workers in Noise generating areas and engaged with noise generating machinery should be subjected to audiometric tests annually.	
(vii)	Industrial waste water (workshop and waste water 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 and retention ponds should be installed before discharge of workshop effluents.	Being complied. Industrial wastewater is treated through settling tanks and oil & grease traps to meet GSR 422(E) standards before reuse/discharge.
(viii)	The data on environmental quality should be collected and analysed either through an inhouse environmental laboratory established with adequate number and type of pollution monitoring and analysis equipment or got analysed through an approved laboratory under the Environment (Protection) Rules, 1986 in consultation with the State Pollution Control Board.	Being complied. Environmental monitoring is conducted through approved laboratories with adequate instrumentation as per Environment Protection Rules.
(ix)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	Being complied. Workers in dusty areas are provided with respiratory protective equipment and trained in occupational safety.
(x)	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. Audiometric tests shall be taken annually for workers in noise generating areas and corrective measures undertaken if required.	Being complied. Periodic medical examinations including lung function and audiometric tests are conducted for early detection of occupational health issues.
(xi)	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.	Being complied. A dedicated EMC with qualified professionals is established reporting directly to top management and ensuring EMP implementation.
(xii)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneshwar.	Being complied. Adequate funds are earmarked and utilized solely for environmental protection measures with records maintained and reported.
(xiii)	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)	Being complied. Full cooperation is extended to MoEF&CC Regional Office during inspections and monitoring exercises.

	of the Regional Office by furnishing the requisite data / information / monitoring reports.	
(xiv)	A copy of clearance letter will be marked to concerned Panchayat/local NGO, if any, from whom and suggestion /representation has been received while processing the proposal.	Complied. EC copy has been shared with local authorities and stakeholders as applicable.
(xv)	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.	Complied. Clearance letter is displayed by SPCB at designated offices for public access.
(xvi)	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 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 Bhubaneshwar.	Complied. Public notice regarding EC has been published in local newspapers including vernacular language.

Sl. No.	EC Condition	Compliance Status
<p>Name of Project: Joda East Iron Mine of Tata Steel Limited. Vide MoEF's Letter No. J-11015/10/93-IA.II (M) dated: 18.05.1994. Period of Compliance: October 2025 to March 2026</p>		
A	Specific Condition	
1	No change in the calendar plan including excavation, quantum of minerals and waste rock/OB dumps should be made.	Being Complied. The mining operations are being carried out strictly as per the approved calendar plan. There has been no deviation in excavation schedules, quantum of mineral production, or waste rock/overburden (O.B.) generation and dumping.
2	The topsoil and O.B. dumps should be stacked in earmarked Garland drains along with settling sumps and check dam on ephemeral streams along the lease boundary on and western hill flanks should be made.	Being Complied. Topsoil and O.B. are being systematically stacked at designated earmarked locations. Garland drains, settling sumps, and check dams have been constructed and are regularly maintained along lease boundaries and vulnerable hill flanks to effectively manage runoff and prevent sediment flow.
3	The levels of SPM should not exceed 500 ug/m ³ at any station within the leasehold. Emission of SO ₂ , NO _x and CO should be maintained below the levels prescribed by the competent authority. Control measures suggested in the EMP in this regard should be strictly implemented.	Being Complied. Ambient air quality is regularly monitored at all designated stations within the leasehold. The SPM levels are maintained well within the prescribed limit of 500 µg/m ³ . Emissions of SO ₂ , NO _x , and CO are also within permissible limits. All control measures outlined in the Environmental Management Plan (EMP), such as water sprinkling, dust suppression systems, and plantation, are being strictly implemented.
4	The effluent water quality finally discharged to the standards prescribed under GSR 422 (E) dated 19.5.93.	Being Complied. The quality of treated effluent discharged from the premises complies with the standards prescribed under GSR 422(E) dated 19.05.1993. Treatment systems are functioning efficiently, ensuring no adverse impact on receiving water bodies.
5	Regular monitoring of air quality, water quality and noise levels should be made and recorded data should be furnished to State Pollution Control Board and to this Ministry quarterly. Special emphasis should be given to monitor silt load and Fe of the run-off before it meets the main water course nallah.	Being Complied. Regular monitoring of air quality, water quality, and noise levels is being conducted as per prescribed norms. The monitoring data is systematically recorded and submitted to the State Pollution Control Board (SPCB) and MoEF&CC on a quarterly basis. Special emphasis is given to monitoring silt load and iron (Fe) content in runoff before discharge into natural watercourses.
6	The Baitharani river in the buffer zone is in a high level of pollution. TISCO should be the	Being Complied.

	lead in organising a regional survey for evolving long term remedial measures with participation of other pollution industries in the region and in consultation with concerned state Government agencies. The survey should also include the erosion effect of monsoon water flows from the hill slopes in and around the core/buffer zones of the mines.	The project proponent has taken a proactive role in environmental stewardship by initiating and participating in regional studies concerning pollution in the Baitarani River. Collaborative discussions and surveys involving nearby industries and state government agencies are being encouraged to develop long-term mitigation measures, including erosion control during monsoon.
7	A 20-meter-wide green belt around the lease area should be developed. Mixed species of saplings should be selected for enhancing biodiversity. Also, the reclamation-afforestation programme in the leasehold area should be implemented phase-wise as envisaged.	Being Complied. A 20-meter-wide green belt around the lease area is being developed and maintained. Mixed native species are planted to enhance biodiversity. Reclamation and afforestation activities are being implemented in a phased manner in accordance with the approved plan, covering exhausted mine areas.
8	Environmental Management Cell has to be established to carry out functions relating to environmental management action plans. The head of the cell should directly report to the Chief Executive.	Being Complied. An Environmental Management Cell has been established and is fully functional. The cell is responsible for implementing environmental management plans and monitoring compliance. The head of the EMC reports directly to the Chief Executive, ensuring effective oversight.
9	Adequate fund provision (capital and recurring) should be made for implementation of all safeguard measures. The funds should not be diverted, as per EMP, 574.53 lakhs has been embarked towards capital expenditure and 12.75 lakhs towards revenue expenses for the initial year.	Being Complied. Adequate funds have been earmarked and utilized for environmental protection measures. The allocated capital expenditure and recurring costs as per EMP are being strictly adhered to, and funds are not diverted for any other purpose.
10	The Ministry reserves the right to stipulate any other conditions, as may be required based on feedback etc., in the interest of environmental protection.	Being Complied. The project remains committed to complying with any additional conditions stipulated by the Ministry based on feedback or evolving environmental requirements.
11	Environmental compliance status vis-a-vis project implementation report should be submitted for the scrutiny of this Ministry once in 6 months regularly.	Being Complied. Six-monthly environmental compliance reports, along with project implementation status, are being regularly prepared and submitted to the Ministry for review and scrutiny within stipulated timelines.
12	It is seen that the ultimate pit limits would be reached beyond 25 years. The Proponent should submit a environmental mine closure plan so that the reclamation of the mine/quarry can be taken up towards the end of the project life appropriately.	Being Complied. As the mine life extends beyond 25 years, the project proponent is in the process of preparing a comprehensive Environmental Mine Closure Plan. This ensures proper reclamation, rehabilitation, and ecological restoration at the

		end of the mine life, in line with regulatory guidelines.
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**Deputy Director General of Forests (C),
Ministry of Env., Forest and Climate Change,
Integrated Regional Office,
A/3, Chandrasekharpur,
Bhubaneswar – 751023
Email: roez.bsr-mef@nic.in**

MD/ENV/65/102/2026
Date: 25.05.2026

Ref: 1. Environmental Clearance letter no. J-11015/10/93-IA.II (M) dated: 18.05.1994.
2. Environmental Clearance letter no. J-11015/51/2003.IA.II (M) dated: 05.04.2005.
3. Environmental Clearance letter no. J-11015/215/2007-IA-II (M) dated: 12.06.2008.
4. Environmental Clearance letter no. J-11015/215/2008-IA-II (M) dated: 11.03.2013.
5. Environmental Clearance letter no. J-11015/215/2008-IA-II (M) dated: 29.07.2019.
6. Environmental Clearance letter no. J-11015/215/2008-IA-II (M) dated: 13.04.2023.

Sub: Submission of Half-yearly compliance status report of Environmental Clearance conditions for the period October- 2025 – March- 2026 in respect of Joda East Iron Mine, M/s Tata Steel Limited.

Dear Sir,

Kindly find attached herewith the half-yearly compliance status report in respect of the stipulated Environmental Clearance conditions of Joda East Iron Mine, M/s Tata Steel Limited for the period from **October- 2025 – March- 2026**.

We trust that the measures taken towards environmental safeguards comply with the stipulated environmental conditions. We look forward to your further guidance which shall certainly help us in our endeavour for further improve upon our Environmental Management practices.

Thanking you,

Yours faithfully,
f: M/s Tata Steel Limited

Area Manager Environment, OMQ

Encl. : As above

Copy to : The Chairman, Central Pollution Control Board, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700107 (W. B.).
: The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII, Bhubaneswar – 751012 (Odisha).
: The Regional Officer, SPCB, College Road, Baniapata, Keonjhar – 758001 (Odisha).

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