



TSL/KAM/062/FY24  
Date: 25-11-2023

**To,**  
**Dy. Director General,**  
**Integrated Regional Office,**  
**Ministry of Environment and Forest & Climate Change, Eastern Region Office,**  
**A/3, Chandrasekharpur, Bhubaneswar-751023**

**Subject:** Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Kamarda Chromite Block of M/s Tata Steel Limited, for the period from April 2023 to September 2023.

**Reference:**

- 1) MoEF Letter Ref No: J-11015/418/2006-IA-II (M), Dated 08.05.2008
- 2) MoEF&CC's notification vide S.O-5845, dt. 28<sup>th</sup> Nov 2018

**Respected Sir,**

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance vested in favor of Kamarda Chromite Block of M/s Tata Steel Limited vide MoEF Letter Ref No: J-11015/418/2006-IA-II (M), Dated 08.05.2008, for the period from April 2023 to September 2023 for your kind perusal.

This is in reference to the MoEF&CC's notification vide S.O-5845, dt. 28<sup>th</sup> Nov 2018, the six-monthly compliance report is being submitted only in soft copy mode, shared with your good office over e-mail @ [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in) and [Parivesh web portal](#). As per the Vesting order No. 4129/SM IV(B) SM-12/2020 Dated 28<sup>th</sup> May 2020 and amended vesting order No. 2352/SM, SM-MC1-MISC-0019-2020 Dated 15.03.2022 issued by the Office of Nodal Officer, Steel & Mines Department of Government of Odisha, above environmental clearance has been vested to Tata Steel Mining Limited (merged with Tata Steel Limited from 1<sup>st</sup> September 2023) for 50years (As per MMDR Act, 2021).

We believe the above submission is in order.

Thanking You.

Yours faithfully,  
f: Tata Steel Limited

Mines Manager,  
Kamarda Chromite Block

**Copy to:** 1. Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Bhubaneswar, 751012

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Corporate Identity Number L27100MH1907PLC000260



# **Half-Yearly Compliance Report**

**On**

## **Environmental Clearance Conditions**

**MoEF Letter Ref No: J-11015/418/2008-IA-II (M), Dated 08.05.2008**

**Period: April 2023 – September 2023**

**Submitted By:**

**Kamarda Chromite Block**

**M/s. Tata Steel Limited**

**At: Kamarda, Po: Kalarangiatta, Block-Sukinda**

**District- Jajpur, Odisha -755028**

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**A. INTRODUCTION:** Lease of Kamarda Chromite Block of M/s Tata Steel Mining Limited was executed over leased area of 107.240Ha in the Sukinda Block of Jajpur District in the State of Odisha, which was previously owned by M/s. B C Mohanty & Sons Pvt Ltd up to March 2020. As per the Vesting order No. 4129/SM IV(B) SM-12/2020 Dated 28.05.2020 and amended vesting order No. 2352/SM, SM-MC1-MISC-0019-2020 Dated 15.03.2022 issued by the Office of Nodal Officer, Steel & Mines Department of Government of Odisha, Tata Steel Mining Limited (formerly known as T S Alloys Limited) has been vested with following Statutory Clearances/ permissions/ NOCs for 50years (As per MMDR Act, 2021) (**Annexure - I**). Further, Subsequent to the Scheme of Amalgamation of Tata Steel Mining Limited ('TSML' CIN No. U27109OR2004PLC009683) into and with Tata Steel Limited (CIN-L27100MH1907PLC000260) ('Scheme of Amalgamation'), and its approval and sanction by the Hon'ble National Company Law Tribunal, Cuttack Bench vide Order ('NCLT Order'), in terms of Clause 8.1 read with Clause 9.1(h) of Part I of the Scheme of Amalgamation, the captioned Scheme of Amalgamation of Tata Steel Mining Limited ('TSML') into and with Tata Steel Limited has become operative and effective from September 1, 2023 ('Effective Date'). With the above merger the legal entity of Tata Steel Mining limited has now ceased, and all its respective business and operation has become part of Tata Steel Ltd. The schematic representation of the site is depicted in the fig.1 and its layout in fig.2 below.

**Fig.1: Location of Kamarda Chromite Block (Tata Steel Limited)**

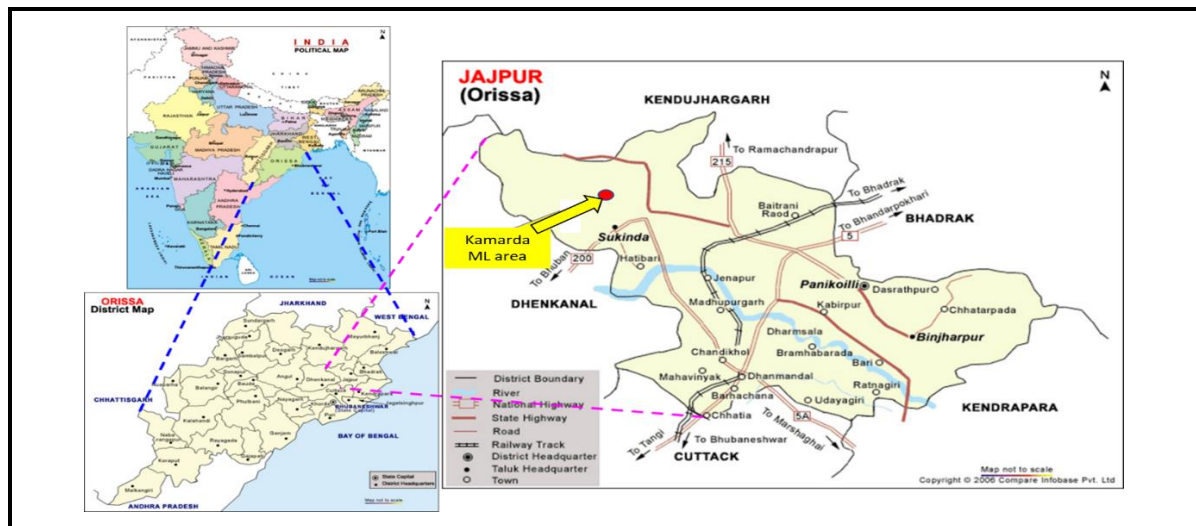
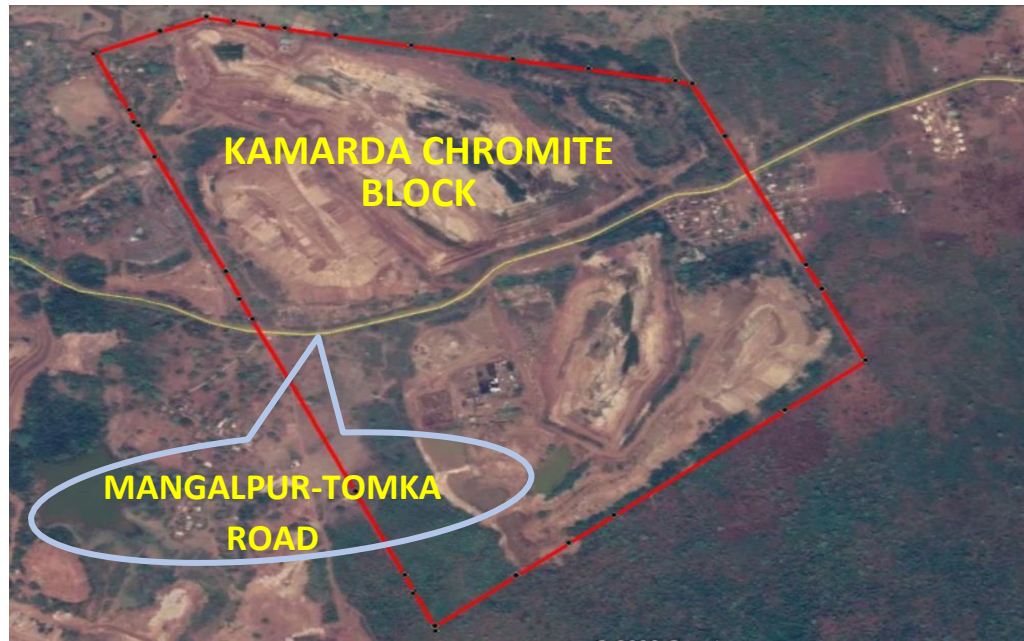


Fig.2 Mine Lay out (Aerial View of Kamarda Chromite Block)



**Status of Implementation of EC Conditions as per Environmental Clearance Letter Number Ref No: J-11015/418/2006-IA-II (M), Dated 08.05.2008 - Kamarda Chromite Block of M/s Tata Steel Mining Limited (TSML) {ML - 107.24 Ha Spread over in the villages Kamarda, Balipada & Tailangi, Tehsil: Sukinda, Dist: Jajpur - 755028, Odisha). Subsequent to the Scheme of Amalgamation of Tata Steel Mining Limited into and with Tata Steel and its approval and sanction by the Hon'ble National Company Law Tribunal, Cuttack Bench vide Order, and with Tata Steel Limited has become operative and effective from September 1, 2023 ('Effective Date').**

#### A. Specific Condition:

Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
(i)	All the conditions stipulated by the State Pollution Control Board in their consent to Establish shall be effectively implemented.	<b>Compliance:</b> We have implemented effectively all the conditions stipulated by the state Pollution Control Board in the Consent to Establish order No. 24020/IND-II-NOC-3903, dated 28.09.2006.
(ii)	Necessary Forestry clearance under the Forest (Conservation) Act, 1980 for an area of 101.85ha forestland shall be obtained before starting mining operation in that area. Environmental clearance is subject to grant of forestry clearance.	<b>Compliance:</b> Out of the total forest land of 105.78 Ha area, diversion over an area of 87.44 Ha forest land has been accorded vide Letter No 8-81/1996-FC of Govt. of India, MoEF (F.C. Division) New Delhi dated 28 <sup>th</sup> March 2008 which is vested to TSML for 50 years and mining activities are within that area only. We have already applied for diversion of the non-diverted forest land i.e 18.34 ha. <b>[Forest Clearances enclosed as Annexure-II]</b>

Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
(iii)	The topsoil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for a period more than 3years. The topsoil should be used for land reclamation and plantation	<b>Compliance:</b> This mining lease is a running mine; presently, no top soil is generated during mining operation. The over burden (OB) generated during the mining operations is stacked at earmarked dump site and would be used for dumping as per plan period. The height, width and the slope of the dumps are maintained as per statue. The Overburden dumps will be reclaimed/ rehabilitated by massive plantation.
(iv)	The project proponent shall ensure that no natural watercourse /water body shall be obstructed due to any mining operations.	<b>Compliance:</b> We hereby ensure that no natural water course /water bodies are obstructed due to the mining activity.
(v)	The over burden generated shall be stacked at earmarked dump sites, only and it should not be kept active for a long period of time. The total height of the dumps shall not exceed 30m, in three terraces of 10m each, keeping overall slope of the dumps below 28°. The proponent shall carry out slope stability study and submit report to the Ministry. 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 on six monthly basis.	<b>Compliance:</b> We have stacked the overburden generated during the mining operation at earmarked dump site only and it will not be kept active for a longer time. The total height of the dumps is maintained with three terraces maintaining overall slope of the dumps below 28°. The slope stability study is being carried out by suitable method and will be reported to the Ministry. The OB dump is being scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated dump areas continued until the vegetation becomes self-sustaining. Plantation details for the year 2023-24 is attached as <b>Annexure – III.</b>
(vi)	<p>Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, soil, OB and mineral dumps to arrest flow of silt and sediment directly into Damshal Nallah and other water bodies. 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.</p> <p>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 Damshal nallah and other water bodies 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.</p> <p>Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall / super cyclone period. A separate storm water sump for this purpose should be created.</p>	<p><b>Compliance:</b> We have maintained and constructed the catch drains and siltation ponds of appropriate size for the working pit, soil, OB dumps and mineral stack to arrest flow of silt and sediment directly into Damshal Nallah and other water bodies. The collected water is being utilized for watering the mine haul roads, green belt development etc. The drains are being regularly desilted after monsoon and maintained properly.</p> <p>Approximately, 4590 meters of Retaining wall, 4932 meters of garland drain and 7 nos. of settling pits are constructed and maintained in and around the waste dumps to manage the runoff from OB dumps. The catch drains and siltation ponds of appropriate size is constructed around the mine working, mineral and OB dumps to prevent run off water and flow of sediments directly into the Damsala Nallah and other water bodies. The drains and settling pits are regularly de-silted by mechanized means and maintained properly. The garland drains and sumps are constructed keeping 50% safety margin over and above the peak sudden rainfall. As per mining plan 576 m of retaining wall and garland drain, and 1no of settling pond construction completed.</p> <p>Storm water return system is provided to collect the water and is not being allowed to go to the effluent treatment plant directly during high rainfall / super cyclone period. A separate storm water collection sump (inactive quarry) is made for this purpose.</p> <p style="text-align: right;"><b>[Please refer to Annexure-III]</b></p>

Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
(vii)	Dimension of retaining wall at the toe of over burden dump and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	<b>Compliance:</b> We have constructed retaining wall at the toe of over burden dump and OB benches within the mine as per the approved dimensions by IBM to check run-off and siltation which has been calculated based on the rainfall data. <b>[Please refer to Annexure-III]</b>
(viii)	Effluents containing Cr <sup>+6</sup> shall be treated to meet the prescribed standards before reuse/discharge. Effluent Treatment Plant should be provided for treatment of mine water discharge and wastewater generated from the workshop and mineral separation plant. Run off from OB dumps and other surface run off should be analysed for Cr <sup>+6</sup> and in case its concentration is found higher than the permissible limit the water should be treated before reuse/discharge.	<b>Compliance:</b> One ETP (200m <sup>3</sup> /hr) is in operation to treat the mine run-off water containing Cr <sup>+6</sup> . Online monitoring and data transfer facility is provided to analyse pH, TSS & Cr <sup>+6</sup> in real time basis and transfer the data to SPCB, server. The runoff from OB dumps and other surface run off is continuously analyse and found within the permissible limit. <b>[Please refer to Annexure-IV]</b>
(ix)	Separate impervious concrete pits for disposal of sludge shall be provided for the safe disposal of sludge generated from the mining operations.	<b>Compliance:</b> We do not have any Chrome Ore Beneficiation (COB) plant at our mines, thus no sludge is generated from the mining operation.
(x)	The project proponent shall ensure that the quality of decanted effluents from the tailing pond, if any, conform to the prescribed standards before discharge.	<b>Compliance:</b> We don't have any COB and tailing pond.
(xi)	The project proponent shall explore the possibility to reduce concentration of Cr <sup>+6</sup> in the tailing pond, if any, in consultation with an expert scientific institution like NEERI.	<b>Compliance:</b> Presently, we are not operating any COB plant, thus no tailing is generated.
(xii)	Plantation shall be raised in an area of 73.823ha including a 7.5m side green belt in the safety zone around the mining lease by planting the native species around ML area, over burden dumps, roads etc. in consultation with the local DFO/Agriculture Department. The tree density should be thousand trees per hectare. At least 1500 trees per year shall be planted.	<b>Compliance:</b> About 4.12ha of Dump and safety zone plantation is completed in FY 2023-24. About 10800nos of local saplings are planted in dump for more survival rate with tree density of 2500 per hectare. <b>[Please refer to Annexure-III]</b>
(xiii)	Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPD 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.	<b>Compliance:</b> Two numbers of mobile water (Tankers)/ Sprinklers having capacity of 12KL are used for water sprinkling in mine haul road, loading and unloading points, and ore stack yard to minimize the fugitive dust emission. About 500mts of fixed water sprinkling is installed in main haul road. AAQ parameters are within the permissible limit stipulated by Central Pollution Control Board. <b>[Please refer to Annexure-III&amp;IV]</b>
(xiv)	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.	<b>Compliance:</b> Two (02) nos of roof-top rainwater harvesting structures are constructed to recharge the ground water. We have also constructed some ponds as a part of community development programme in the nearby community in buffer zone for recharge the ground water. <b>[Please refer to Annexure-IV&amp;V]</b>
(xv)	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers in and around the mine lease. The monitoring should be carried out four times in a	<b>Compliance:</b> Presently, there is one (02) no. of bore well and one open well ground water monitoring stations are selected for water level and quality analysis in and around Mine lease area. Hydrogeological study was carried out to derived out the monitoring stations around the mine lease. Required

Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
	year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to the I Ministry of Environment and Forests, its Regional Office located at Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.	piezometer installation is under progress with automatic level recorder with data transfer facility. We are also conducting regular monitoring of ground water of the open wells/dug wells located around the nearby villages on quarterly basis and all the data are being submitted to OSPCB on quarterly basis. The data so collected is submitted to all concerned statutory departments on half yearly basis. <b>[Please refer to Annexure-V]</b>
(xvi)	Permission from the competent authority should be obtained for drawal of ground water if any, required for the project.	<b>Compliance:</b> Previous lessee had obtained the ground water withdrawal NOC bearing letter number 21- 4(31)/ SER/ CGWA/ 2012-884 from CGWA which is vested TSML. As we will be expanded our mining activity, we have prepared detailed hydrogeology study report and water balance diagram and applied fresh CGWA NOC application. We have also obtained 50 KL/day ground water withdrawal allocation order from Executive Engineer, Jarka Irrigation Division, Govt. of Odisha.  We have already applied for Ground water withdrawal permission from CGWA vide Application Number : 21-4/4185/OR/MIN/2022 on 31.08.2022.  The monitoring reports of ground water level and quality data are being sent regularly to the State Pollution Control Board and Regional Director, Central Ground Water Board.  <b>[Please refer to Annexure-VI]</b>
(xvii)	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	<b>Compliance:</b> Suitable rainwater harvesting measures on long term basis is being planned and two roof-top rain water harvesting structure are constructed. More structures will be constructed consultation with Regional Director, Central Ground Water Board during the site inspection for fresh NOC.
(xviii)	Vehicular emissions should 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.	<b>Compliance:</b> Vehicular pollution is measured and found below the permissible limit. The vehicles are covered with tarpaulin during transportation.
(xix)	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and arrest fly rocks and boulders should be implemented.	<b>Compliance:</b> Controlled basting is being carried out. The blasting operation is carried out only daytime.
(xx)	Drills shall either be operated with dust extractors or equipped with water injection system.	<b>Compliance:</b> Wet drilling activity is carried out.
(xxi)	Consent to operate should be obtained from SPCB before starting enhanced production from the mine.	<b>Compliance:</b> Consent to Operate vide letter no. 4998-IND-I-CON-750, dated 22.03.2016 and 7939/74SY, Dt. 11. 10.2019 has been vested for fifty (50) years (as per MMDR Act, 2021). However, as per SPCB, Odisha office Memorandum No. 6181/IND-I-Con (M)1603, Dated 16.07.2020, it has been stated that the new lessee shall apply for CTO a fresh from Board through the SPCB web portal (www.odocmms.nic.in), for a period not exceeding five years, with the applicable fees as notified in Gazette notification no. 1503 & 1504 dated 30.07.2012, published by Govt. of Odisha. Thus, we have obtained the new CTO as consent order No. 2951 issued vide letter No.



Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
		3891/IND-I-CON-750, dt. 18/03/2023, valid till 31.03.2024 in the name of M/s. Tata Steel Mining Limited.  <b>[Please refer to Annexure-VII]</b>
(xxii)	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	<b>Compliance:</b> One ETP (200m <sup>3</sup> /hr) is in operation to treat the mine seepage and mine run-off water containing Cr+6. Online monitoring and data transfer facility is provided to analyse pH, TSS & Cr+6 in real time basis and transfer the data to SPCB, server. No colony is established at our mine site, all the employees are now staying at Sukinda Chromite Mines colony.
(xxiii)	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	<b>Compliance:</b> Final Mine Closure plan along with details of corpus fund will be submitted to the Ministry of Environment, Forests and Climate Change 5 years in advance of final mine closure for approval.
<b>B.</b>	<b>General Conditions</b>	<b>Compliance</b>
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	<b>Compliance:</b> No mining technology and scope of working is changed. The mining activity is accorded as per the approved mining plan and Environmental clearance obtained. In future, if any urge for change mining technology and scope is required, prior permission will be obtained from Ministry of Environment, Forest and Climate Change.
(ii)	No change in the calendar plan including excavation, quantum of mineral chromite ore and waste should be made.	<b>Compliance:</b> No change in the calendar excavation plan for ore and waste is made. The excavation is being carried out as per approved mining plan.
(iii)	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.	<b>Compliance:</b> Conservation measures for protection of flora and fauna in the core & buffer zone are being carried out as per the direction of the local forest and wildlife department. Previous lessee's site-specific wildlife management plan is vested to TSML and same will be managed. We are in process for diversion of 18.34 ha of Sabik forest land and required conservation measures will be taken.
(iv)	Periodic monitoring of ambient air quality should be carried out for RPM, SPM, SO <sub>2</sub> and NO <sub>x</sub> . Location of the 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. The data so collected 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.	<b>Compliance:</b> Periodic monitoring of ambient air quality is being carried out for RPM, SPM, SO <sub>2</sub> and NO <sub>x</sub> . Three monitoring stations are decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets. The frequency of monitoring is being carried out weekly twice as per the CTO conditions. The monitoring data is submitted monthly to the State Pollution Control Board and six-monthly basis to Ministry including its Regional office located at Bhubaneswar and Central Pollution Control Board.  <b>[Please refer to Annexure-V]</b>
(v)	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.	<b>Compliance:</b> All machineries are properly maintained to avoid generation of noise. Controlled blasting is being maintained. All HEMM operators and those exposed to noise prone areas are provided with all ear plugs and muffs. Further regular taring is being imparted to the workers to create awareness related to noise. Regularly fitness check of HEMM is maintained the noise level below permissible limit.
(vi)	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the	<b>Compliance:</b> We are operating an Effluent Treatment Plant (200 m <sup>3</sup> /hr) where the mine drainage water is treated and discharged out of ETP. The standard of discharge water from

Sl. No	Condition	Compliance Status (Apr'23 to Sept'23)
	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.	ETP out let is within the standard prescribed under GSR 422. Oil and grease trap chamber is constructed for workshop effluent treatment. The treated water will be recirculated and reused for the process.
(vii)	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.	<b>Compliance:</b> Wet drilling is a common practice in the mines. Further all dusty areas are being wetted by water sprinkling arrangement. Staffs and Workers exposed to dust prone areas are provided with all PPEs. Regular training is given to all staff at our VT Centre to educate them on safety and health aspects.
(viii)	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	<b>Compliance:</b> We have established a separate Environmental Management Cell with qualified persons which is headed by top Management. <b>[Please refer to Annexure-VIII]</b>
(ix)	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.	<b>Compliance:</b> Agreed and will be informed.
(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.	<b>Compliance:</b> We are not diverting funds allocated for environmental protection measures. Expenditure planned as per Annual Business Plan (ABP) towards environmental protection measures and actual expenditure accrued is submitted regularly basis to MoEF Regional Office, Bhubaneswar. <b>[Please refer to Annexure-IX]</b>
(xi)	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.	<b>Compliance:</b> We will extend all our support and cooperation to any official visiting our mining site for inspection.
(xii)	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.	<b>Compliance:</b> Six monthly compliance report on the status of the implementation of the stipulated environmental safeguards is being submitted to the Ministry of Environment, Forest and Climate Change, its Regional Office and CPCB/SPCB as per stipulated time frame. Recent six monthly compliance report was submitted vide letter No. TSML/KAM/5896/FY24, dt. 29.05.2023 to MoEF&CC & SPCB, Odisha.
(xiii)	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation, if any, was received while processing the proposal.	<b>Compliance:</b> Previous lessee has already submitted the EC letter to all the offices mentioned. In future, after getting fresh EC we will be circulated to Kansa Panchayat / local NGOs.
(xiv)	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	<b>Compliance:</b> Not Applicable
(xv)	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	<b>Compliance:</b> Previous lessee has already published both in Odia and English Local News Paper and submitted all the statutory Departments. In future, after getting fresh EC we will be published both in Odia and English Local News Paper and

<b>Sl. No</b>	<b>Condition</b>	<b>Compliance Status (Apr'23 to Sept'23)</b>
	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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.	submitted all the statutory Departments. Copy of the same will be submitted to the Ministry of Environment, Forest and Climate Change at <a href="http://www.environmentclearnce.nic.in">www.environmentclearnce.nic.in</a> and a copy of the same would be forwarded to the Regional Office.

Annexure - I -Vesting Order

**Government of Odisha  
Steel and Mines Department  
Office of the Nodal Officer**

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**VESTING ORDER**

No. 4129 /SM  
**IV(B)SM-12/2020**

Dated 28<sup>th</sup> May'2020

Whereas a mining lease of the following description, which was held by M/s B. C. Mohanty & Sons Pvt. Ltd. (herein after referred to as the previous lessee) with validity period upto 31.03.2020 has been auctioned and M/s T S Alloys Ltd., has been declared as the preferred bidder of the said mine.

**Description of the Mining Block**

- Name of Mineral(s)-Chromite
- Name of Mining lease-KamardaChromite Ore Block.
- Address/location of mining lease-Kamarda village , Jajpur district
- Area of lease-107.240 hecets (As per DGPS)/ 107.240 hecets (As per ROR)

And whereas, a letter of intent bearing no 9012/SM, dated 18.11.2019 read with letter no. 9095/SM dated 20.11.2019 has been issued in favour of the preferred bidder for grant of mining lease for the abovementioned mining block;

AND whereas, in terms of section 8B(2) of the MMDR Act, 1957 read with rule 9A(4) of the Mineral (Other than Atomic and Hydrocarbon Energy Minerals) Concession Rules, 2016 [herein after called the Rules'2016], the holder of the letter of intent for the said mining block shall be deemed to have acquired all valid rights, approvals, clearances, licenses and the like vested with the previous lessee.

NOW therefore, the undersigned being the Nodal Officer for the State of Odisha having been nominated under rule 9A(1) of the Mineral (Other than Atomic and Hydrocarbon Energy Minerals) Concession Rules, 2016 [herein after called the Rules,2016], do hereby, pursuant to the provisions contained in rule 9A(2) of the Rules,2016 order that all the valid rights, approvals, clearances, licenses and the like vested in the previous lessee in respect of the aforementioned mining block are deemed to have vested in favour of the holder of the letter of intent on the same terms and conditions of every rights, approvals, clearances, licenses, and the like which vested with previous lessee.

Without prejudice to the generality of the provisions of section 8B(2) of the MMDR Act, 1957, the details of the valid rights, approvals, clearances, licenses, and the like held by the previous lessee and vested in favour of the holder of the Letter of Intent are given in the Annexure-I to this order.

This vesting order is valid for a period of two years from the date of execution of lease deed or till the date of getting fresh approvals, clearances, licences, permits, and the like, whichever is earlier

(S. K. Popli)

Nodal Officer-cum-Special Secretary to Government

Memo No. 4130 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to M/s T S Alloys Ltd. plot No. N3/24, IRC Village, Nayapalli, Bhubaneswar, Odisha for information and necessary action. It is requested that one copy each of the documents mentioned in the Annexure-I may be collected from the office of the Director Mines, Odisha, Bhubaneswar during office working hours.

Nodal Officer

Memo No. 4131 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to M/s B. C. Mohanty & Sons Pvt. Ltd., Rajabagicha, Cuttack- 753009, Odisha for information and necessary action.

Nodal Officer

Memo No. 4132 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to Indian Bureau of Mines, Bhubaneswar/ MoEF & CC, 534, ParyavaranBhawan, CGO Complex, Lodhi Road, New Delhi 110003/ MoEF & CC (FC Divison), Indira ParyavaranBhawan, Aliganj, Jorbagh Road, New Delhi 110003/ SPCB, PariveshBhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar, Odisha, 751012/ Director General of Mines Safety, ChaibasaRegiona, Chaibasa, 833201 /Ministry of Water Resource, River Development and Ganga Rejuvenation, West Block-2, Wing 3, Sector-1, R.K. Puram, New Delhi-110066 for information and necessary action.

Nodal Officer

Memo No. 4133 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to Director of Mines, Odisha, Bhubaneswar for information and necessary action. He is requested to provide one copy each of the documents described in the Annexure-I to the authorized representative of the LoI holder with proper acknowledgement and forward a copy of acknowledgement to the Department for record.

Nodal Officer

Memo No. 4134 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to Collector, Jajpur/ Deputy Director of Mines, Jajpur/ DFO, Cuttack for information and necessary action.

Nodal Officer

Memo No. 4135 /SM

Dated: 28<sup>th</sup> May'2020

Copy alongwith Annexure-I forwarded to Forest and Environment department/ PCCF(Nodal), Bhubaneswar for information and necessary action.

Nodal Officer

**ANNEXURE-I**

**Name of the Block :** Kamarda Chromite ore Block  
**LoI Holder :** T S Alloys Ltd.  
**Area of the Lease :** 107.240 Hects (As per ROR)  
 107.240 hecets (As per DGPS)

SL No	Nature of approval clearance etc	Issuing officer/authority	Reference No./ Date of Issue
1	Mining Plan	Regional Controller of Mines, Bhubaneswar, Govt. of India	MSM/FM/16-ORI/BHU/2018-19/785, dated 10.07.2018.
2	EC	MoEF & CC, Govt. of India	J-11015/418/2006-IA II(M), Dated 08.05.2008
3	FC	MoEF & CC, Govt. of India,	F. No. 8-81/1996-FC, dated 28.03.2008 over 87.44 hecets.
4	Consent to Establish	State Pollution Control Board, Odisha	24020/IND-II-NOC-3903, dated 28.09.2006
5	Consent to Operate	State Pollution Control Board, Odisha	4998-IND-I-CON-750, dated 22.03.2016 1939/74SY, Dtd. 11.10.2019
6	Surface Right	District Collector Jajpur	Surface Right granted over 88.068 hecets
7	Deep Hole Blasting & use of HEMM	Directorate General of Mines Safety, Govt. of India	BB-CU/CH-4/P-106(2)(b)/2019/148, Dated 04.01.2019
8	Ground Water Withdrawn	Member Secretary (CGWA), Central Ground Water Authority , Govt. of India	21-4(31)/SEC/CGWA/2012-884 dated 25.05.2016

1. Vesting of clearances/approvals/licences/permissions /rights as above does not have the effect of transfer of ownership of infrastructure established and the ore & minerals raised by the ex-lessee which shall be governed by the provisions of the rules 12(1)(gg) and 12(1)(hh) of the Minerals Concession Rules, 2016. However, on acquisition of such infrastructure from the ex-lessee and submission of evidence thereof, the new lessee may be vested with related clearances/ approvals etc at the relevant time.
2. Vesting of Forest Clearance is subject to payment of NPV as prescribed in letter dated 31.03.2020 of Government of India, Ministry of Environment, Forest & Climate Change.





Government of India  
Ministry of Environment, Forest and Climate Change  
(Impact Assessment Division)

**PARIVESH**  
(Pro-Active and Responsive Facilitation by Interactive,  
and Virtuous Environment Single-Window Hub)

File No. : J-11015/418/2006-IA II(M)  
EC Identification No. EC22A001OR145950  
Proposal No. IA/OR/MIN/406238/2008  
Date:15/03/2022

**ACKNOWLEDGEMENT**

This is to acknowledge that TATA STEEL MINING LIMITED has been registered in the PARIVESH Portal in respect of transfer of EC vested with previous lessee under the provisions of S.O 2817 (E) dated 13th July , 2021.

Therefore, the prior Environmental Clearance vested with the previous lessee M/s B C Mohanty & Sons Private Limited shall be deemed to have been transferred during its validity period in terms of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) as amended by the Mines and Minerals (Development and Regulation) Amendment Act, 2021 (16 of 2021) to the successful bidder of the mining leases ( TATA STEEL MINING LIMITED), from the date of commencement of new lease for the remaining validity period (as per EC granted to previous lessee), subject to comply with all the terms and conditions of the Environmental Clearance granted to previous lessee including non-compliance of EC conditions by the previous lessee, if any,

However, if on verification the Ministry or IRO or SPCB or UTPCC, holds that the information submitted found to be false or misleading at any stage, the transfer of EC shall stand revoked.

Remarks by Member Secretary :- The EC dated 8th May,2008 is valid as per EIA, 2006 notification.

Report URL is Enclosed below :

[http://environmentclearance.nic.in/user/MineLease\\_FormReport.aspx?pid=477536&status=1](http://environmentclearance.nic.in/user/MineLease_FormReport.aspx?pid=477536&status=1)

Date: 15/03/2022

(e-signed)  
Pankaj Verma  
Member Secretary  
IA - (Non-Coal Mining sector)





**Annexure - II - Forest Clearance**

F. No. 8-81/1996-FC  
Government of India  
Ministry of Environment & Forests  
(FC Division)

Paryavaran Bhawan,  
CGO Complex, Lodhi Road,  
New Delhi - 110 510.

Dated: 28<sup>th</sup> March 2008

To  
The Principal Secretary (Forests),  
Government of Orissa,  
Bhubaneswer.

**Sub: Diversion of 87.44 ha. of forest land (including 41.157 ha area already approved by this Ministry's order dated 14.02.97 and 29.08.97) for renewal of Kamarda Chromite mining lease of M/s B.C. Mohanty & Sons (Pvt.) Ltd. in Jajpur district of Orissa.**

Sir,

I am directed to refer to State Government's letter No.10.F. (Cons) / 6 / 1999 / 1500 / F&E dated 21.01.1999 on the subject cited above seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted under Section-3 of the said Act, **in-principle approval** for the said Mining Lease was granted vide this Ministry's letter of even number dated 4/7<sup>th</sup> July, 2003 subject to fulfillment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

2. In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government vide letter No. 10.F. (Cons) / 6 / 1999 / 4479 / F&E dated 14.03.2008, approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 87.44 ha of forest land for renewal of Kamarda Chromite Mining Lease of M/s B.C. Mohanty & Sons (Pvt.) Limited in Jajpur district of Orissa subject to fulfillment of the following conditions:

1. Legal status of the diverted forest land shall remain unchanged.
2. (i) Compensatory afforestation shall be raised and maintained by the State Forest Department at the project cost.  
(ii) Fencing, protection and regeneration of the safety zone area (7.5 metres strip all along the outer boundary of the mining lease area) shall be done at the project cost. Besides this, afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost.  
(iii) Wherever possible and technically feasible, the User Agency shall undertake afforestation measures in the blanks within the lease area, as well as along the roads outside the lease area diverted under this approval, in consultation with the State Forest Department at the project cost.
3. Following activities shall be undertaken by the State Forest Department at the project cost:
  - (i) Proper mitigative measures to minimize soil erosion and choking of streams shall be prepared and implemented.

- (ii) Planting of adequate drought hardy plant species and sowing of seeds to arrest soil erosion.
- (iii) Construction of check dams, retention/toe walls to arrest sliding down of the excavated material along the contour.
4. The period of diversion under this approval shall be twenty (20) years with effect from date of issue of this letter subject to valid lease by User Agency under the MMDR Act, 1957.
5. (i) The User Agency shall take up planting work on the static dumps during the advance mining operations.  
(ii) All the dumps shall be fully reclaimed by afforestation immediately after closure of the mine in the shortest possible period under supervision of the State Forest Department.
6. Any tree felling shall be done only when it is absolutely necessary and unavoidable, and that too under strict supervision of the State Forest Department.
7. No damage to the flora and fauna of the area shall be caused.
8. Reclamation Plan shall be strictly implemented which shall be monitored regularly by the State Forest Department.
9. It shall be ensured that no labour-camps are set up inside the forest area.
10. The mining lease area shall be demarcated on ground at the project cost, using four feet high RCC pillars, with each pillar inscribed with the serial number, forward and backward bearings and distance between two adjacent pillars.
11. The forest land shall not be used for any purpose other than that specified in the proposal.
12. This approval is subject to the Environment Clearance under the Environment (Protection) Act, 1986 and any other clearances required for such project.
13. Any other condition that the CCF (Central), Regional Office, Bhubaneswar, may impose from time to time for protection and improvement of flora and fauna in the forest area, shall also be applicable.

Yours faithfully,

(C.D. Singh)

Assistant Inspector General of Forests

Copy to :-

1. The Principal Chief Conservation of Forests, Government of Orissa, Bhubaneswar.
2. The Nodal Officer, O/o the PCCF, Government of Orissa, Bhubaneswar.
3. The Chief Conservator of Forests (Central), Regional Office, Bhubaneswar.
4. User Agency.
5. Monitoring Cell of FC Section.

(C.D. Singh)

Assistant Inspector General of Forests

**Annexure – III -Environmental Management Practices**



**Waste dump management with Retaining wall and Garland drain construction**



**Waste dump plantation in FY 2022-23**



**Water sprinkling through movable water tanker & Fixed Sprinkler**



**Vehicle washing with Oil & Grease separation pit**



**Hazardous storage area**



**Roof top Rainwater Harvesting Structures**

## **Kamarda Chromite Block**

### **M/S Tata Steel Mining Limited**

#### **Details of Plantation**

<b>YEAR</b>	<b>Total No.</b>	<b>Area (ha)</b>	<b>Species of Plants</b>	<b>Survival Rate</b>
2021-22	11,883	3.2ha with Gap filling Dump-D=0.650 ha; Dump-A (Hatihudi Side) =0.134 ha; Safety Zone = 0.032 ha AB Dump = 2.384 ha	Simarua, Teak, Bada Chakhunda, Gambhari, Neem, Maha Neem, Arjun, Karanja, Chatiyana, Kaju, Panas, Jamun, Bamboo, Sal, Eucalyptus, Radha chuda, Sishu, Acacia, Amla	70%
2022-23	5459	2.18 ha at Dump D and A&B	Simarua, Teak, Srishi, Sishu, Neem, Mahaneem, Arjun, Karanja, Pesta Badam, Radha Chuda, Bamboo, Amla,	75%
2023-24	10800	4.12 ha Dump D, Dump A & B Safety zone	Banyan, Jamun, Bada Chakunda, Kadamba, Chatiyana, Kaju, Jackfruit, Bahada, Gambhari, Sal, Mango, Peepal	

## Annexure – IV -Environmental Monitoring Extract

**EXTRACTS OF ENVIRONMENTAL MONITORING (PERIOD: Apr'2023 to Sept'2023)****1. Air Quality Monitoring: CORE ZONE****1. OFFICE GATE**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Pb µg/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Apr'23	60.7	32.6	5.2	7.2	0.20	BDL	BDL	BDL	BDL	BDL	BDL	BDL
May'23	61.8	33.8	5.4	7.3	0.21	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.7	32.4	5.3	7.3	0.20	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	53.8	28.4	5.0	6.7	0.17	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	49.5	28.0	4.3	6.1	0.13	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	45.6	25.2	3.9	5.1	0.12	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**2. COB PLANT**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Pb µg/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Apr'23	60.9	32.4	5.4	6.1	0.24	BDL	BDL	BDL	BDL	BDL	BDL	BDL
May'23	61.8	33.5	5.6	6.2	0.26	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.5	32.0	5.5	6.1	0.24	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	52.3	27.8	5.0	5.4	0.21	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	49.1	27.2	4.4	5.0	0.18	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	44.8	24.2	4.2	4.8	0.16	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**3. ETP**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Pb µg/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Apr'23	61.5	32.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
May'23	62.4	33.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.9	32.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	52.3	29.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	49.4	27.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	44.4	24.2	4.1	4.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**4. NEAR AB DUMP**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Pb µg/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Apr'23	61.6	33.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
May'23	62.2	33.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jun'23	60.8	31.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Jul'23	52.2	27.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aug'23	48.6	27.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sep'23	45.5	24.7	4.2	5.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**2. Air Quality Monitoring: BUFFER ZONE****1. KANSA VILLAGE**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	Pb µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Jun'23	51.4	27.2	BDL	BDL	BDL	6.2	BDL	BDL	0.59	BDL	BDL	BDL
Sep'23	46.7	24.9	BDL	BDL	BDL	5.9	BDL	BDL	0.54	BDL	BDL	BDL

**2. SARUABIL VILLAGE**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	Pb µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Jun'23	53.2	28.3	BDL	BDL	BDL	7.5	BDL	BDL	0.62	BDL	BDL	BDL
Sep'23	47.9	25.5	BDL	BDL	BDL	6.7	BDL	BDL	0.59	BDL	BDL	BDL

**3. TALANGI VILLAGE**

Monthly Average	PM10 µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	Pb µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	Benzene µg/m <sup>3</sup>	Benzo(a)Pyrene ng/m <sup>3</sup>	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>
Jun'23	49.7	26.4	BDL	BDL	BDL	7.1	BDL	BDL	0.68	BDL	BDL	BDL
Sep'23	47.6	25.3	BDL	BDL	BDL	6.8	BDL	BDL	0.61	BDL	BDL	BDL

**3. AMBIENT NOISE MONITORING: Core Zone****DAY TIME (6.00AM - 10.00PM)**

Sl. No	LOCATION	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
		Noise Level in dB(A)					
1	Near Office	56.1	56.8	55.9	50.7	52.4	53.2
2	Near ETP	59.2	60.8	61.3	56.9	54.8	55.6
3	COB Area	63.7	64.2	63.7	58.5	57.7	56.5
4	Kamarda Office Front Road	56.8	57.5	58.6	55.3	56.9	54.8
5	Village Kamarda	53.3	55.7	53.5	48.9	47.8	48.4

**NIGHT TIME (10.00PM – 6.00AM)**

Sl. No	LOCATION	Apr'23	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
		Noise Level in dB(A)					
1	Near Office	52.5	53.2	51.4	46.5	50.1	50.3
	Near ETP	52.8	56.5	57.5	52.2	51.3	53.5
3	COB Area	59.2	59.6	59.2	54.7	54.4	52.8
4	Kamarda Office Front Road	52.4	54.3	54.7	51.4	52.6	51.6
5	Village Kamarda	49.8	52.5	50.1	45.8	45.1	45.3

**4. WATER QUALITY MONITORING****A. DRINKING WATER****1. Borewell of COB Plant**

Sl. No	Parameter	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
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1	pH at 250C	7.25	7.28	7.25	7.18	7.26	7.22
2	Colour	<5	<5	<5	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Total Hardness	98	97	94	102	116	128
5	Turbidity	3.2	3.3	2.8	2.5	2.9	3.1
6	Total Dissolved Solids	289	292	286	292	316	342
7	Chloride as Cl	35.6	35.8	36.2	35.8	36.5	35.9
8	Dissolve Oxygen	4.8	4.9	4.3	4.1	4.6	4.8
9	Calcium as Ca	26.5	27.1	26.8	29.6	30.2	33.2
10	Magnesium as Mg	7.1	7.2	6.6	6.9	9.9	11.02
11	Sulphate as SO4	6.1	5.9	5.3	5.5	6.2	6.9
12	Fluoride as F	0.23	0.23	0.21	0.18	0.21	0.18
13	Iron as Fe	0.35	0.33	0.32	0.30	0.33	0.31
14	Total Chromium as Cr	BDL	<0.1	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	BDL	BDL	BDL	<0.004	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1				Absent	
19	Nickel (as Ni)	Absent	Absent	Absent	<0.05	<0.05	<0.05
20	Total alkalinity as CaCO3	78	80	74	78	86	92
21	Manganese as Mn	0.033	0.031	0.030	0.028	0.027	0.023
22	Free Residual Chlorine	ND	ND	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND	ND	ND
24	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
25	Aluminium (as Al)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

## 2. Tap Water from TSML Canteen

Sl. No	Parameter	Apr'23	May'23	July'23
1	pH at 250C	7.29	7.31	7.24
2	Colour	<5	<5	<5
3	Odour	Agreeable	Agreeable	Agreeable
4	Total Hardness	84	89	94
5	Turbidity	3.8	3.5	2.9
6	Total Dissolved Solids	275	281	287
7	Chloride as Cl	32.1	33.1	32.4
8	Dissolve Oxygen	5.2	5.1	5.6
9	Calcium as Ca	27.8	28.5	30.1
10	Magnesium as Mg	4.9	4.4	4.6
11	Sulphate as SO4	5.8	5.5	5.9
12	Fluoride as F	0.19	0.21	0.20
13	Iron as Fe	0.28	0.29	0.27
14	Total Chromium as Cr	BDL	<0.1	<0.05
15	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01
16	Mercury as Hg	BDL	BDL	<0.004
17	Pesticide	Absent	Absent	Absent

18	Fecal Coliform	<1.1	<1.1	<1.1
19	Nickel (as Ni)	Absent	Absent	<0.05
20	Total alkalinity as CaCO <sub>3</sub>	75	78	80
21	Manganese as Mn	0.029	0.028	0.026
22	Free Residual Chlorine	ND	ND	ND
23	Anionic Detergents	ND	ND	ND
24	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1
25	Aluminium (as Al)	<0.03	<0.03	<0.03
26	Taste	Agreeable	Agreeable	Agreeable

**C. GROUND WATER (Core Zone)**

Sl. No	Parameter	Tube well at Kamarda Village	Tube well at Kamarda Village
		Apr'23	May'23
1	pH at 250C	7.31	7.34
2	Colour	<5	<5
3	Odour	Agreeable	Agreeable
4	Total Hardness	92	96
5	Turbidity	<1	<1
6	Total Dissolved Solids	296	302
7	Chloride as Cl	32.4	32.9
8	Dissolve Oxygen	5.5	5.2
9	Calcium as Ca	27.4	28.4
10	Magnesium as Mg	5.8	6.1
11	Sulphate as SO <sub>4</sub>	7.2	6.7
12	Fluoride as F	BDL	BDL
13	Iron as Fe	0.31	0.30
14	Total Chromium as Cr	<0.1	<0.1
15	Hexavalent Chromium as Cr+6	<0.01	<0.01
16	Mercury as Hg	BDL	BDL
17	Pesticide	Absent	Absent
18	Fecal Coliform	<1.1	<1.1
19	Nickel (as Ni)	Absent	Absent
20	Total alkalinity as CaCO <sub>3</sub>	78	82
21	Manganese as Mn	0.023	0.021
22	Free Residual Chlorine	ND	ND
23	Anionic Detergents	ND	ND
24	Ammonia (as total ammonia-N)	<0.1	<0.1
25	Aluminium (as Al)	<0.03	<0.03
26	Taste	Agreeable	Agreeable

**D. GROUND WATER (Buffer Zone)**

Sl. No	Parameter	Tube well at Kamarda Village	Tube well at Balipura Village	Tube well at Kamarda Village	Tube well at Kamarda Village
		Jun'22		Jul'23	Aug'23
1	pH at 250C	7.32	7.45	7.21	7.29
2	Colour	<5	<5	<5	<5



3	Odour	Agreeable	Agreeable	Agreeable	Agreeable
4	Total Hardness	91	97	106	116
5	Turbidity	<1	<1	<1	<1
6	Total Dissolved Solids	282	313	295	346
7	Chloride as Cl	34.2	35.1	33.1	34.1
8	Dissolve Oxygen	5.9	6.4	5.4	5.8
9	Calcium as Ca	28.2	26.2	29.6	31.2
10	Magnesium as Mg	5.1	7.7	7.9	9.3
11	Sulphate as SO4	8.7	7.4	8.1	9.2
12	Fluoride as F	BDL	BDL	BDL	BDL
13	Iron as Fe	0.33	0.27	0.29	0.32
14	Total Chromium as Cr	<0.05	<0.05	<0.05	<0.05
15	Hexavalent Chromium as Cr+6	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	BDL	BDL	<0.004	<0.004
17	Pesticide	Absent	Absent	Absent	Absent
18	Fecal Coliform	<1.1	<1.1	<1.1	Absent
19	Nickel (as Ni)	Absent	Absent	<0.05	<0.05
20	Total alkalinity as CaCO3	64	58	72	82
21	Manganese as Mn	0.021	0.025	0.023	0.024
22	Free Residual Chlorine	ND	ND	ND	ND
23	Anionic Detergents	ND	ND	ND	ND
24	Ammonia (as total ammonia-N)	<0.1	<0.1	<0.1	<0.1
25	Aluminium (as Al)	<0.03	<0.03	<0.03	<0.03
26	Taste	Agreeable	Agreeable	Agreeable	Agreeable

## D. SURFACE WATER QUALITY

## 1. Damsala Nallah Water: -

Sl. No	Parameter	Apr'23		May'23		Jun'23	
		Upstream	Down Stream	Upstream	Down Stream	Upstream	Down Stream
1	Colour (max)	<5	<10	<5	<10	<5	<10
2	pH Value	7.48	7.31	7.53	7.32	7.47	7.28
3	Temperature	29.9	28.7	30.5	28.9	31.2	29.5
4	Suspended solids	89	94	86	92	83	90
5	Dissolved Oxygen (minimum)	3.6	4.3	3.5	4.2	3.3	4.1
6	Turbidity	8.5	9.2	8.7	9.1	8.5	9.3
7	Chloride (max)	22.9	23.8	23.5	24.7	24.2	26.8
8	Total Dissolved Solids	188	172	192	176	189	162
9	BOD (3) days at 270C (max)	<1	<1	<1	<1	<1	<1
10	Arsenic as As	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
11	Lead as Pb(max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
12	Cadmium as Cd (max)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
13	Hexa Chromium as Cr +6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Copper as Cu (max)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
15	Zinc as Zn(max)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
16	Selenium as Se (max)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

17	Cyanide as CN (max)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18	Fluoride as F (max)	0.41	0.54	0.49	0.64	0.44	0.59
19	Sulphates (SO4) (max)	0.79	0.91	0.68	0.78	0.64	0.71
20	Phenolic Compounds as C6H5OH (max)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Iron as Fe (max)	0.31	0.38	0.29	0.36	0.28	0.31
22	Nitrate as NO3, (max)	5.3	5.7	5.1	5.5	5.5	4.6
23	Anionic Detergents (max)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
24	Total Coli form	740	960	760	980	740	920
25	Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Conductivity	278.2	325.1	286.5	331.9	276.5	321.2
27	Free Carbon Dioxide	2.5	3.4	2.3	3.1	2.1	2.9
28	Chemical Oxygen Demand	5.2	5.8	5.5	6.1	5.2	6.0
29	Acidity	3.3	4.5	3.2	4.7	3.0	4.1
30	Alkalinity	84	88	82	86	78	84
31	Calcium	31.2	34.1	32.1	35.4	34.2	36.1
32	Magnesium	16.6	15.1	16.1	14.3	14.8	13.9
33	Manganese	2.3	2.8	2.1	2.5	2.2	2.5
34	Zinc as Zn	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
35	Oil & Grease	ND	ND	ND	ND	ND	ND
36	Fecal Coliform as FC	180	160	160	120	140	120

## 2.Damsala Nallah Water:

Sl. No	Parameter	Jul'23		Aug'23		Sep'23	
		Upstream	Down Stream	Upstream	Down Stream	Upstream	Down Stream
1	Colour	<5	<10	<5	<10	<5	<10
2	pH	7.32	7.25	7.35	7.26	7.29	7.21
3	Temperature	30.6	28.4	29.5	28.2	28.6	27.4
4	Suspended Solids	88	94	96	108	98	112
5	Dissolved Oxygen	3.6	4.2	3.8	4.4	4.0	4.6
6	Turbidity	10.1	11.4	15.3	12.8	16.2	13.4
7	Chloride	23.2	24.1	24.6	26.9	23.8	27.5
8	TDS	196	160	208	176	219	164
9	BOD	<1	<1	<1	<1	<1	<1
10	Arsenic	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
11	Lead	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
12	Cadmium	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
13	Hexavalent Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Copper	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
15	Zinc	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
16	Selenium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18	Fluoride	0.41	0.56	0.39	0.51	0.32	0.49
19	Sulphate	0.69	0.78	0.72	0.81	0.75	0.87
20	Phenolic Compound	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Iron	0.24	0.33	0.28	0.35	0.24	0.30
22	Nitrate	5.1	4.3	5.4	4.6	5.9	4.2

23	Anionic Detergents	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
24	Total Coliform	760	840	780	940	740	920
25	Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Conductivity	285.6	328.1	296.5	348.2	312.5	352.7
27	Free carbon Dioxide	2.0	2.5	1.9	2.4	1.6	2.0
28	COD	4.2	5.8	4.8	6.4	5.1	6.6
29	Acidity	2.3	4.4	2.1	3.5	2.0	3.1
30	Alkalinity	72	88	82	96	89	98
31	Calcium	32.1	34.5	33.4	36.1	34.1	37.3
32	Magnesium	16.1	14.8	15.3	13.9	14.8	13.2
33	Manganese	2.0	2.4	2.1	2.5	1.9	2.2
34	Zinc	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
35	Oil & Grease	ND	ND	ND	ND	ND	ND
36	Fecal Coliform	160	140	180	160	160	140

#### 5. Ground Water Level

Sl. No	Monitoring Location	Apr'23	May'23	Jun'23	Jul'23	Aug'23	Sep'23
		Result (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)	Result, (mtr)
1	Open well at Kamarda Village	8.87	9.52	10.32	6.56	4.18	1.30
2	Open well at Balipura Village	-	-	9.78	-	-	1.55

**Annexure - V -Ground Water Allocation**

**OFFICE OF THE SUPERINTENDING ENGINEER, JARAKA IRRIGATION DIVISION**  
**AT/PO-JARAKA, DIST.JAJPUR, Ph. 06725 283069, FAX-283064**  
**e-Mail-eeidjaraka@yahoo.com**

Lr. No. WT- 161/ 3776 /Date. 11/11/22  
 To WF

The Special Secretary to Government,  
 Department of Water Resources,  
 Rajiv Bhawan, Bhubaneswar

Sub : Approval of agreement for drawal of 0.020437 cusec (50 Cum/day) of ground water for commercial purpose with M/s Tata Steel Mining Limited for Kamarda Chromite Block , AT -Kamarda, PO-Kansa, Dist-Jajpur.  
 Ref:- 1. DOWR Notification No-Irr-II-WRC-178/18(PHYSICAL)-16476/WR, Bhubaneswar/Dated 21.06.2018.  
 2. Lr.No-WS-120/17(PT-I)-20118(WE)/Date 30.06.2018 of Head, Directorate of Water Services, Bhubaneswar.  
 Sir,

With reference to the subject cited above, it is to intimate that the agreement has been executed for drawl of 0.020437 cusec (50 Cum/day) of ground water for commercial purpose from dt 01.11.2022 to dt 31.10. 2023 with M/s Tata Steel Mining Limited for Kamarda Chromite Block , AT -Kamarda, PO-Kansa, Dist-Jajpur. The agreement may kindly be approved. This is favour of kind information & necessary action.

Encl: Copy of Agreement.

Yours faithfully,

K B M  
10/11/22  
 Superintending Engineer  
 Jaraka Irrigation Division  
 Jaraka

Memo No. 3777/WB /Date. 11/11/22  
 Copy submitted to the Chief Engineer, Water Services, O/o the Engineer-in-Chief, Water Resources(Odisha), Secha Sadan, Bhubaneswar for favour of kind information and necessary action  
 Encl: Copy of Agreement.

K B M  
10/11/22  
 Superintending Engineer  
 Jaraka Irrigation Division  
 Jaraka

Memo No. 3778/WB /Date. 11/11/22  
 Copy submitted to the Collector & District Magistrate, Jajpur for favour of kind information and necessary action.  
 Encl: Copy of Agreement..

K B M  
10/11/22  
 Superintending Engineer  
 Jaraka Irrigation Division  
 Jaraka

Memo No. 3779/WB /Date. 11/11/22  
 Copy submitted to the Additional Chief Engineer, Eastern Circle-II, Chandikhole for favour of kind information and necessary action.  
 Encl: Copy of Agreement.

K B M  
10/11/22  
 Superintending Engineer  
 Jaraka Irrigation Division  
 Jaraka

Memo No. 3780/WB /Date. 11/11/22  
 Copy forwarded to M/s Tata Steel Mining Limited, AT/P.O -Kalarangiatta, Dist-Jajpur for information and necessary action .  
 Encl: Copy of Agreement.

K B M  
10/11/22  
 Superintending Engineer  
 Jaraka Irrigation Division  
 Jaraka

Every drop of water is precious. Use optimally by adopting recycle, reuse and zero discharge technology.



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AGREEMENT NO.- 55/2022

FORM-K

(See rule 23-A(2) (e) & Rule 26)

AGREEMENT FOR SUPPLY OF WATER FOR THE PURPOSE OF OTHER THAN IRRIGATION

THIS AGREEMENT is made on the 10th November Two Thousand –Twenty Two BETWEEN Sri Sushanta Kumar Mishra Son of Late Narayana Mishra, AT- Kasipur, P.O.- Keonjhargarh P.S.- Keonjhargarh , District- Keonjhar by profession Senior General Manager of Kamarda Chromite Block of M/s Tata Steel Mining Limited, AT- Kamarda P.O-Kalarangiatta, Via- Kansa,, P.S.- Kaliapani, Dist-Jajpur-755028, Odisha (herein after called the "Applicant") of the first part AND in the representative capacity of M/s Tata Steel Mining Limited, AT-Kamarda P.O-Kalarangiatta, Via- Kansa,, P.S.- Kaliapani, Dist-Jajpur-755028, Odisha (1) Sri Nishan Mohanty Son of Yeeshan Mohanty, AT- Sikhrapur, P.O- College Square, P.S- Chauliganj, Dist- Cuttack as Deputy Manager (Administration) and (2) Dr. Biswaranjan Dhal Son of Sri Nilamani Dhal, AT/ PO-Kanpur , P.S.- Soso, District- Keonjhar as Manager ( Environment) (here in after referred to as the "Sureties") of the second part AND the Governor of Odisha through the Superintending Engineer, Jaraka Irrigation Division, Jaraka, Department of Water Resources, Government of Odisha, which expression unless repugnant to the context shall include his successors and assigns (here in after called 'the Government' ) of the third part.

WHEREAS, the applicant has made an application for supply of water from the Superintending Engineer, Jaraka Irrigation Division ground/sub soil water source for the period as mentioned in the schedule.

AND WHEREAS the sureties have agreed to give surety for payment of rates leviable for such supply in the manner hereinafter appearing and the Government has agreed to supply water for the [ vide allocation order Lr No- WT- 161/3518 Date- 14.10.2020 of Executive Engineer, Jaraka Irrigation Division, Jaraka, purpose specified in the schedule annexed hereto.

*[Signature]*  
Superintending Engineer  
Jaraka Irrigation Division  
10.11.2022 JARAKA

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*[Signature]*  
Sr. General Manager (Mining)  
Tata Steel Mining Limited

Nishan Mohanty

Biswaranjan Dhal



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SCHEDULE

10AA 938997

Purpose for which water will be supplied	Volume of water, if any	Period of supply	The place of which it will be supplied	Remarks
Industrial purpose	0.020437 cusec (50 KLD)	01.11.2022 to 31.10.2023	Inside the premises of M/s Tata Steel Mining Limited, AT-Kamarda P.O-Kalarangiatta, Via- Kansa, P.S.- Kaliapani, Dist-Jajpur	

NOW THIS AGREEMENT witnesseth as follows:

In pursuance of the said agreement and in consideration of supply of water to be made to the applicant and the sureties hereby jointly and severally covenant with the Governor as follows:-

- M/s Tata Steel Mining Limited shall make suitable arrangement to take the water from the Government water source at which it will be supplied, M/s Tata Steel Mining Limited shall not use the water supplied to him for any purpose other than that which is specified in the schedule
- If the water rate/license fees for the aforesaid quantity of water or any part thereof, is not paid on or before the date specified in agreement it shall become payable at once (unless the Government sanctions for special reason an extension of time) and M/s Tata Steel Mining Limited and the sureties shall be liable jointly and severally to pay the same with compound interest at the rate of two percent *per mensem* from the date of default. All amount due to the Government under terms of these presents shall if not paid in time, be recoverable as a public demand under the Orissa Public Demands Recovery Act, 1962.
- (i) M/s Tata Steel Mining Limited shall be liable for criminal and civil action if by drawal of water, the rights of any third party are affected and shall indemnify the Government against all claims for damage preferred by person or persons affected by the permission granted.  
(ii) M/s Tata Steel Mining Limited shall not without prior permission in writing from the Government to lay pipeline on Government or communal lands. If the pipelines have to pass through Government lands permission of the Government for this shall be taken separately which may be granted subject to the protection of rights of Government or community, as the case may be.

*KMM*  
10/11/22  
Superintending Engineer  
Jaraka Irrigation Division  
10.11.2022 JARAKA

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*J. S. Singh*  
Sr. General Manager (Mining)  
Tata Steel Mining Limited.

Nishan Mohanty

Prabhu Chandra D. Das

## Annexure - VI -Consent to Operate



CONSENT ORDER  
KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.

Page 1 of 12

BY REGD. POST WITH AD

## STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]  
A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012  
Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

### CONSENT ORDER

No. 3891 /

IND-I-CON-750

Dt. 18.03.2023 /CONSENT ORDER NO. 2951

Sub: **Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.**

Ref: **Your online application No.4627725, dated 08-01-2023.**

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: **KAMARDA CHROMITE BLOCK OF M/S. TATA STEEL MINING LTD.**

Name of the Occupier & Designation: **SRI PANKAJ KUMAR SATIJA, MANAGING DIRECTOR**

Address: **AT: KAMARDA, PO: KANSA, DIST: JAJPUR**

This consent order is valid for the period up to **31/03/2024**.

***This consent order supersedes the earlier consent orders issued vide letter No.4049 dated 16.03.2022.***

#### Details of Products Manufactured

Sl. No	Product	Quantity
01.	Chrome ore (ROM)	88,000 TPA

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.



**CONSENT ORDER**  
KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.

Page 2 of 12

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

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard						
				pH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	Oil & Grease (mg/l)	Cr+6 (mg/l)	Total Chromium (mg/l)
01.	Septic tank (Domestic effluent)	Soak pit	--	5.5 to 9.0	200	100	--	--	--	--
02.	Mine drainage water / surface run off/ other wastewater	On land / inland surface water body	200	5.5 to 9.0	100	--	--	10	0.05	2.0

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

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard					

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

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site (TPD)	Quantity to be reused off site (TPD)	Quantity disposed off (TPD)	Description of disposal site.
01.	Top soil / overburden	As per approved mining plan	--	--	--	As per approved mining plan





**CONSENT ORDER**  
**KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.**

Page 3 of 12

**D. GENERAL CONDITIONS FOR ALL UNITS**

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity /quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - a) Industrial cooling, spraying in mine pits or boiler feed,
  - b) Domestic purpose
  - c) Process
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.



**CONSENT ORDER**  
**KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.**

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23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.
25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
  - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - ii) Controlled incineration, wherever possible in case of combustible organic material.
  - iii) Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise, this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force; If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate.



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**KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.**

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

1. The applicant shall analyse the emissions every month for the parameters indicated in TABLE .B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10<sup>th</sup> of the succeeding month.
2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.
4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly.
  - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
  - b. Progress on planting of trees quarterly.
5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.
6. The following information shall be forwarded to the Member Secretary on or before 10<sup>th</sup> of every month.
  - a. Performance / progress of the treatment plant.
  - b. Monthly statement of daily discharge of domestic and/or trade effluent.
7. **Non-compliance with effluent limitations**
  - a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
    - i) Causes of non-compliance
    - ii) A description of the non-compliance discharge including its impact on the receiving waters.
    - iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
    - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
    - v) Steps to be taken by the applicant too prevent the condition of non-compliance.
  - b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
  - c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.
8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.
9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalies arbitrarily and utilizing poles for stirring etc. should not be resorted to.
10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for:
  - Rotation of crops
  - Change of point of application of effluent on land
  - A portion of land kept fallow.
11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.
12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royats in the surrounding areas as a result of discharge of sewage or trade effluent if any.
13. Proper housekeeping shall be maintained by a dedicated team.
14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned. Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.



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**E. SPECIAL CONDITIONS:**

1. Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules.
2. Wet drilling shall be practiced or suitably designed dust extractor shall be provided for dry drilling to prevent generation of dust.
3. Pre-wetting of blasting site and controlled blasting shall be practiced.
4. Water sprinkling through mobile water tankers / fixed sprinklers shall be carried out at the desired intervals on mine haulage roads to keep the roads in wet condition so as to prevent generation of fugitive dust. The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
5. Fixed auto sprinklers shall be provided on both sides of rest part of major haul road of the mine by 31.03.2022.
6. Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
7. All mine haulage roads and other transportation roads shall be maintained properly to avoid creation of ruts and pot holes.
8. Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
9. Regular monitoring of ambient air quality shall be carried out at the appropriate places (at least three places) and monitoring report shall be furnished to the Board once in six months. The permanent monitoring stations shall be fixed in consultation with the Regional Officer of the Board.
10. Ambient air quality of the mine shall meet the prescribed standards for industrial area.
11. Overburden / waste rock shall be properly stacked in the earmarked areas approved by IBM and shall be suitably terraced and stabilized through vegetative cover or otherwise.
12. Retention wall shall be constructed at the toe of OB dump & mineral stockyard. The runoff from OB, ore stack yard and other areas of the mine shall be diverted to the ETP for necessary treatment before its discharge to outside. There shall not be any discharge of wastewater or runoff water to outside without adequate treatment. Garland drains,



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channels and sedimentation pits constructed for the purpose shall be desilted as and when required and after monsoon.

13. Mine drainage water shall be discharged into surface water body after adequate treatment in the ETP. The treated wastewater of ETP shall also be utilized for sprinkling activities at various sources of generation of dust.
14. The ETP, online continuous monitoring system at the inlet & outlet of ETP with data transfer facility to SPCB server shall be effectively operated and the quality of treated wastewater shall not exceed the prescribed standards (Part A, Sl. No. 2). The online continuous monitoring system shall be properly maintained and calibrated from time to time to ensure that spurious data are not transmitted to the SPCB server and correct data shall be transmitted continuously to the SPCB server. This shall be done by 15.03.2022.
15. The slime generated earlier, from the ore beneficiation plant, shall be disposed of safely as per mining plan and action shall be taken to prevent the contamination of ground water due to its disposal.
16. Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:
 

pH	-	6.5 -9.0
TSS	-	<100 mg/l
BOD	-	30 mg/l
Fecal Coliform	-	<1000 MPN/100 ml
17. Oil and grease trap with sedimentation pit shall be provided for treatment of workshop effluent, if any and treated effluent shall remain within the prescribed standards. Efforts shall be made to reuse the treated wastewater from the workshop.
18. Seasonal monitoring of ground water level and its quality shall be carried out four times a year and report shall be submitted to the Board.
19. Adequate measures shall be taken for control of noise levels below the following limits.
 

(6.00 AM - 9.00 PM) - Leq 75 dB(A)
(9.00PM - 6.00 AM) - Leq 70 dB(A)
20. Ambient Air Quality monitoring data, Noise Monitoring data & Water/Waste Water Quality Monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.



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**E. SPECIAL CONDITIONS:**

1. Mining operation is subject to availability of all other statutory clearances required under relevant Acts/Rules.
2. The quantity of production shall be determined on monthly pro-rata basis from the effective date of issue of the vesting order. If the effective date of issue is before 15th of the month, then the entire month will be considered for calculation, otherwise the quantity shall be determined from the next month on pro-rata basis.
3. Wet drilling shall be practiced or suitably designed dust extractor shall be provided for dry drilling to prevent generation of dust.
4. Pre-wetting of blasting site and controlled blasting shall be practiced.
5. Water sprinkling through mobile water tankers / fixed sprinklers shall be carried out at the desired intervals on mine haulage roads to keep the roads in wet condition so as to prevent generation of fugitive dust. The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
6. Fixed auto sprinklers shall be provided on both sides of rest part of major haul road of the mine by 31.12.2021.
7. Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
8. All mine haulage roads and other transportation roads shall be maintained properly to avoid creation of ruts and pot holes.
9. Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
10. Regular monitoring of ambient air quality shall be carried out at the appropriate places (at least three places) and monitoring report shall be furnished to the



**CONSENT ORDER**  
KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.

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- Board once in six months. The permanent monitoring stations shall be fixed in consultation with the Regional Officer of the Board.
11. Ambient air quality of the mine shall meet the prescribed standards for industrial area.
  12. Overburden / waste rock shall be properly stacked in the earmarked areas approved by IBM and shall be suitably terraced and stabilized through vegetative cover or otherwise.
  13. Retention wall shall be constructed at the toe of OB dump & mineral stockyard. The runoff from OB, ore stack yard and other areas of the mine shall be diverted to the ETP for necessary treatment before its discharge to outside. There shall not be any discharge of wastewater or runoff water to outside without adequate treatment. Garland drains, channels and sedimentation pits constructed for the purpose shall be desilted as and when required and after monsoon.
  14. Mine drainage water shall be discharged into surface water body after adequate treatment in the ETP. The treated wastewater of ETP shall also be utilized for sprinkling activities at various sources of generation of dust.
  15. The ETP, online continuous monitoring system at the inlet & outlet of ETP with data transfer facility to SPCB server shall be effectively operated and the quality of treated wastewater shall not exceed the prescribed standards (Part A, Sl. No. 2). The online continuous monitoring system shall be properly maintained and calibrated from time to time to ensure that spurious data are not transmitted to the SPCB server and correct data shall be transmitted continuously to the SPCB server.
  16. The slime generated earlier, from the ore beneficiation plant, shall be disposed of safely as per mining plan and action shall be taken to prevent the contamination of ground water due to its disposal.
  17. Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification.



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KAMARDA CHROMITE BLOCK OF M/S TATA STEEL MINING LTD.

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The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

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

18. Oil and grease trap with sedimentation pit shall be provided for treatment of workshop effluent, if any and treated effluent shall remain within the prescribed standards. Efforts shall be made to reuse the treated wastewater from the workshop.
19. Seasonal monitoring of ground water level and its quality shall be carried out four times a year and report shall be submitted to the Board.
20. Adequate measures shall be taken for control of noise levels below the following limits.
 

(6.00 AM - 9.00 PM) - Leq 75 dB(A)

(9.00PM - 6.00 AM) - Leq 70 dB(A)
21. Ambient Air Quality monitoring data, Noise Monitoring data & Water/Waste Water Quality Monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.
22. Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, OB dumps, back filled areas, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The plantation details shall be submitted to the Board before end of April every year.





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23. A copy of the annual return (annual return submitted to IBM, Govt. of India/ Directorate of Mines, Govt. of Odisha) shall be submitted to the Board every year.
24. The environmental statement report for the financial year ending 31<sup>st</sup> March shall be submitted to the Board in form-V on or before 30th September every year
25. The mine shall submit a declaration by 30<sup>th</sup> April every year that all pollution control systems are in good condition, are operated efficiently and ambient air quality as well as wastewater quality are conforming to the prescribed standards.

**MEMBER SECRETARY**  
**STATE POLLUTION CONTROL BOARD, ODISHA**

**TO,**  
**THE MANAGING DIRECTOR,**  
**KAMARDA CHROMITE BLOCK OF**  
**M/S. TATA STEEL MINING LIMITED,**  
**N-3/24, IRC VILLAGE, NAYAPALLI,**  
**BHUBANESWAR, PIN-751015**

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

Copy forwarded to :

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

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



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

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Coastal Areas
		(a)	(b)	(c)	(d)
1.	Colour&odour	Colourless/Odourless as far as practicable	---	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	---	---	
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5°C above the receiving water temperature	---	---	Shall not exceed 5°C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	---	---	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	---	50
10.	Total Kjeldahl nitrogen (as NH <sub>3</sub> ) mg/l max.	100	---	---	100
11.	Free ammonia (as NH <sub>3</sub> ) mg/l max.	5.0	---	---	5.0
12.	Biochemical Oxygen Demand (5 days at 20°C) mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l max.	250	---	---	250
14.	Arsenic (as As) mg/l max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/l max.	0.01	0.01	---	0.001
16.	Lead (as pb) mg/l max.	01.	1.0	---	2.0
17.	Cardmium (as Cd) mg/l max.	2.0	1.0	---	2.0



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18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	-----	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	-----	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	-----	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	-----	15
22.	Selenium (as Se) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Ni) mg/l max.	3.0	3.0	-----	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride ( as F) mg/l max.	2.0	15	-----	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-----	-----	-----
27.	Sulphide (as S) mg/l max.	2.0	-----	-----	5.0
28.	Phenolic compounds as (C <sub>6</sub> H <sub>5</sub> OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>8</sup> 10 <sup>7</sup>	10 <sup>7</sup> 10 <sup>6</sup>
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l

**NATIONAL AMBIENT AIR QUALITY STANDARDS**

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential , Rural and	Ecologically Sensitive Area (notified)	Methods of Measurement



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

\* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

## Annexure – VII- Environmental Management Cell

**Environmental Cell**  
**Kamarda Chromite Block**  
**M/s. Tata Steel Mining Limited**

Sl. No	Name	Designation	Experience (years)	E-mail	Mobile No.
1	Mr. Naveen Srivastava	Head Mines & Agent	23	naveen@tatasteel.com	6287090160
2	Mr. Dibyendu Behera	Mines Manager	14	dibyendu.behera@tatasteel.com	8763446989
3	Thakur Ajay Kumar Vishwambharnath	Head Safety Health & Environment FAMD	17	ajaykr.thakur@tatasteel.com	9238306143
4	Mr. Devraj Tiwari	Head Planning FAMD Ext. Affairs & Sustainability	12	devraj.tiwari@tatasteel.com	8092000271
5	Dr. Biswaranjan Dhal	Manager, Environment	13	biswaranjan.dhal5@tatasteel.com	8114371713
6	Mr. Arindam Pani	Sr. Manager, Mining	29	arindam.pani@tatasteel.com	9439118357
7	Mr. Rajesh Ekka	Sr. Area Mgr, Electrical	19	rekka@tatasteel.com	9238087034
8	Mr. Debdip Senapati	Sr. Manager QC	14	debdip.senapati@tatasteelmining.com	9238087043

## Annexure – VIII- Environmental Expenditure

**ENVIRONMENTAL EXPENDITURE MADE DURING April 2023 to September 2023**

<b>Sl. No.</b>	<b>Expenditure</b>	<b>Amount (In Lakh)</b>
1	<b>ETP operation cost</b>	
	a) Manpower	12.41
	b) ETP Electricity cost	7.25
	c) Chemical cost & Maintenance	4.72
	d) Calibration & Maintenance of sensors & RT-DAS system	1.70
2	Water sprinkling cost for haul road management	6.85
3	Display of Board (Env. Management)	0.38
4	Monitoring & Analysis cost of Air, Water & Noise	11.65
5	Plantation expenditure	14.82
	<b>Total</b>	<b>59.78</b>