



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Orissa)

To,

The Sr. Manager
Tata Steel Limited, Meramandali
Registered Office
Bombay House,
24 Homi Mody Street,
Mumbai- 400001,
Site: www.tatasteel.com Address for communication:
M/s Tata Steel Ltd Meramandali
At- Narendrapur, P.O.- Kusupanga, Via- Meramandali, Dist.-Dhenkanal,
Odisha
759121 -759121

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity
under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC)
in respect of project submitted to the SEIAA vide proposal number
SIA/OR/MIN/55807/2020 dated 08 Jun 2022. The particulars of the environmental
clearance granted to the project are as below.

- | | |
|---|--|
| 1. EC Identification No. | EC22B001OR117596 |
| 2. File No. | 55807/89-MINB1/06-2022 |
| 3. Project Type | New |
| 4. Category | B1 |
| 5. Project/Activity including
Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | Kalamang West (Northern Part) Block
Iron Ore Mines of Tata Steel BSL Limited. |
| 7. Name of Company/Organization | Tata Steel Limited, Meramandali |
| 8. Location of Project | Orissa |
| 9. TOR Date | 15 Jan 2021 |

The project details along with terms and conditions are appended herewith from page
no 2 onwards.

(e-signed)
Dr. K. Murugesan, IFS
Member Secretary
SEIAA - (Orissa)

Date: 18/10/2022

*Note: A valid environmental clearance shall be one that has EC identification
number & E-Sign generated from PARIVESH. Please quote identification
number in all future correspondence.*

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(Pro-Active and Responsive Facilitation by Interactive,
and Virtuous Environmental Single-Window Hub)





SEIAA File No. 55807/89-MINB1/06-2022

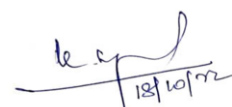
Subject: Proposal for Mining of Iron Ore with production Capacity of 2.95 MTPA (RoM) from Kalamang West (Northern Part) Iron Ore Mines at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandalpada, District - Keonjhar, Odisha(MLA: 92.875 ha) by M/s Tata Steel Limited -Environmental Clearance reg.

This has reference to your online proposal No. SIA/OR/MIN/55807/2020 dated 08.06.2022, submitted to SEIAA, Odisha for grant of Environmental Clearance(EC) for Mining of Iron Ore with production Capacity of 2.95 MTPA (RoM) from Kalamang West (Northern Part) Iron Ore Mines at Village- Kalamang & Ghodabudani, District- Sundergarh & Village - Gandalpada, District - Keonjhar, Odisha(MLA: 92.875 ha) in terms of the provisions of the Environment Impact Assessment(EIA) Notification, 2006 under the Environment(Protection) Act,1986.

2. Proposal in Brief:

Proposal No.	SIA/OR/MIN/55807/2020
File No.	55807/89-MINB1/06-2022
Project Type	Fresh EC
Category	B1
Project/Activity including Schedule No.	1(a) Mining of minerals
Name of the Project	Proposal for grant of EC for Mining of Iron Ore with production Capacity of 2.95 MTPA (RoM) From Kalamang West (Northern Part) Iron Ore Mines at Village-Kalamang&Ghodabudani District-Sundergarh & Village - Gandalpada, District - Keonjhar, Odisha(MLA: 92.875 ha)
Name of the company/Organization	M/s Tata Steel Limited
Location of Project	Odisha
ToR Date	15.01.2021

- This is a proposal for EC for mining of iron ore from Kalamang West (Northern Part) Iron Ore Mines with Production Capacity of 2.95 MTPA (ROM) over M.L. area of 92.875 Ha at Village- Kalamang & Ghodabudani of District- Sundergarh& Village Gandalpada of District- Keonjhar by M/s Tata Steel Limited filed by Sri Santosh Kumar Pattajoshi, Sr.Manager.
- The Kalamang West (Northern Part) Block Iron Ore Mine is proposed over an area of 92.875 hectares (ha) which involves 42.608 ha of forest land (16.658 ha in Keonjhar Forest Division, District Keonjhar and 25.950 ha in Bonai Forest Division, District Sundargarh) and 50.267 ha of non-forest land. The Mining area is situated in three villages namely,

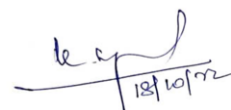

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- village-Kalamang & Ghodabudani of Tahasil – Koira, District Sundargarh & village Gandalpada of Tehsil - Barbil, District Keonjhar State Odisha.
5. TOR was issued by SEIAA vide letter reference No.22/SEIAA dated 15.01.2021 to the project for undertaking detailed EIA studies.
 6. The Government of Odisha had issued Letter of Intent (LoI) vide Govt. letter No. IV(MISC) SM-53/2017/5285/SM dt.24.06.2017 as per Rule 10(2) was again modified by Steel and Mines Department, Government of Odisha vide letter no. IV(MISC) SM-53/2017/6287/SM dt.27.07.2017 revising the earlier mentioned area of 92.0 ha to 92.875 ha for grant of Mining Lease for Kalamang West (Northern Part) Iron Ore Block in village Kalamang & Ghodabudhani in District Sundargarh and village Gandalpada in District Keonjhar is in the name of M/s Bhushan Steel Ltd. The change of name from Bhushan Steel Limited to TATA STEEL BSL Limited was approved by the Department of Steel and Mines vide letter No. 1409/SM/dated 27.02.2019 for grant of a Mining Lease. Now, M/s Tata Steel BSL Ltd. has requested to 'The Additional Chief Secretary' of Department of Steel and Mines, Govt. of Odisha for extension of validity of LOI vide letter no TSBSL/CS/2020/101 dated 05.03.2020. The LOI has been issued for a period of 50years.
 7. **Location & Environmental Sensitivity** : The geo-coordinates of the mine lease area is Latitude: 21°56'47.757"N to 21°57'32.347"N and Longitude: 85°17'06.658" E to 85°17'57.531" E. The mine is well connected by NH-215, which is about 1.80 km in NW. Nearest Railway Station is Barbil which is about 17.86 Km in NNE direction. Rourkela Airport at 59 Km NW, Jharsuguda Airport 128 km W and Biju Patnaik International Airport, Bhubaneswar is about 196 Km in SSE direction from the project site. The project proponent has submitted that there is no National Park, wildlife sanctuary, biosphere reserve within 15 km radius of the Mine. However, Karo Karampada Elephant corridor is located at about 8.6 km N of the lease area. There is no perennial surface water body in the applied mine lease area.
 8. A total 42.608 ha. of forest land has been reported to be involved in the project. Approval under Section 2(iii) of the Forest (Conservation) Act, 1980 for diversion of 42.608 ha of forest land for non-forestry purposes has been obtained vide MoEF&CC letter No. 8-32/2021-FC dtd. 31.01.2022. Approval under section 2 (ii) has been recommended by GoO to MoEF&CC vide letter no: FE-DIV-FLD-0048-2022-10644/FE&CC dated 17/06/2022.
 9. Site Specific Wildlife conservation plan for schedule-I species has been submitted to the Divisional Forest Officer of Bonai Forest Division & Keonjhar Forest Division vide ref. no. JCO/13/133/118 dtd. 7th June 2022.
 10. Public Hearing for this project was conducted in two districts i.e Sundergarh and Keonjhar. In respect of Keonjhar district, PH was conducted on 09.03.2022 at 11.00 A.M at Village Gandalpada (GP-Guali) P.S- Rugudihi, Hata No. 48, Plot No. 194 & for Sundergarh district, PH was conducted on 10.11.2021 at 10:30 A.M at Football Play Ground of Kalamang village under Koira Block. The major issues raised in the public hearing were provision of employment to local people, education, medical facilities, infrastructural development and welfare activities, road maintenance, tree plantation etc. Action plan for fulfilling the PH commitments has been made.




11. Baseline monitoring studies has been carried out for the period December 2019 to February 2020 (Winter Season).
12. **Reserves** - Total geological reserves reported in the mine lease area is 929,73,749T (92.97 MT) with 718,86,002 T (71.88 MT) mineable reserve. The mine capacity will be 2.95 MTPA Iron Ore (ROM) corresponding to the production of 2.84 MTPA Saleable Iron Ore with a total Max excavation of 4.54 MTPA. In the lease area, iron ore (ROM) grade varies from 45% to 65% Fe. Iron ore of > 55% Fe is considered as marketable grade. The reserve in between 45-55% Fe has been taken as sub-grade ore (Mineral rejects).
13. **Method of Mining:** Opencast Fully Mechanized Mining method has been proposed. It is proposed to commence mining operation from north eastern part of the lease. In the plan period of about 2.95 MTPA, has been proposed for production. As the mining activities in the lease area is to be commenced, activities connected with development of the mine such as scrapping of weathered zones, cutting of trees/bushes, making of access roads, infrastructure development etc will be given prime preference. After the development of an access road to the targeted area a box cut will be opened and thereafter, it will be expanded both laterally and depth-ward to fulfill the required production target. Life of mine is 25 years.
14. **Production Details:** The annual excavation is targeted at 2.95 MTPA (RoM) Iron Ore with total maximum excavation of 3.92 MTPA. The ROM will be fed to a mobile crushing/screening plant of 1000 TPH capacity. The lump ore and fines will be segregated in the Crushing /Screening plant.
15. **Drilling & Blasting:** Drilling will be carried out using 110-150 mm dia. Drill with 3.0-4.0m burden & 3.5-4.5 m spacing based on the geological rock characteristics. Taking into account the disposition of the ore body, it has been estimated that about 80 % (approx.) of planned quantity will require drilling & blasting.
16. **Transportation:** Transportation of iron ore has been proposed through 5 railway sidings such as Barbil Rail siding, Nayagarh Rail siding, Jururi Rail siding, Banspani Rail siding & Barsua Rail siding.
17. **Waste Generation & Management:** A total volume of 14,58,980 m³ insitu waste is to be generated from the lease area. For the purpose a volume 1,12,241 m³ waste generated in the 1st year from the lease area will be used and rest waste of volume 3,30,412 m³ will be accommodated on the proposed dumps. Dump-A and B have been proposed in the NE side and SE side of the lease area over an area of 0.967 Ha. & 1.826 Ha. respectively. Similarly, the in situ waste to be generated in the 2nd year is 3,87,513 m³, out of which of 1,84.267 m³ will be used for backfilling of the exhausted portion and rest quantity of waste of volume 2,03,246 m³ shall be accommodated over the proposed dump-A and C. Dump C will be located at the northern part of the Dump-B. In the third year a vol of 1,00,524 m³ waste will be utilized for backfilling and the rest of 1,37,257 m³ waste will be dumped on Dump C. The total waste to be generated in the fourth year and fifth year of volume 1,70,254 m³ and 2,20,779 m³ respectively will be used for backfilling of the exhausted areas.


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18. **Rehabilitation & Resettlement:** The project proponent has submitted that the mine lease area comprises of 20.580 Ha private land. Few habitations of Ghodabudhani village are located in the lease area. The project involves 71 affected families and 54 numbers of displaced families involves. All the affected families shall receive R & R compensation based on their entitlements as prescribed under the Orissa R&R Policy, 2006 and subsequent biennial revisions communicated by Govt. from time to time as well as the best practices recommended by the LARR Act, 2013. Funds allocated for R&R Rs. 39.07 crores.
19. **Green Belt:** Plantation will be carried out in 7.5 m wide safety barrier zone, backfilled area, inactive dump slopes, etc. At conceptual stage, almost 4.17ha. will be under plantation.
20. **Rainwater Harvesting Details:** Rain water harvesting measures will be done by construction of trenched along the green belt, roads and through recharge pits which accounts to a recharge of around 21700 KL /year. Total rainwater harvesting potential in the project area is around 302471.1 KL /year or 0.302471 MCM.
21. **Water Requirement:** The total water requirement is about 235 KLD (For Drinking & Domestic Uses - 65 KLD and for Mining Operations, dust suppression and Plantation - 170 KLD). For Ground water abstraction of 65KLD, application has been submitted vide no. 21-4/3864/OR/MIN/2022 dtd. 28.06.2022. For Surface water withdrawal of 170 KLD from Suna River, application has been submitted vide no. 2021012241000218 dtd. 01.03.2021.
22. **Power Requirement:** Power utilization for this project is 1,800 – 2,000 KW. 3 DG sets of 850 KVA will be used for emergency backup. Power permission will be obtained from Odisha State Electricity Board (OSEB) after EC.
23. **Employment Potential:** The project will generate direct to the tune of about 428 persons as well as indirect employment opportunities for the nearby villages.
24. Total cost of the project is Rs. 216.20 crores. Budgetary allocation towards EMP: Capital cost is Rs. 9.96 Crores & Recurring cost is Rs. 0.865 crores. Budget for PH commitments is Rs. 9.93 crores.
25. The Environment Consultant M/s Visiontek Consultancy Services Pvt. Ltd. Bhubaneswar along with the proponent made a detailed presentation on the proposal before the SEAC on 08.07.2022.
26. The project proponent furnished additional information / documents on the project to SEAC on 22.08.2022.
27. The SEAC have appraised the proposal in its meeting dated 02.09.2022 and have recommended for grant of Environmental Clearance for the project, stipulating various conditions.
28. The matter was further examined in the State Environment Impact Assessment Authority (SEIAA), Odisha in its 93rd meeting held on 15.10.2022 in accordance with the EIA Notification, 2006 and further amendments thereto.


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29. **As per the recommendations of the SEAC, Environmental Clearance (EC) is granted under the provisions of EIA Notification No. S.O. 1533 (E) dated the 14th September, 2006 of the Government of India in the erstwhile Ministry of Environment and Forests, as amended from time to time for “Mining of Iron Ore with production Capacity of 2.95 MTPA (RoM) from Kalamang West (Northern Part) Iron Ore Mines at Village- Kalamang & Ghodabudani, District- Sundergarh & Village-Gandalpada, District-Keonjhar, Odisha(MLA: 92.875 ha)” with the following stipulations, environmental conditions and safeguards.**

Stipulations:

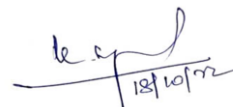
A. Specific conditions:

- (i) The proponent shall implement the Pollution Control Measures and safeguards as proposed in the Environment Management Plan (EMP) of EIA report.
- (ii) The public road passing through the mining lease shall be given access to the public after lease execution in consultation with the villagers.
- (iii) As submitted by project proponent vide letter no.GM/OMQ/70/11-G/FY'23 dated 17.10.2022, an amount of Rs.140 Lakhs shall be spent towards implementation for surface water run-off management, installation of STP & ETP in three years time period.

B. Standard Conditions -

I. Statutory compliance:

- (i) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- (ii) The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
- (iii) The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
- (iv) This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project,
- (v) This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the project.
- (vi) Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board.


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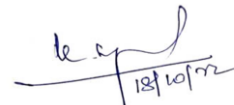
STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, ODISHA

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statutory body constituted by Ministry of Environment, Forest & Climate Change under Environment
(Protection) Act, 1986)

- (vii) The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
- (viii) The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.
- (ix) The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
- (x) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of groundwater for the project.
- (xi) A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
- (xii) State Pollution Control Board shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tahasildar's Office for 30 days.
- (xiii) The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board and web site of the Ministry of Environment, Forest and Climate Change (www.environmentclearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.
- (xiv) The Project Proponent shall inform the MoEF&CC/SEIAA, Odisha for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

(I) Air quality monitoring and preservation

- (i) The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM₁₀, PM_{2.5}, NO₂, CO and SO₂ etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure


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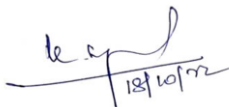


characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

- (ii) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM₁₀ and PM_{2.5} are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from ah sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

(II) Water quality monitoring and preservation

- (i) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
- (ii) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- (iii) Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- (iv) The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or


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alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC / SEIAA, Odisha. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, SEIAA, Odisha, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.

- (v) Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1 /2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
- (vi) The project proponent shall construct retaining wall and settling pond within the lease area. Further, check dams shall be constructed at strategic locations in which rain water passes in rainy season. Finally, the excess supernatant after sedimentation shall be allowed to spill away through stone pitch structure to the nearby valley.
- (vii) De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit shall be submitted within 6 months from the date of issue of Environmental Clearance to this effect with periodicity of de-silting.
- (viii) Detail design of the existing retaining wall and the proposed for the expansion from a chartered Civil Engineer shall be submitted within 6 months from the date of issue of Environmental Clearance to ensure that no silt after wash up is escaped from the core / buffer zone of the mines.
- (ix) Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office, MoEF & CC annually.
- (x) Industrial waste water (workshop and waste water from the mine) should be properly collected and treated in an ETP as proposed so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
- (xi) The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF & CC and State Pollution Control Board.
- (III) Noise and vibration monitoring and prevention**
- (i) The peak particle velocity at 500m distance or within the nearest habitation, whichever is



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- closer shall be monitored periodically as per applicable DGMS guidelines.
- (ii) The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
- (iii) The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The worker engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.
- (IV) Mining Plan**
- (i) The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.
- (ii) The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- (iii) The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.
- (V) Land reclamation**
- (i) The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the


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stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.

- (ii) The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
- (iii) The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- (iv) The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
- (v) The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Bhubaneswar as well as SEIAA, Odisha.
- (vi) Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and topsoil / OB / waste dumps to prevent runoff of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
- (vii) Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the comers of the garland drains.
- (viii) The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.
- (ix) The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.


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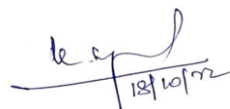


(VI) Transportation

- (i) No Transportation of the minerals shall be allowed in case of roads passing through transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
- (ii) The Main haulage road within the mine lease should be provided with a permanent water arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipment like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
- (iii) Traffic management shall be done as per recommendation of Traffic Management Study Report.
- (iv) The Project Proponent shall provide parking plaza for the heavy vehicles within the lease area as recommendation of NEERI.

(VII) Green Belt

- (i) The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
- (ii) The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
- (iii) The Project Proponent shall make necessary alternative arrangements for livestock feed


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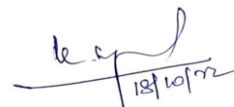


by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

- (iv) The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt and implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.


(VIII) Public hearing and human health issues

- (i) The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.
- (ii) A commitment in form of an undertaking for periodical occupational health checkup of the employee and the local people shall be done through an occupational health expert as per the detailed action plan submitted with the proposal within 6 months from the date of issue of Environmental Clearance.
- (iii) The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.
- (iv) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) estimation in Blood; For Inorganic Chromium-


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- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).
- (v) The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.
- (vi) The Project Proponent shall ensure that 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.
- (vii) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
- (viii) The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.
- (ix) Issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.
- (IX) Corporate Environmental Responsibility (CER)**
- (i) The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by


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STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, ODISHA

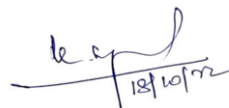
5RF-2/1, Unit-IX, Bhubaneswar-751022, Tel: 0674-3510075, Email: seiaaorissa@gmail.com
statutory body constituted by Ministry of Environment, Forest & Climate Change under Environment
(Protection) Act, 1986

SEAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.

- (ii) Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.

(X) Miscellaneous

- (i) The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
- (ii) The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (iii) The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC & its concerned Regional Office, SEIAA, Odisha, Central Pollution Control Board and State Pollution Control Board.
- (iv) A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
- (v) The proponent shall comply all the specific conditions as recommended by CSIR-NEERI on carrying capacity study (as applicable) in time bound manner as proposed.
- (vi) The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
- (vii) The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.
- (viii) The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.
- (ix) Fe grade - 55 and +45 to be attempted to use by blending with higher grade.
- (x) It shall be mandatory for the project management to submit six (06) monthly compliance reports on post environmental monitoring in respect of the stipulated terms and conditions in this Environmental Clearance to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Regional Office of the Ministry of Environment & Forest, Odisha in hard and soft copies on 1st June and 1st December of each calendar year. The proponent shall also upload the compliance report including results of monitored data, as applicable in the website of the Ministry for monitoring of EC Conditions.
- (xi) The environmental statement for each financial year ending 31st March in Form-V as is


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- mandated to be submitted by the project proponent to the Odisha State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective to the MoEF&CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
- (xii) The proponent shall submit/upload six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, Govt. of India, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- (xiii) The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
- (xiv) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.
- (xv) This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- (xvi) Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Yours faithfully,

Member Secretary

Copy to:

1. **Joint Secretary (Environment)**, Ministry of Environment, Forests and Climate Change Govt. of India, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi-110003 for information.
2. **Additional Chief Secretary**, Forests & Environment Dept., Government of Odisha for information.



3. **Member Secretary**, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
4. **Additional Principal Conservator** of Forests, Regional Office (EZ), Ministry of Environment & Forests, A-31, Chandrasekharapur, Bhubaneswar for information.
5. **Member Secretary**, CGWA, 18/11, Jamnagar House, ManSingh Road, New Delhi-110011 for information.
6. **Collector, District Magistrate**, Sundargarh, for kind information and necessary action.
7. **Collector, District Magistrate**, Keonjhar, for kind information and necessary action
8. **Secretary**, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for kind information.
9. Guard file for record/Website/Parivesh Portal.



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Member Secretary

