



F. No. J-11015/192/2016-IA.II (M)
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division

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Dated: 28th May, 2020

To,

ArcelorMittal Nippon Steel India Limited
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Subject: Ghoraburhani - Sagasahi Iron Ore with proposed production of 7,162,538 TPA iron ore (ROM), 18750 TPA Topsoil and 2,868,896 TPA OB/SB/IB (Total excavation: 1,00,50,184 TPA) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA (1250 TPH) Capacity by ArcelorMittal Nippon Steel India Limited (Formerly Essar Steel India Ltd) in the mine lease area of MLA 139.165 ha, located at village- Ghoraburhani, Sagasahi and Kalmang, Tehsil Koira, District Sundargarh, Odisha-Re consideration of Environmental Clearance.

Ref: Proposal No: IA/OR/MIN/56152/2016;

The proposal of **ArcelorMittal Nippon Steel India Limited** (Formerly Essar Steel India Ltd) is for Ghoraburhani – Sagasahi Iron ore block with proposed production of 7,162,538 TPA iron ore (ROM), 18750 TPA Topsoil and 2,868,896 TPA OB/SB/IB (Total excavation: 1,00,50,184 TPA) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA (1250 TPH) Capacity in mine lease area of 139.165ha. The mine lease area is located at Ghoraburhani, Sagasahi and Kalmang villages, KoiraTehsil, SundargarhDistrict,Odisha. The lease area is bounded by Latitude 21° 56' 08.83896" to 21° 57' 09.61956" North and Longitude 85° 17' 02.54580"– 85° 17' 57.53148" East and falls in Survey in India Topo Sheet No.73 G/1 & 73 G/5.

2. PP submitted that as per EIA Notification dated 14th September, 2006 and amended time to time, the project falls under Category 'A, Project or Activity 1(a) (3) (mining of minerals) and 2(b)-Mineral beneficiations.

3. PP submitted that the ToR has been considered by the EAC in its meeting held during September 19-20, 2016 wherein the Committee deferred the proposal for want of requisite information. The proposal considered again by EAC in its meeting held during November 15-16, 2016 wherein the Committee recommended the proposal for grant of ToR. The Ministry has granted ToR vide letter no. J-11015/192/2016-IA-II(M) dated 19.01.2017 for

preparation of Environmental Impact Assessment (EIA) Report and Environmental Management Plan (EMP).

4. The EC proposal was appraised by the EAC in its meeting held during February 26-27, 2018 wherein the PP has informed that the company is in bidding process and likely to approach the National Company Law Tribunal (NCLT) regarding the bids received as part of the steelmaker's insolvency resolution process since both the bidders are facing eligibility issues. In this context, the Committee was of the view that when PP is under bidding process it may be advisable to appraise the project with new PP. But, the PP requested to consider the project as they felt that grant of EC would add value to the company asset and raised valuation of the company. Thus, the Committee has deliberated the proposal and deferred the proposal and asked the PP to submit requisite information along with revised EIA/EMP report by rectifying the errors.

5. PP submitted the revised EIA/EMP report online. PP requested the Ministry vide letter dated 09.07.2018 and 26.07.2018 to consider the proposal before the EAC. The request has been examined by the Ministry and the Competent Authority had decided to consider the proposal after proceeding in NCLT is completed. PP again vide letter dated 09.11.2018 requested the Ministry to consider the proposal for EC and not wait indefinitely for closure of corporate insolvency resolution process under NCLT and LOI will expire in March 2019. Competent authority approved the PP's request. Accordingly, the proposal was considered in the EAC meeting held during February 20-21, 2019 wherein the Committee returned the proposal in present form and the proposal may be considered only after submission of revised EIA/EMP report along with requisite information sought by EAC. PP submitted the information, accordingly, the proposal was considered in the 7th EAC meeting held during July 30-31, 2019 wherein the Committee **deferred** the proposal for want of certain requisite information. PP submitted the information and the proposal is considered in the 11th EAC Meeting held during November 27-28, 2019. Based on the above presentation made by PP and the discussion held, the Committee **recommended** the proposal for grant of environmental clearance for mining and beneficiation plant along with standard, specific conditions and CSIR-NEERI recommendation.

6. PP submitted that the total mine lease area is 139.165 ha. Out of total lease area, 126.401 ha is forest land and balance 12.764 ha is non-forest land (6.063 ha of Govt. land, 3.257 ha of Private tenanted land and 3.444 ha of Gochar land). PP further submitted that Stage-I forest clearance for entire forest land (126.401 ha) including safety zone area of 5.563 ha has granted by the Ministry vide letter no.8-55/2018-FC dated 06.03.2019. PP submitted that Director of Mines, State Government of Odisha has granted letter of intent (LOI) for 139.165 ha vide letter no. MXII-(b)-60/2015-3114/DM dated 28.03.2016 for a period of 50 years. The LOI is valid for three years. Subsequently, the Director of Mines, State Government of Odisha has extended the validity of LOI up to 27.03.2021 vide letter no. MXII-(b)-60/15-2584/DM dated 19.03.2019. PP further submitted that mining plan along with progressive mine closure plan over an area of 139.165 ha has been approved by the IBM vide letter no. MP/FM/02-ORI/BHU/2016-17/964 dated 11.07.2016 which is valid up to 31.03.2021.

7. PP submitted that the mining will be carried out by mechanized opencast method by removal of topsoil, drilling and blasting of ore zone, excavation, loading and haulage of run of mine ore. Top soil if any will be removed first, which will be stock piled for future use for

plantation purposes. After the removal of top soil, drilling and blasting operation will be carried out at hard / laminated iron ore zone for loosening. These loosened iron ore are then excavated and loaded to the dumpers for processing. PP further submitted that the proposed bench height in the quarry area is 10 m with 20 m working width. Bench slope angle of 70° for soil and 80° for Ore benches will be maintained as suggested by CIMFR, Dhanbad. Inter bench ramp at a gradient of 1 in 10 (Maximum) and haul road at a gradient of 1 in 16 (Maximum) has been planned to facilitate transportation of ROM ore from different faces to the crushing plant. PP submitted that the drilling is proposed to be done using 150mm/115mm diameter drills with 10% sub graded drilling. Blasting will be done by adopting the State of Art technology by using mostly SME (Site Mixed Emulsion Explosives) along with conventional explosives such as PGC, Toe blast and ANFO. Both conventional as well as None I (non-electric initiation) blasting will be done. Controlled blasting technique using NONEL and shock tube initiation system will be practiced. Quantity of explosive charges and other blasting parameters will be maintained as suggested by CIMFR Dhanbad. Boulders generated during the course of blasting will be broken in to smaller pieces by using rock breaker.

8. PP submitted that during 1st year of mine plan period all the pre-production activities will be achieved. Initially two pits namely pit-1 and pit-2 will be opened. PP further submitted that total of 88.759 ha will be utilized for mining during conceptual period. In the northern part the UPL covers about 22.114 ha and in the southern and eastern part the UPL covers an area of about 66.645 ha. Planning of pit- 1 has been envisaged that part of pit- 1 will be exhausted during 4th and 5th year of plan period. Waste generated from pit-1 during 4th and 5th year of plan period will be utilized for back-filling of the exhausted part of pit-1. PP submitted the following year wise planned production schedule of ore, waste and total excavation for the next five years are tabulated below (unit: Tonne). Furthermore, PP submitted that peak production will be achieved in 5th year.

9. PP submitted that the Company has decided to set up a slurry transportation system from Sagasahi mine to Dabuna slurry pumping station and thereby avoid road transportation of beneficiated product. The route survey for this 27.884 km system has been completed and required statutory permissions are being taken from competent authorities. For initial years till beneficiation and slurry pumping system is commissioned, ore transportation will be by road. PP submitted that up to 3rd Year fines and CLO will be transported to Dabuna Beneficiation plant by Road (28 Km) and CLO will be transported to nearest railway siding (approx. 20 Km) by Road for onward transportation to Hazira by Rail. Then, from the beginning of 4th year beneficiated ore will be transported in slurry mode through pipe line to Dabuna (captive beneficiation and slurry pumping station). The slurry pipeline and slurry pumps are scheduled for commissioning together with beneficiation plant by 4th year of mine operation. From 4th year onwards fines will be transported to Dabuna through pipeline in the slurry form.

10. PP submitted that baseline data was collected during October to December, 2016 (post monsoon season). PP further submitted that ambient air quality study was studied at 8 different locations, ground water quality analysis was carried out on 6 borewell water and 2 surface water at different locations and noise levels are monitored at 8 different locations in the core and buffer zone. PP submitted that the PM10 and PM2.5 values were in the range of 40.9 – 81.2 µg/m³ and 18.2-36.6 µg/m³. SO₂ levels were ranging from below detection level (BDL) [Detection limit (DL)-3.0] – 6.1 µg/m³, NO₂ levels were ranging from 6.8 – 16.1

µg/m³. The CO values in the all locations found to be BDL (DL – 1144 µg/m³). Silica values in the study area are found to be below detectable limit (DL – 0.05 mg/m³) which is well within the prescribed limit of 5mg/m³. The lower values may be attributed to the absence of mining or mineral transport activities in and around the area. The pH values of 6 bore well water samples were ranging in between 6.27-7.01, TDS values were in the range of 30-165 mg/L, Chloride values were ranging from 14.2-29.8 mg/L and Iron content was found to be in the range BDL (DL-0.01)-0.25 mg/L, respectively. The water quality of ground water is found to be within the prescribed permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

11. PP submitted that for 2 surface water samples, pH varied from 6.42 – 6.51, TDS varied from 40-42 mg/l, Dissolved oxygen varied from 6.4 to 6.6 mg/l, BOD was found to be < 2 mg/l and Chloride varied between 13.7 to 15.2, Nitrates was found to be < 1 mg/l, and sulphates was found to be < 5 mg/l. Iron content was found to be below detectable limit BDL(DL-0.01). PP further submitted that heavy metals are well within the limit and values are below standard classification. In addition, PP submitted that the day Equivalent Noise (Leq-d) level were ranging from 41.3 to 50.8 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 37.0 to 42.0 dB(A), respectively.

12. PP submitted that the public hearing was conducted on 19.05.2017 at near primary school at Ghoraburhani village under Koiratahesil of Sundargarh District. Shri R N Mishra, Addl. District Magistrate, Sundargarh presided over the meeting along with Dr. M. Mahaling, Regional officer, Rourkela, State Pollution Control Board, Odisha. PP further submitted that about 450 participants have attended the public hearing and about 43 personsexpressed their views about the project. PP submitted action plan for the public concerns and the Committee deliberated the same.

13. PP submitted that there are three court cases against the project which are mentioned below

- (i) OA No. 34/2018 in the NGT-EZ Branch against the public hearing of this instant proposal, however, the Hon'ble NGT had disposed the OA on 21.01.2019 with the direction that the MoEF&CC shall consider all the issues raised in the present application while examining the EIA report in the process of grant of Environmental Clearance;
- (ii) W.P. (C): 9980/2017 in the Hon'ble High Court of Odisha in the form of PIL for challenging the public hearing dated 19.05.2017. PP submitted that the petitioner filed a memo for withdrawal of the write petition. Thus, the Hon'ble High Court of Odisha dismissed the petition as withdrawn.
- (iii) W.P. (C). No.9247 of 2018 in the Hon'ble High Court of Odisha in the form of PIL for seeking cancellation of allocation of Iron ore mine pursuant to invitation of bids for grant of mine lease for iron ore dated 23.12.2015 issued by the Government of Odisha. PP submitted that this case subjudice and the next date of hearing is 16.12.2019.

14. PP submitted that there is no National Park, Wildlife Sanctuary, Elephant Reserve, and Biosphere Reserve, Ramsar site or Tiger Reserve in the study area. PP further submitted that Schedule I species such as Elephant, Indian Python, Peafowl, Wild Cat,

Yellow monitor and Brahminy Kite are present. PP further submitted that the conservation plan for the same for Rs.1367.261 lakhs was approved by PCCF (Wild life) & Chief Wildlife Warden vide letter no. 6757/1WL-FC-MRL-SSP-196/2018 dated 1308.2019.

15. PP submitted that total water requirement for the project is 3230 m³/day out of which 2800 m³/day for beneficiation plant make up and 430 m³/day for mines which will be obtained from bore well. The water will be required for sprinkling on haul road to suppress dust, servicing of earth moving and other equipment, machinery and plant, drinking and other domestic use, sanitation, plantation, beneficiation plant for grinding and beneficiation and for slurry pumping through pipeline. PP further submitted that the clearance for drawl of ground water has been obtained from CGWA vide letter no.CGWA/NOC/MIN/ORIG/2018/3118 dated 07.02. 2018.

16. PP submitted that in the 10 km buffer zone, water bodies such as TopadihiNala (3.1 km-N), KunduruNala (6.5 km-NE), SunaNadi (1.6km-E), KalmangNala (0.9 km-E), KakarpaniNala (5.1 km-E), GahirajalaNala (6.2 km-SE), TehereiNala (2.9 km-SE), KhajurdihiNala (6.3km-S), KhuntachiraNala (8.4 km-S), LekerapaniNala (2.2 km-SW), ArchandaNala (7.0 km-S), KaroNadi (4 km-W) are present and few seasonal nallahs are passing through the lease area. PP submitted that reserved forests such as Lakrhaghat (7. Km-N), Siddhamath (4km-NE), Baitarani (5km-NW), Mendhamaruni (adjacent to lease boundary-SW), Kathamala (4 km-SW), BhabaniPaharh (6.3 km-SW), Karo (3.3 km-NW), Uilburu (5.5 km-NW) are located within 10 km radius. PP further submitted that Jharkhand State Boundary is about 7.5 km NW of the lease boundary.

17. PP submitted the compliance status for ToR condition and CSIR-NEERI's carrying capacity study conditions.

18. PP submitted that the list of flora and fauna was authenticated by the Office of the Divisional Forest Officer, Bonal Division vide letter no.5819/6F-(Mg.) dated 28.07.2017. PP further submitted that affidavit dated 16.06.2019 in compliance of Ministry's OM dated 30.05.2018 in respect of the order of Hon'ble of Supreme Court dated 02.8.2017 in W.P.(C) No. 114/2014.

19. PP submitted that the total project cost is Rs. 998 Crores and the funds allocated for Environment Management (Capital) is Rs. 2.20 Crores, for EMP (Recurring per annum) Rs. 4.82 Crores and for CER Rs. 25 Crores. PP further submitted that total manpower requirement for the Mines and the plant for various categories (skilled, semi- skilled etc) is estimated to be 212 numbers for Mines and 45 numbers for the plant.

20. After the recommendation of EAC the proposal was examined with respect of ownership issue and a letter in this regard was sent to PP on 4.05.2020. In reference to this letter the ArcelorMittal Nippon Steel India Limited (Formerly Essar Steel India Ltd) vide its letter dated 11.05.2020 inter-alia submitted the fresh certificate of incorporation issued on 8.01.2020 by Ministry of Company Affairs wherein the name of the company is changed from Essar Steel India Ltd to ArcelorMittal Nippon Steel India Limited.

21. The Ministry has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto; and after accepting the recommendation of EAC, hereby decided to accord the environmental clearance under the provisions thereof to the above mentioned proposal of ArcelorMittal Nippon Steel India

Limited (Formerly Essar Steel India Ltd) for Iron Ore with proposed production of 7,162,538 TPA iron ore (ROM), 18750 TPA Topsoil and 2,868,896 TPA OB/SB/IB (Total excavation: 1,00,50,184 TPA) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA (1250 TPH) Capacity in the mine lease area of 139.165 ha, located at village- Ghoraburhani, Sagasahi and Kalmang, Tehsil Koira, District Sundargarh, Odisha with the following **Specific conditions and Standard conditions** and subject to compliance of the followings terms and conditions and environmental safeguards mentioned below:

A. Specific Conditions:

1. This EC for production of 7,162,538 TPA iron ore (ROM), 18750 TPA Topsoil and 2,868,896 TPA OB/SB/IB (Total excavation: 1,00,50,184 TPA) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA (1250 TPH) Capacity in the mine lease area of 139.165 ha shall be operational after submission of an undertaking through affidavit to MoEF& CC within 15 days of receipt of the EC letter, for compliance of all the conditions prescribed herein.
2. Till the construction of beneficiation plant in the mine lease area, the transportation of ore from mine to Dabuna Beneficiation plant by road is allowed only for 3 years. No more road transportation is allowed after 3 years without permission of the Ministry. From 4th year onwards, the ore should be transported only through proposed slurry pipeline or as per the guidelines of CSIR-NEER's recommendation. PP shall inform Ministry for any deviation in the proposed mode of transport of minerals in case the timeline is not complied with.
3. Accessing the forest land for activities shall be applicable after getting Stage-II FC approval. No mining activity shall be carried out without obtaining Stage-II of Forest Clearance for the forest land involved in the project.
4. Installation of crusher and screening plant with proposed capacity only will be allowed. No further installation of crusher and screening plants are allowed without permission of the Ministry.
5. PP shall construct the tailing pond as committed and make regular maintenance for the same.
6. PP shall make the rainwater harvesting system as committed before the EAC.
7. PP shall construct garland drains with protective bunds around excavated area, to avoid entrance of surface run off into pit and mixing with ground water. Furthermore, PP shall make garland drains/storm water drains along with siltation/settling tanks at regular interval around the active mine pits through proper plan which follow the natural slope of surface run off and/or to avoid its mixing with groundwater.
8. PP shall make check dams to prevent sedimentation/siltation of natural water courses.
9. PP shall make progressive greenbelt and plantation like bench plantation and also make plantation mineral storage, top soil stack, road, magazine and other places as committed.

10. PP shall comply all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes.
11. The EC is subject to outcome of W.P.(C) No. 9247/2018 before Hon'ble High Court of Odisha.

B. Recommendation of CSIR-NEERI Report on "Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining Activity in Keonjhar, Sundargarh and Mayurbhanj districts of Odisha State: The Committee has also deliberated the various specific recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and/or manganese in the State of Odisha. There are recommendation which needs to be implemented by the State Govt. of Odisha and Project Proponent. Based on detailed deliberations on the recommendations of the carrying capacity study report, the Committee has also **recommended the following specific conditions viz.**

- 1) Project Proponent and Department of Steel & Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and/or manganese in the State of Odisha.
- 2) Department of Steel & Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.
- 3) Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road with minimum 300 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel & Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested. **This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.**
- 4) The Committee observed that as per the recommendations of NEERI report the PP needs to do regular vacuum cleaning of all mineral carrying roads aiming at "zero dust re-suspension" within 3 months. **This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.**
- 5) Project Proponent shall monitor the environmental quality parameters as per EC and CTE/CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian

Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable Acts.

- 6) Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Government of Odisha. All existing mines should ensure adoption of SOTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years.
- 7) The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/pipelines etc. shall be submitted periodically to Regional office of the MoEF&CC.
- 8) Project Proponent shall develop the parking plazas for trucks with proper basic amenities/ facilities inside the mine. This should be done within one year for existing mines and new mines should have since beginning. **This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.**
- 9) Department of Steel & Mines shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. This shall be completed within 2 Years.
- 10) Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Re-suspension" shall be adopted by PWD / NHAI/ Mine Lease Holders within a time Period of 3 months for existing roads. **This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.**
- 11) In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept. of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine-wise annual production scenario so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.

- 12) R&D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of Steel & Mines, Individual Mine Lease Holders.
- 13) The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network/ conveyor system for 8 mines (under SOTM 1 & 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Joda region) and Roxy railway sidings in Koira region. Responsibility: Dept. of Steel & Mines, Govt. of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel & Mines, Govt. of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.
- 14) State Govt. of Odisha shall make all efforts to ensure exhausting all the iron & manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept. of Steel & Mines, Govt. of Odisha.
- 15) **Mining Operations/Process Related:** Project Proponent shall implement the following mitigation measures: (i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste. e.g. drills should either be operated with dust extractors or equipped with water injection system. (ii) After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, waste water and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders. (iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and

maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders. (iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted/ authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders. Responsibility: Individual Mine Lease Holders.

- 16) **Air Environment Related:** Project Proponent shall implement the following mitigation measures: (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard. (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM₁₀, PM_{2.5}, SO₂, NO_x and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity. (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PM₁₀, PM_{2.5}, SO₂, NO_x and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral. (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate). Responsibility: Individual Mine Lease Holders and SPCB.
- 17) **Noise and Vibration Related:** Project Proponent shall implement the following mitigation measures: (i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. (ii) Appropriate measures should be taken for control of noise levels

below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs. (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored atleast once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.

- 18) **Water/Wastewater Related:** Project Proponent shall implement the following mitigation measures: (i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro-geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately. (ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis. (iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis. (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region. (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable. (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable. (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization. (x) Erosion from dumps

site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls. (xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis. (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

- 19) **Land/ Soil/ Overburden Related:** Project Proponent shall implement the following mitigation measures: (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately. (ii) Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any. (iii) Overburden/ low grade ore should be stacked at earmarked dump site (s) only and should not be kept active for long period. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc. (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil, OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals. (v) Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating. (vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed off as per provisions of Hazardous

Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual Mine Lease Holders.

- 20) **Ecology/Biodiversity (Flora-Fauna) Related:** Project Proponent shall implement the following mitigation measures: (i) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department. (ii) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner. (iii) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded. (iv) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation. (v) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value. (vi) Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details. Responsibility: Individual Mine Lease Holders and State Forest & Wildlife Department.
- 21) **Socio-Economic Related:** Project Proponent shall implement the following mitigation measures: (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region. (ii) Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation. (iii) The socio-economic development in the region should be focused and aligned with the guidelines/initiatives of Govt. of India/ NITI Aayog around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region.

District administration in association with mine lease holders should plan for "Samagra Vikas" of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY), notified by Ministry of Mines, Govt. of India, vide letter no. 16/7/2017-M.VI (Part), dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders.

- 22) **Road Transport Related:** Project Proponent shall implement the following mitigation measures: (i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC capacity within next 5 years. (ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the mine. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport. (iii) Transportation of ore should be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takes place. Further, air quality in terms of dust, PM10 should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Holders and Dept. of Steel & Mines.
- 23) **Occupational Health Related:** Project Proponent shall implement the following mitigation measures: (i) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects periodically. (ii) Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed. (iii) Occupational health and safety measures related awareness programs including identification of work related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer).

C. Standard conditions

I. Statutory compliance

- 1) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- 2) 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.

- 3) The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors.
- 4) 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.
- 5) 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.
- 6) 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/Committee.
- 7) 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.
- 8) 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.
- 9) The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
- 10) 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 ground water for the project.
- 11) 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.

- 12) State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
- 13) The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
- 14) The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred 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.

II. Air quality monitoring and preservation

- 15) 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, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
- 16) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

III. Water quality monitoring and preservation

- 17) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground

water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

- 18) 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.
- 19) 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.
- 20) 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-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
- 21) 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.

- 22) Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
- 23) Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
- 24) 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/Committee.

IV. Noise and vibration monitoring and prevention

- 25) The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
- 26) 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.
- 27) The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

V. Mining plan

- 28) 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.

- 29) 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.
- 30) The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

VI. Land reclamation

- 31) 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 stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.
- 32) 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.
- 33) The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- 34) 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.

- 35) 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.
- 36) Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
- 37) 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 corners of the garland drains.
- 38) 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.

VII. Transportation

- 39) No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

- 40) The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

VIII. Green Belt

- 41) 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.
- 42) 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.
- 43) The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
- 44) 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.
- 45) 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.

IX. Public hearing and human health issues

- 46) 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 MoEFCC Regional Office and DGMS on half-yearly basis.
- 47) 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.
- 48) 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- 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).
- 49) 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, MoEFCC annually along with details of the relief and compensation paid to workers having above indications.

- 50) 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.
- 51) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
- 52) 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.

X. Corporate Environment Responsibility (CER)

- 53) 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 EAC 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.
- 54) 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 MoEFCC and its concerned Regional Office.

XI. Miscellaneous

- 55) 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.
- 56) 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.
- 57) The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
- 58) 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, MoEFCC.
- 59) The concerned Regional Office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data / information / monitoring reports.
- 60) In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

D. Standard EC Conditions for Mineral Beneficiation Plants:

I. Statutory compliance:

- 1) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- 2) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- 3) The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest

Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area)

- 4) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- 5) The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
- 6) The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time

II. Air quality monitoring and preservation

- 7) The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
- 8) The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986.
- 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM₁₀ and PM_{2.5} in reference to PM emission, and SO₂ and NO_x in reference to SO₂ and NO_x emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions.
- 10) The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- 11) Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
- 12) The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.

- 13) Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
- 14) Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

III. Water quality monitoring and preservation

- 15) The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
- 16) The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
- 17) The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- 18) The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
- 19) Adhere to 'Zero Liquid Discharge'
- 20) Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
- 21) Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
- 22) The project proponent shall practice rainwater harvesting to maximum possible extent.
- 23) The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

IV. Noise monitoring and prevention

- 24) Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.

25) The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time

V. Energy Conservation measures

25) Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;

26) Provide LED lights in their offices and residential areas.

VI. Waste management

27) The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016

28) Kitchen waste shall be composted or converted to biogas for further use. *(to be decided on case to case basis depending on type and size of plant)*

VII. Green Belt and EMP

29) Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant

30) The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

VIII. Public hearing and Human health issues

31) Emergency preparedness plan based on the Hazard Identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

32) The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

33) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

34) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

IX. Corporate Environment Responsibility

- 35) The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- 36) The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- 37) A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- 38) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- 39) Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out
- 40) All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.

X. Miscellaneous

- 41) The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- 42) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- 43) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

- 44) The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- 45) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- 46) The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- 47) The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- 48) The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- 49) The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- 50) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- 51) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- 52) The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- 53) The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- 54) The Regional Office of this Ministry 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.
- 55) The above conditions shall 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, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

- 56) Any appeal against this EC 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.
22. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
23. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attracts action under the provisions of Environment (Protection) Act, 1986.
24. 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 of Odisha and any other Court of Law relating to the subject matter.
25. 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.
26. This issues with the approval of Competent Authority.


Yours faithfully,

Sharath Kumar Palleria
28/5/2020
(Sharath Kumar Palleria)
Director/Scientist 'F'

Copy to:

1. **The Secretary**, Ministry of Mines, Government of India, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi-110 001.
2. **The Chief Secretary**, Government of Odisha, Secretariat, Bhubaneswar.
3. **The Secretary**, Department of Environment, Government of Odisha, Secretariat, Bhubaneswar.
4. **The Secretary**, Department of Mines and Geology, Government of Odisha, Secretariat, Bhubaneswar.
5. **The Secretary**, Department of Forests, Government of Odisha, Secretariat, Bhubaneswar.
6. **The Chairman**, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
7. **The Additional Principal Chief Conservator of Forests (C)**, Ministry of Environment, Forest and Climate Change, Regional Office (EZ), A/3, Chandrasekharpur, Bhubaneswar – 751023.

8. **The Chief Wildlife Warden**, Prakruti Bhawan, 5th floor, BDA Apartment Nilakanthanagar, Nayapalli, Bhubaneswar-751012, Odisha
9. **The Member Secretary**, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
10. **The Controller General**, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
11. **The Member Secretary**, Central Ground Water Board Ministry of Agriculture and Irrigation, 12/1 Jam Nagar House, Shahjahan Road, New Delhi 110011.
12. **The District Collector, Sundargarh District**, Government of Odisha.
13. **Guard File.**
14. **PARIVESH PORTAL.**


(Sharath Kumar Pallerla)
Director/Scientist 'F'