

EC COMPLIANCE PERIOD: OCTOBER'2016 - MARCH'2017

**ENVIRONMENTAL CLEARANCE TO
NOAMUNDI IRON MINE OF TATA STEEL LIMITED
VIDE MoEF&CC's LETTER NO. J-11015/104/2011-IA.II (M), DATED: 10/06/2013
FOR PRODUCTION OF 10 MTPA (ROM) &
BENEFICIATION OF 18 MTPA THROUGHPUT OF IRON ORE**

Specific Condition:

Sl. No.	Condition	Compliance
1	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	Mining operation is being carried out in the non-forest area of 397.63 ha and forest area of 370.92 ha for which Forest Clearance has been obtained from MoEF&CC, GoI.
2	The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide there letter F. No. 11-362/ 2012-FC, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.	New Guidelines for Forest Diversion Proposal by FC vide there letter F. No. 11-599/2014-FC dated: 01.04.2015 has been issued by MoEF&CC regarding this matter which suppressed the previous guidelines issued vide letter F. No. 11-362/2012-FC dated: 01.02.2013.
3	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.	No specific clearance under the Wildlife (Protection) Act, 1972 is required for the project.
4	<p>Prior environmental clearance from the Standing Committee of the National Board for Wildlife shall be obtained if applicable, due to location of the mine within the core zone of Singhbhum Elephant Reserve, before starting any activity relating to the project at site. All the conditions stipulated by the Standing Committee shall be effectively implemented in the project. It shall be noted that this clearance does not necessarily imply that wildlife clearance shall be granted to the project and that your proposal for wildlife clearance shall be considered by the competent authorities on its merit and decision taken.</p> <p>The investment made in the project, if any based on environmental clearance granted to the project, in anticipation of the clearance from wildlife clearance shall be entirely at the cost and risk of the project proponent</p>	Prior Environmental Clearance is no more required from the Standing Committee of the National Board for Wildlife as per letter no. Vanya Prani-19/2012/1310, dated. 19.03.2013 of State Govt.

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	and Ministry of Environment and Forests shall not be responsible in this regard in any manner.	
5	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Jharkhand and effectively implement all the conditions stipulated therein.	Consent to Establish and Consent to Operate had been obtained from State Pollution Control Board, Jharkhand and the conditions are being effectively implemented.
6	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.	There is no National Park, Sanctuaries, Elephant corridor and tiger reserves within 10 Km radius of the core zone.
7	As part of Ambient Air Quality Monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.	As a part of Ambient Air Quality Monitoring, mineralogical composition of air samples are being analysed on monthly basis and all the records are properly maintained.
8	The beneficiated ore shall be transported to railway sidings only through closed conveyor.	The beneficiated ore from beneficiation plant is being transported to railway siding for transportation through existing covered conveyors. Photograph of covered conveyor is attached as Annexure-I.
9	Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Conditioning of ore is being done in wet processing plant. Regular water sprinkling is being done on the haul roads by mobile water sprinkler, fixed water sprinkler. Water jet system and water mist system are provided at loading & unloading points for effective dust suppression. We have covered the conveyors and also done massive plantation around the conveyors. Photographs of Effective safeguard measures of Air Quality are attached as Annexure-I & II & Ambient Air Quality parameters are within the limit prescribed by the CPCB.
10	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	The rain water collected in the mine pits and allowed to be collected in the lowest level sumps to augment the ground water resources gradually. Rain water harvesting ponds and ground water recharge structures have been constructed and approved by the Ground Water Directorate, Jharkhand, Ranchi. Photographs of RWH structures are attached as Annexure-III.
11	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office	Ground water quality and Ground water level are being monitored periodically during four times a year pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January). The results are being sent to Regional Office, MoEF&CC and SPCB, Bhubaneswar once in every six months and there is no depletion of ground water level. Ground Water Level and quality reports are attached as Annexure-IV.

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	Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.	
12	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Our mining operation is restricted above the ground water table.
13	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The Balijore Nallah shall be left undisturbed and protected.	No natural watercourse and/or water resources are obstructed due to any mining operations and the Balijore Nallah shall be left undisturbed and protected.
14	The project proponent shall regularly monitor the flow rate of the Balijore Nallah flowing through the mine lease and maintain the records.	We are regularly monitoring the flow rate of the Balijore Nallah and the report is being sent to the JSPCB, Ranchi every month.
15	There shall be no external over burden dumps at the end of the mine life. The reclaimed and rehabilitated area shall be afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	Over Burden is being dumped as per plan at the earmarked place. Inactive portions of the OB dump are gradually stabilized and reclaimed by vetiver plantation & native species plantation. Till now 195158 saplings have been planted. Some of the Dump plantation photographs are attached as Annexure-V.
16	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and temporary OB dump(s) to prevent run off of water and flow of sediments directly into Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, Baitarni River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de-silted particularly after monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dump(s) to prevent run off of water and flow of sediments directly into Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, Baitarni River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be	Garland drains with settling pits have been constructed all along the OB dumps. Check dams have also been provided for the settling of siltation. The de-siltation of these check dams are done regularly and properly maintained. Sedimentation pits have been constructed at the corners of the garland drains to take care of run off of water even during peak rain fall and they are being de-silted regularly before and after the monsoon. Garland drains, Settling tanks and Check dams had been constructed both around the mine pit and over burden dump(s). Some of the photographs of Garland Drain, Toe wall, settling ponds are attached as Annexure-VI.

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	constructed at the corners of the garland drains and de-silted at regular intervals.	
17	Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.	Retaining wall and Garland drains of appropriate size have been constructed around the OB dumps to check mine run-off. Photographs are shown in Annexure-VI.
18	Plantation shall be raised in an area of 990.601ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	Plantation over an area of 990.601 ha shall be achieved at the end of mine life. However, development of greenbelt over 7.5m in the safety zone is completed. Further, plantation is being carried out by native species on the inactive dump slopes. Vetiver plantation has also been carried out over 0.4 ha area with 30000 slips. The tree density has been maintained as 5122 plants per ha.
19	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling is being carried out by use of mobile water sprinklers, fixed water sprinkling. Regular monitoring of Ambient Air Quality is being done and all the results are within the permissible limits as prescribed by the Central Pollution Control Board. Photographs of fixed sprinkler, mobile sprinkler, water mist etc. are attached as Annexure-VII.
20	Mine water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The run off from temporary OB dumps and other surface run off shall be analysed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.	There is no waste water discharge from the mine and our unit is "Zero Discharge Unit". The decanted water from the zero discharged slime dam is completely recycled back to the beneficiation plant. Photograph of Zero Discharge slime pond is shown in Annexure-VI.
21	The decanted water from the beneficiation plant and slime/tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.	The slime is stored in the zero discharge slime ponds. The decanted water from the slime ponds is completely recycled back to beneficiation plant.
22	Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.	Monitoring of flow rate of Balijore nallah flowing at the side of the mining lease is being carried out and records maintained.
23	Regular monitoring of water quality upstream and downstream of Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Water quality monitoring of Balijore Nallah, Kundra Nallah, Jojo Nallah, Mahadev Nallah, are being carried out and record of monitoring data maintained. The results, so obtained are sent to Regional office, MoEF&CC, Jharkhand State Pollution Control Board, Ranchi and Central Pollution Control Board. Water Quality Analysis and flow rate of Balijhor Nallah is attached as Annexure-VIII.
24	Appropriate mitigative measures shall be taken to prevent pollution of Baitarni River, if any, in consultation with the State Pollution Control Board.	Baitarani River is flowing at a distance of about 12 Km from the mine and is not being polluted because of mining operations of Noamundi Iron Mine.
25	The project proponent shall obtain necessary prior	At present, we have permission for drawl of 9786 KLD

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	permission of the competent authorities for drawl of requisite quantity of surface water for the project. Ground water shall not be used for the mining operations.	of surface water and our operation is being managed well within that quantity. Ground water is not being used for mining operations.
26	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Three rain water harvesting ponds and several ground water recharge structures have been constructed at the mine site hiring the expertise of KRG Foundation, Chennai and they are now operational. Photographs of RWH structures have been shown as Annexure-III.
27	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	Regular vehicular emission testing is being conducted once in every six months. The vehicles those who do not meet the emission standard, are withdrawn from operation and maintained properly. A vehicle is kept abeyance from operation till it does not meet the emission standard. Also, the vehicles are not run overloaded.
28	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting is carried out during day time only. Controlled Blasting is carried out for control of ground vibrations and to arrest fly rocks, as per the recommendations of CIMFR, Dhanbad. We are doing SME/ NONEL technology for the blasting.
29	Drills shall either be operated with dust extractors or equipped with water injection system.	We are practicing wet drilling in our operation. All drills have been provided with dust suppression system.
30	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Effective and high efficiency dust extraction system is in place at the mineral handling plant. Loading and unloading areas including transfer points have been provided with dust suppression facilities. Further, the dust extraction and suppression system are maintained properly for effective dust control.
31	Consent to operate shall be obtained from State Pollution Control Board prior to start of enhanced production from the mine.	Consent to Operate has been obtained from State Pollution Control Board, Jharkhand.
32	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	As per the topography of the residential area, installation of single sewage treatment plant is not feasible. However, the sewage water is effectively taken care by the septic tanks and soak pits and no sewage water goes outside. Further, two small capacity STPs have already been installed in the colony and there is plan to install more STPs in coming years. For waste water from Equipment & Maintenance Workshop, oil and grease separation pits are provided. Further, no waste water is generated from the mining and plant operations are discharged beyond the lease boundary and hence require no treatment. Photographs of STP and Oil & Grease separation facilities are attached as Annexure-IX.
33	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in	Digital processing of the entire lease area using remote sensing technique was carried out by engagement of the

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	three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubneswar.	expertise of Ecomen Laboratory Pvt. Ltd., Lucknow. Same is attached as Annexure-X.
34	Regular monitoring of ambient air quality including free silica shall be carried out and records maintained.	Ambient air quality including free silica is regularly monitored and records maintained.
35	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination and periodical examination of the workers engaged is being conducted & record maintained. The schedule of Periodical Medical Examination is once in every 3 years for the employees of age more than 40 years and once in 5 years for the employees of age less than 45 years.
36	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as wolf, elephant, sloth bear, rhesus macaque etc. spotted in the core and buffer zone of the mine and contribute towards the cost of implementation of the plan and/or Regional Wildlife Management Plan for conservation of flora and fauna so prepared by the State Forest and Wildlife Department. The amount so contributed shall be included in the project cost. A copy of action plan shall be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months.	Tata Steel is taking all the precautionary measures towards conservation and protection of endangered flora and fauna. Further, Company has submitted an undertaking to bear the proportionate cost towards the execution of comprehensive Wildlife Management plan in the area to be prepared by the state Govt. As required, a site specific wild life conservation plan has also been submitted to the Ministry and its Regional Office, Bhubaneswar.
37	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	A progressive mine closure plan approved by IBM is in place. The final mine closure plan along with details of Corpus fund will be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

General Condition:

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1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	We are operating as per the approved mining technology and scope of working mentioned in EC granted to us.
2	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Calendar plan (IBM Approved Mining Plan) prepared for the mine is being strictly adhered to and we are well within the limits specified in Mining Plan as well as EC and CTO granted capacity.
3	At least four ambient air quality-monitoring should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution	Ambient Air Quality monitoring is being regularly carried out at four different stations within the core zone and Buffer zone respectively, which were located in consultation with the visiting officers of State Pollution control Board, Jharkhand and reports are being submitted to Regional office, MoEFCC, Ranchi half yearly and to SPCB, Jharkhand monthly. Ambient Air Quality report is attached as Annexure-XI.

