

**SIX MONTHLY COMPLIANCE FOR THE PERIOD APRIL 2020 TO SEPTEMBER 2020 OF ENVIRONMENT CLEARANCE ACCORDED VIDE LETTER NO J-11015/380/2006-IA.II (M) DATED 02.07.2008 IN RESPECT OF RAIKELA IRON ORE MINE OF M/S GEETARANI MOHANTY.**

SL NO	CONDITIONS	COMPLIANCES
i	All the conditions stipulated by the State Pollution Control Board, Orissa in their Consent to establish shall be effectively implemented.	Consent to establish from State Pollution Control Board, Odisha vide letter No. 1764/IND-NoC-3760 dated 31.01.2006 has been obtained. All condition stipulated by the state pollution control Board, Odisha is/will be effectively implemented.(Copy of the Consent to Establish letter is enclosed as <b>Annexure-I</b> )
(ii)	Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 66.671 Ha is forestland shall be obtained before starting mining operation in that area. Environmental clearance is subject to grant of Forestry Clearance.	Stage-II forest clearance for diversion of entire forest land 66.671 Ha including 2.523 Ha. of safety zone of the mining lease obtained vide letter No. 8-37/2007-FC dated 22.10.2014.(Copy of the forest clearance letter is enclosed as <b>Annexure-II</b> )
(iii)	The mining operations shall be restricted to 2m above the reported water table i.e. 672 mRL 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.	Present depth of the mining operation is at 650 m RL and the ground water level is 600 m RL. So, the present mining activity is not going to intersect the ground water table.
(iv)	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.	No, natural drainage system is being obstructed till now. Retaining wall, garland drain is constructed all along the OB and Sub-grade dump in order to arrest the runoff water during rain.



**(View of Retaining wall around SG Dump)**



**(View of Retaining wall around OB Dump)**

(v)	<p>The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for a period more than 3 years. The topsoil shall be used for land reclamation and plantation.</p>	<p>As the mining operation is being carried out over lateritic horizon, Top soil generation is nil.</p>
(vi)	<p>The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and should not be kept active for long period of time. Proper terracing of OB dump shall be carried out so that the overall slope shall not exceed 28 degree. Out of the total 21,44,567 m<sup>3</sup> of waste to be generated during the mine life, 8,17,002 m<sup>3</sup> shall be disposed of in the form of external dump and 13,27,565 m<sup>3</sup> shall be backfilled in 7.0 Ha of mined out area. The backfilled area shall be afforested. The over burden dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dumps. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment &amp; Forests and its Regional Office located at Bhubaneswar on six monthly basis.</p>	<p>The mine is having Currently one waste/OB dump with 2.0 Ha areas. The ultimate area will be 2.21 Ha. Dumps are well dressed and terraced to avoid the natural collapse. Plantation is done over the dead slope.</p> <p>The project proponent has done the exploration within the lease area. The result shows that, iron ore will not be exhausted during conceptual period. Hence, back-filling of waste is not possible during conceptual period.</p> <p>As per the approved Mining plan there is no proposal of back-filling during plan period.</p>



**Stabilisation of dump by plantation at toe of the dump**

(vii)	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the working pit(s), mineral and OB dumps to prevent runoff of water and flow of sediments directly into the SunaNallah, KaroNallah, Rivers and water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted particularly after monsoon and maintained properly.</p> <p>Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and temporary over burden dumps to prevent runoff of water and flow of sediments directly into the SunaNallah, KaroNallah, Rivers and 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 should be constructed at the corners of the garland drains and de-silted at regular intervals.</p>	<p>Catch drain and siltation pond has been constructed at strategic location to prevent runoff of water and flow of sediments directly into the SunaNallah, KaroNallah, Rivers and water bodies. The water so collected is being utilized for watering the mine area, roads, green belt development etc. The drains are regularly de-silted particularly after monsoon and maintained properly.</p>  <p><b>View of de-silting of pond after rainy season</b></p> <p>The garland and retaining wall have been constructed around the dump and the regular cleaning of drain and de-silting of settling pond is also carried out.</p>
(viii)	<p>Dimension of the retaining wall at the toe of over burden dump and over burden benches within the mine to check run-off and siltation shall be based on the rain fall data.</p>	<p>Dimension of protective measures constructed around the toe of the OB dump is furnished below:</p> <ul style="list-style-type: none"> <li>❖ Length of Retaining Wall-1992m</li> <li>❖ Width of retaining wall- 1.5m</li> <li>❖ Height of Retaining wall-1.0m</li> </ul>
(ix)	<p>Plantation shall be raised in an area of 20.276 ha including a 7.5 m wide green belt in the safety zone around the mining lease, backfilled area, quarry benches, 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.</p>	<p>Plantation has been carried out all along the safety zone, toe of the waste dump. There is no back-filled area available for plantation till date. The details of plantation area as follows:</p> <p>No of Saplings: 37050nos</p> <p>Area covered: 13.39 Ha (over safety zone, waste dump area and along the dry nala.)</p>



**(Safety zone plantation)**



**(Plantation along the toe of the Dump)**

(x)	<p>Regular water sprinkling shall be carried out in critical areas prone to Air pollution and having high levels of SPM and RPM such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling should be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Regular water sprinkling is being undertaken around the crushing and screening plant, loading and unloading point and Material dispatch points. Extensive water sprinkling is being carried out on haul roads. Air quality monitoring is being carried out at 8 locations (4 nos in core zone and 4 nos in buffer zone) to know the pollution level of air. The results are within permissible limit.</p>
-----	--	--



**(Arrangement of dry fog system at Crusher)**



**(Water Sprinkling on Haul Road)**



**(Arrangement of dry fog system at crusher)**



**(Installation of RDS for monitoring of Air)**

(xi)	Regular monitoring of water quality upstream and downstream of SunaNallah and KaroNalla 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	Monitoring of water quality of KaroNallah at the upstream and downstream has been carried out and record of monitoring data has been 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. Copy of Ground water and Surface water quality monitoring report is attached as <b>Annexure - III</b>
(xii)	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Conservation measures to augment ground water resources in the area a detail study has been carried out by CIMFR, Dhanbad, A reputed Institute of Govt of India. Based on the report suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board is being implemented. Roof top rain water harvesting structure has been constructed nearby the office.



**ROOF TOP RAINWATER HARVESTING STRUCTURE**

(xiii)	<p>Regular monitoring of ground water level and quality should be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment and Forests and its Regional Office Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.</p>	<p>Monitoring of the ground water quality at 3 locations namely Mines office, Tensa Tube well, &amp; Tentulidihi dug well Village has been undertaken. The results are within permissible limit. Piezometer has already installed in the lease area of mines in 627 m RL. The depth of water level is 600 m RL.</p>
--------	--	---



#### **(Installation of Piezometer near Borewell)**

(xiv)	<p>The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) for the project.</p>	<p>No objection certificate (NOC) for ground water withdrawal of 64.5cum/day has been obtained from Central Ground Water Authority, New – Delhi.</p>
(xv)	<p>Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.</p>	<p>For implementation of suitable Rain water harvesting Measures, a detail study has been undertaken by CIMFR, Dhanbad. As per the provision the suitable Rain Water Harvesting Measures along with Roof Top Rain Water Harvesting Structures is implemented.</p>

(xvi)	Appropriate mitigative measures should be taken to prevent pollution of Karo River in consultation with the State Pollution Control Board.	Karonala, is situated at a distance of 6.84Km in the Northern part of the lease area. However, Site specific mitigative measures to prevent polluting of the KaroNalla, has been initiated like implementation of surface run off management guard wall across the bank of nearby Nalla.
(xvii)	Minerals 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 shall be properly maintained and operated	The effective dry fog system with hoods over the conveyor belts got provided at crushing and screening plant, besides this fixed water sprinkling & water sprinklers with the help of water tankers arrangement is made to suppress the dust.
(xviii)	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded.	Regular Monitoring of emission of the vehicles is being conducted.  Mineral transportation is carried out thorough covered vehicle



**(Mineral transportation in covered vehicle)**

(xix)	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 operation is being carried out only during the daytime. Controlled blasting is being practiced.
(xx)	Drills shall either be operated with dust extractors or equipped with water injection system	Drill machine provided with dust extractor with water injection system.



**(Drill machine provided with dust extractor with water injection system)**

(xxi)	Consent to operate shall be obtained from the State Pollution Control Board prior to start of enhanced production from the mine.	Consent to operate Order from State Pollution Control Board, Odisha vide letter no. No 3491/IND-I-CON-2572 Dated 19.03.2020 and is valid up to 31.03.2021 for the production of 0.864 MTPA
(xxii)	Sewage treatment plant should be installed for the colony. ETP should also be Provided for workshop and wastewater generated during mining operation.	ETP has been provided for workshop. STP of 60KLD has been established for treatment of sewerage.



**(VIEW OF STP)**



**(VIEW OF ETP)**

(xxiii)	<p>The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna, If any spotted in the study area 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 may be submitted to the Ministry and its Regional Office, Bhubaneswar within 3 months</p>	<p>The Site Specific Wildlife Conservation Plan got prepared in consultation with forest department an estimated cost of Rs. 100 lakhs of which Rs. 28.00 lakh has been earmarked for implementation of Site Specific Wildlife Conservation Plan within the Mining Lease area and Rs. 72.00 Lakh has been earmarked for implementation for the purpose in the buffer zone i.e. within the zone of influence and its approved by Pr, Chief Conservator of forest and Chief Wildlife Warden Bhubaneswar vide letter no 5582-1/WL-C-SSP-212/10 dated. 07.08.2010 Precaution measures are taken for conservation during the mining operation.</p>
---------	--	---

(xxiv)	<p>A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment &amp; Forests 5 years in advance of final mine closure for approval.</p>	<p>The life of the mine is 39 years considering the reserve and production capacity @0.864MTPA. The project proponent is implementing the progressive mine closure plan as per the approved Mining plan vide letter No MSM/FM-10/ORI/BHU/2019-20 dated 20.09.2019. Further, a sum of Rs 1,62,69,600/- in the form of Bank guarantee has been submitted for reclamation and rehabilitation measures as a security deposit.</p> <p>A final mine closer plan along with detailed corpus fund will be submitted to the ministry of Environment &amp; Forest 5 years in advance of final mine closure for approval.</p>
--------	--	--

#### GENERAL CONDITIONS

(i)	<p>No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment &amp; Forests</p>	<p>The Mining method of the project is/will be fully mechanized having shovels, dumper combinations and sorting and sizing of the Iron Ore.</p>
(ii)	<p>No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.</p>	<p>There is No change in the calendar plan for excavation, quantum of mineral iron ore and waste</p>
(iii)	<p>Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2 &amp; NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.</p>	<p>The monitoring of AAQ is being done in the core as well as buffer zone of the ML area. There are 4 no. of monitoring station in core zone and 4 nos in buffer zone.</p> <p><b>Core Zone</b> Mines Site of ML area ( Near Lab, weigh bridge site, Office )</p> <p><b>Buffer Zone:</b></p> <ul style="list-style-type: none"> <li>- Raikela Village</li> <li>- Bahamba Village</li> <li>- Tantra Village</li> </ul> <p>The monitoring report reveals that the parameter like PM10, PM2.5, SO2 and NOx are as per NAAQs notifications made by the CPCB, are very well within the norms. Copy of AAQ monitoring report is attached as <b>Annexure - III</b></p>

(iv)	<p>Data on ambient air quality (RPM, SPM, SO<sub>2</sub>&amp;NOx) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.</p>	<p>The monitoring of AAQ is being carried out in the core as well as buffer zone of the ML area and are regularly being submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.</p>
(v)	<p>Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.</p>	<p>Water sprinkling is being carried out regularly at dust generating points such as crushing and screening plant, loading and unloading points. Copy of Fugitive dust monitoring report is attached as <b>Annexure - III</b></p>
(vi)	<p>Measures should be taken for control of noise levels below 85 d BA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.</p>	<p>Adequate measures were being taken for control of noise level below 85 d BA in the work environment. Workers engaged in drilling and blasting operations, operations of HEMM, etc. has been provided with ear plugs / muffs. Copy of Noise level monitoring report is attached as <b>Annexure - III</b></p>
(vii)	<p>Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.</p>	<p>ETP has been constructed nearby the workshop.</p>
(viii)	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p>	<p>Initial Medical Examination &amp; Periodical Medical Examination of the workers engaged in the project is being undertaken periodically for permanent and outsider employees through EZMA.</p>

(ix)	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	An Environment Cell is being established under Corporate Environment Policy with suitable qualified personnel under the control of a Senior Executive, who is reporting directly to the Head of the Organization
(x)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	The funds earmarked for environmental protection is being utilized for the Environment protection measures. Year wise expenditure is being reported to the Ministry and its Regional Office located at Bhubaneswar.
(xi)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	This is is communicated in due course to the concerned authority.
(xii)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	We will extend all our cooperation during any such inspections by the Authority.
(xiii)	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	The Project is uploading the last six monthly EC Compliance reports in the website bearing address <a href="http://www.grmmines.in">www.grmmines.in</a> on regular basis.
(xiv)	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	It has been complied with intimating the letters to local Gram Panchayat, Municipality, DDM Office, ZilaParishad, Divisional Forest Officer etc. and a copy of environmental clearance letter also made available in the company's website i.e. <a href="http://www.grmmines.in">www.grmmines.in</a> .
(xv)	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office / Tehsildar's Office for 30 days.	It is being already complied.

(xvi)	<p>The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.</p>	<p>Paper advertisement has been published in Oriya news paper "The Khabara" on dated 09.07.2008 and English news paper "The Indian Express" on dated 12.07.2008. Copy of the same is already submitted.</p>
-------	---	---