



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
रॉ मटेरियल्स डिवीजन
RAW MATERIALS DIVISION
बोलानी अयस्क खदान
BOLANI ORES MINES

Ref No: - BOM/ENV/5.1/HD-3005

Date:-30/05/2018

To,

Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar - 751023

Sub: Six monthly status of compliance to the conditions stipulated in the Environmental Clearance granted by MoEFCC for 12 MTPA Iron Ore production from 5.10 sq. Miles ML vide letter no. J-11015/418/2008-IA.II(M) dated 21/12/2012 for the period ending OCT'17-MAR'18.

Sir,

Please find enclosed herewith the Six monthly compliance report for the period OCT'17-MAR'18 with respect to the conditions stipulated by GoI, MoEF, New Delhi, in the Environmental Clearance grant order of Bolani Ores Mines for the production of 12 MTPA Iron Ore from 5.10 sq Miles ML vide ministry's letter no. J-11015/418/2008-IA.II(M) dated 21/12/2012.

Thank you,

Yours faithfully,

General Manager
Bolani Ores Mines

डॉ. देसायकर / D. DEYSARKAR
महाप्रबंधक (खान) / General Manager (Mines)
सेल - आर एम डी - बोलानी-अयस्क खदान
SAIL-RMD-Bolani Ores Mines
बोलानी-758 037, क्योझर, ओड़ीसा
Bolani-758 037, Keonjhar, Odisha

Encl: As above

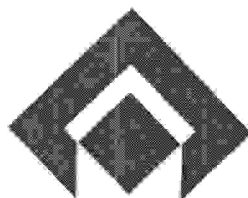
Copy:

1. Director, IA Division, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. In-charge, Eastern Zone, CPCB, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.)
3. The Member Secretary, State Pollution Control Board, Paribesh Bhawan, A/118, Nilkantha Naga, Unit - VIII, Bhubaneswar - 751 012, Odisha

Six Monthly
COMPLIANCE REPORT
OF
ENVIRONMENTAL CLEARANCE CONDITIONS
(Grant Order no: J-11015/418/2008-IA.II(M) dated 21/12/2012)

OF
BOLANI ORES MINES (5.10 Sq Miles ML)
In Keonjhar District of Orissa

For the Period October'2017-March'2018



STEEL AUTHORITY OF INDIA LIMITED
RAW MATERIALS DIVISION
BOLANI ORES MINES
BOLANI- 758037

Sl. No.	Condition	Compliance Status
(i)	Environmental Clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as applicable.	Provision of Wildlife (Protection) ACT 1972 is not attracted to the Project as there are no Wildlife sanctuaries, National Parks or similar places specified in the Act within 10 KM radius of the project.
(ii)	The project proponent shall obtain Consent to establish from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated there in.	<p>Consent to Establish for expansion of the mine to produce 12 MTPA was granted by Odisha State Pollution Control Board vide No. 23405 dated 21.12.2013 . Conditions stipulated in the Consent to Establish are complied .</p> <p>Subsequently, Consent to Operate was granted vide letter No. 4784/IND-I-CON-242 Dt.18.03.2016 from Orissa State Pollution Control Board for the production of 12 MTPA of Iron Ore and is valid till Dt.31-03-2019 .</p>
(iii)	Forest Clearance for 73.20 ha of Safety Zone has not been obtained by the project proponent. This environmental clearance subject to the grant of forest clearance for diversion of 73.20 ha of safety zone within one year .	Forest Clearance for 73.12 ha of Safety Zone has been granted by MoEF & CC, vide F. No. 8-17/1997-FC(vol.) dt.12/11/14 . A copy of the same was enclosed with six monthly EC compliance report for the period Apr'14 to Sep'14 vide our letter No. BOM/ENV/HD-1401 Dt.14.01.2015.
(iv)	The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter- alia provide for (i) Standard operating process/ process to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.	<p>The Policy towards Corporate Environmental Responsibility including details of set up was submitted to Ministry vide our letter no RMD/BOM/E&L/5.1sqMiles/EC/2013/91 dt.18-03-2013.</p> <p>SAIL has always been an environmentally conscious and responsible company. Way back in 1996, it was a pioneer in adopting a Corporate Environmental Policy. In view of the rapid technological advancements in the past two decades and growing stringency of regulatory requirements, SAIL has revised its Environmental Policy and made "Corporate Environmental Vision, Policy and Responsibility", which is under implementation and copy of the same had been attached in EC compliance report for the period of Oct'15 to Mar'16 submitted vide letter no. BOM/ENV/5.1/HD-3600 Dt.30.06.2016.</p>

Sl. No.	Condition	Compliance Status
(v)	The mining operation shall be restricted to above ground water table and it shall not intersect groundwater table. In case of working below the ground water table, Prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydrogeological study shall be carried out.	<p>At present, Mining operations have been restricted to levels above ground water table in all the pits within the leasehold area. The Ground Water Table in the Lease area is 451m AMSL. Whereas the present working depth at the mines varies from 915m to 485m AMSL. The mines will not be dug deeper than the current depth of 485m AMSL till 2030.</p> <p>Prior approval of the Ministry of Environment & Forest and Central Ground Water Authority will be obtained after conducting a detailed hydrogeological study, prior to working beyond Ultimate Pit Depth of 452 AMSL, if any, during subsequent plan periods as per duly approved Mining Plan.</p>
(vi)	Mitigation measures to control RSPM levels shall continue to be implemented and air quality data will also be collected during operation of the mines. The data so collected shall be analyzed to see the effectiveness of the mitigation measures implemented. Based on the same, additional safeguard measures, as may be required shall be implemented in the project.	<p>Mitigation measures are regularly implemented to control the RSPM levels. In order to reduce the RSPM levels, SAIL-Bolani Ore Mines has completed the implementation of following mitigation measures :</p> <ul style="list-style-type: none"> (a) Transportation through covered conveyors: Around 3200 meters of Covered conveyors from feed hopper at mines to product dispatch point. (b) Bag filter system equipped at secondary crusher housing (c) High Pressure water sprinkling at Feed Hopper at Hill Top Plant (d) Dry Fog Dust suppression installed in the 600 TPH Crushing & Screening Plant. (e) Repaired and blacktopped roads inside township, and peripheral villages and Road from Bolani to Karo Bridge within 6.90 sq. m ML (f) Part of the D-Area Haul road (about 200m) has been converted to concrete road near residential area. (g) 8000 nos. of saplings were planted over an area of 3.2 ha within the leasehold area at a cost of Rs.20.53 lakhs. <p>The photographs showing above Mitigation measures have been enclosed in earlier six monthly compliance reports . Regular Monitoring of ambient air quality is undertaken and real time data uploaded to OSPCB server online.</p>
(vii)	The biological survey shall be repeated during October- December and mid-	Necessary biological surveys were conducted by expert committees and Wild Life Experts and based on the

Sl. No.	Condition	Compliance Status
	May month to see the existence of wildlife corridors, if any. Based on the same, necessary Wildlife Conservation Plan as may be required shall be prepared and implemented in consultation with the state Forest and Wildlife Department.	same, Site Specific Wildlife Conservation Plan has been prepared and approved by the state Forest and Wildlife Department vide order no 4506/1 WL(C)SSP-126/2012 Dt. 23.06.2014 with a total financial outlay of Rs.1676.41 lakhs, is implemented by Bolani Ores Mines, M/s SAIL . The Study revealed no Wildlife corridors within the Mining Lease area.
(viii)	The biological survey shall also be undertaken to identify the trees with orchids, if any Such trees, so identified shall be protected and if need be, these trees may be relocated.	Work Order for carrying out the job of "Biological survey to identify the trees with orchids" has been awarded to M/s Grow Green Pvt Ltd. , Bhubaneswar, a consultant, empanelled with office of PCCF (Wildlife), Odisha. The study is already in progress . Detailed study report of the biological survey shall be submitted to State Forest deprtment and MoEF&CC, GOI for technical approval for implementation by us .
(ix)	The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.	No natural water course or water resources has been obstructed due to Mining operations within the Mining Lease Area .
(x)	The top soil, if any, shall temporarily be stored at earmarked site only and should not be kept unutilized for a period more than three years. The topsoil should be used for land reclamation and plantation.	The top soil excavated till date has been utilized for reclamation & rehabilitation of dumps. No top soil was excavated during October 2018 to March 2018 due to continuation of mining in already broken areas. Top soil generated in future during the expansion of the mine pits to virgin areas, if any, will be stored temporarily at earmarked site and will be used for plantation /dump reclamation.
(xi)	The Over Burden (OB) generated during the mining operation shall be stacked at earmarked dump sites(s) only and should not be kept active for long period. In critical areas, use of geo textiles shall be undertaken for stabilization of dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest and its Regional Office located at Bhubaneswar on six monthly basis.	Over Burden (OB) generated from the mines is dumped at earmarked sites only; the details are as follows: (i) Over Burden (OB) generated from F-mining Area is dumped as backfilling inside the quarry in the southern part. Plantation of 15,000 trees has been undertaken on 4.0 heccts of the earlier backfilled area in the south-western part. (ii) The Old OB Dumps of F-Area and D Area have been rehabilitated by Plantation. Plantation of around 25,000 nos plants have been completed as yet . Gap filling activities are also undertaken by suitable replacement of species with low growth rate. (iii) Over Burden (OB) generated from other mining Areas is dumped on the existing earmarked active OB dumps as per the Mining

Sl. No.	Condition	Compliance Status
		<p>Plan approved by Indian Bureau of Mines, which are adjacent to the respective quarries. After completion of the dumping, stabilization measures could be undertaken.</p> <p>(iv) The active OB Dumps of D-area, G-Area and Panposh have been provided with Retaining Wall and necessary terracing for stability.</p> <p>(v) In the identified critical areas such as Fines dump near DH-5 Location and Old Fines Dump near 600 TPH, an area of 11,000 sq meters has been covered with Geo Textiles and Vetiver slips plantation over an area of 5,000 sq. m has been done under the consultancy of IIT Kharagpur over Old Fines Dump for slope stabilization.</p> <p>(vi) Seeds of native grass species of <i>Thysanolaena maxima</i> and <i>Stylosanthes Hamata</i> have been broadcasted and native grasses have been planted over the degraded lands and dump slope for stabilization.</p> <p>(vii) 2000 nos. of saplings developed in in-house Nursery facility have been planted over 01 ha of OB dump area.</p> <p>(viii) RRM retaining wall of 295m length has been provided at D-area OB dump.</p> <p>(ix) Proposal for Covering 2.5 ha of OB and Sub-grade dumps slopes is under tendering process.</p> <p>Compliance status in this regard is submitted to the Ministry of Environment, Forest & Climate Change and its Regional Office located at Bhubaneswar in the six monthly compliance reports.</p>
(xii)	<p>Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from mine working, soil, OB and mineral dumps. 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 drain of appropriate size, gradient and length shall be constructed for both mine pit and sump capacity</p>	<p>Loose boulder check dams (LBODs), Catch Drains/garland drains of 2030 meters have been constructed all along the OB dumps to prevent flow of runoff directly into the natural stream . 07 Nos. of sedimentation pits have been constructed at the corner of the garland drains to treat runoff water even during peak rainfall and they are de-silted regularly before and after monsoon.</p> <p>Further, the following Jobs have been undertaken for mitigating silt generation from the Mines:</p> <p>i. Boundary wall followed by garland drain has been provided at Garbage Stock Yard at a cost</p>

Sl. No.	Condition	Compliance Status
	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 settling of slit material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals.	<p>of Rs.14.10 lakhs</p> <p>ii. A RCC retaining wall has been erected along the Karo Guest house approach Road at a cost of Rs.7.92 lakhs.</p> <p>iii. RRM retaining wall has been provided at D-area of BOM at a cost of Rs.10.30 lakhs</p> <p>iv. Sand bag check dam has been erected at tailing pond within 6.90 sq. miles ML of BOM at a cost of Rs.6.66 lakhs.</p> <p>v. Clearing eroded soil nearby huttings/basthi and Township of BOM at a cost of Rs.95,675.</p> <p>Water collected in settling ponds is reutilized for watering the plantation.</p>
(xiii)	Dimension of retaining wall at the toe of dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	Dimensions of retaining walls at the toe of dumps and OB benches within the mine to check run-off and siltation are based on the rainfall data .
(xiv)	Plantation shall be raised in an area of 33.487 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around OB dumps, reclaimed area, mine benches, along the roads etc. in consultation with the local DFO/ Agriculture Department. The density of the trees should be around 2500 plants per hectare. Greenbelt shall be developed all along the mine lease areas in a phased manner and shall be completed within first five years.	<p>Plantations have been taken within mines premises, to reclaim and rehabilitate an area of 96.7 ha, which includes the said 33.487 ha degraded forest land and 7.5m strip safety zone area, with average density of 2500 (approx.) plants per Hectare, within 5.10 sq. miles ML of BOM. The said area includes Safety Zone, OB dumps, Avenue Plantation and Degraded Forest lands. Details of plantations were submitted in earlier compliance reports .</p> <p>Proposal for plantation of 5000 saplings during Monsoon 2018 over 2 ha land around 5.10 sq miles ML is in processing</p>
(xv)	Effective safeguard measures such as Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of particulate matter such as haul road, around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	<p>Regular water sprinkling is carried out on the haul roads, loading & unloading points for effective dust suppression. Fixed water sprinklers of 500m length are operated at critical areas such as Loading Point of 600 TPH plant, Haul road near Office area etc. In addition to two 28 KL, three 09 KL mobile water tankers are sprinkling water regularly for effective dust suppression.</p> <p>Ambient Air Quality is monitored regularly and the results are uploaded to OSPCB server .</p>

Sl. No.	Condition	Compliance Status															
(xvi)	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.	<p>The report of "Technical Feasibility Study on Rain Water Harvesting & Master Plan for Ground Water Recharges" prepared by the consultant has been submitted to CGWB Bhubaneswar vide our letter no. : GM/B-807 Dt.08.07.2016 for technical approval of the same, after which the suggested long term measures be expeditiously implemented and a time-bound action plan of the same will be submitted to the ministry.</p> <p>The following structures had been constructed for Rainwater Harvesting on the onset of Monsoon:</p> <ol style="list-style-type: none"> Boulder soling of existing check dam for rain water harvesting near magazine area of BOM at a cost of Rs.4.30 lakhs. Hume-pipe Culvert near G-area had been extended at a cost of Rs.5.85 Lakhs. 															
(xvii)	Regular monitoring of ground water level and quality should be carried out in and around the mines lease by establishing a network of existing wells and installing new piezometers during the 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 Ministry of Environment and Forests and its Regional Office, Bhubaneswar, Central Ground Water Authority and 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.	<p>Regular monitoring of ground water level and quality is carried out in and around 5.10 ML of Bolani Ores Mines from a network of existing wells. The data is collected four times a year as directed and the same is being sent regularly to Ministry of Environment, Forest & Climate Change and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.</p> <p>The water quality analysis report indicates no abnormalities or violations of the prescribed standards. The Ground Water Table levels for the period of Oct 2018 – March 2018 are as follows :</p> <table border="1"> <thead> <tr> <th>Village Name</th><th>Water Level (Feb'18) bgl</th><th>Water Level (Nov'17) bgl</th></tr> </thead> <tbody> <tr> <td>Bolani Village (Basti)</td><td>10.2</td><td>10.4</td></tr> <tr> <td>Balagoda Village</td><td>6.1</td><td>5.8</td></tr> <tr> <td>Bolani Township</td><td>6.8</td><td>6.9</td></tr> <tr> <td>Chatai hutting</td><td>9.5</td><td>10.2</td></tr> </tbody> </table>	Village Name	Water Level (Feb'18) bgl	Water Level (Nov'17) bgl	Bolani Village (Basti)	10.2	10.4	Balagoda Village	6.1	5.8	Bolani Township	6.8	6.9	Chatai hutting	9.5	10.2
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(xviii)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water, if any, required for the project.	Approval exists for extraction of the 7 cusec (for envisaged level of production) of surface water from Karo River and Jhikaria Nallah , copy of which was enclosed in earlier compliance reports .															

Sl. No.	Condition	Compliance Status
(xix)	The safeguard measures as suggested by the Central Ground Water Board vide letter No. 21-4(231)/CGWA/SER/2010-1010 dated 11.06.2010 shall be effectively implemented.	A copy of the said letter has been requested from MoEF New Delhi so that the contents of the above letter could be known for compliance, if any, by BOM. The conditions stipulated in above said order will be complied as applicable to BOM.
(xx)	The project proponent shall practice Suitable rain water harvesting measures on long term basis and work out detailed scheme rain water harvesting in consultation with Central Ground Water Authority and submit a copy of the same to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar.	<p>The report of "Technical Feasibility Study on Rain Water Harvesting & Preparation of Master Plan for Ground Water Recharges" prepared by the consultant is being submitted to CGWB Bhubaneswar for endorsement and approval of the same, after which the suggested long term measures will be implemented.</p> <p>Meanwhile, Bolani Ore Mines has undertaken following water harvesting measures as per prevailing guideline of CGWB for rainwater harvesting:</p> <ol style="list-style-type: none"> (1) constructions of Masonry and RCC check dams across seasonal and perennial nallahs, to facilitate recharge along fractures and cleavages of bed rocks (2) constructions of loose boulder check dams (LBOD) across seasonal streams / gully plugs to facilitate recharge recharge along fractures and cleavages of bed rocks (3) Digging of staggered trenches or Contour Bunds along the slopes of degraded land .
(xxi)	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of Mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	<p>Preventive Maintenance of HEMM & light vehicles is undertaken regularly to keep the vehicular emissions under control. PUC certification exists for all machinery deployed in the mines.</p> <p>Transportation of Mineral from Hill Top to Dispatch point is done by covered conveyor belts.</p>
(xxii)	No Blasting shall be carried out after the sunset. Blasting operation should be carried out only during the day time. Controlled Blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	<p>Blasting is carried out once in a notified fixed interval (12:00 PM – 02:00 PM) of day only. The following measures are being practiced at the mines to mitigate blasting hazards:</p> <ol style="list-style-type: none"> (1) Controlled blasting by use of SMS explosives along with "Staggered V" drilling pattern is in practice. (2) Blasting under supervision of qualified persons. (3) Use of NONEL / Delay detonators to control ground vibration (4) Avoiding overcharging of the blast holes & proper stemming to avoid blown out shots.

Sl. No.	Condition	Compliance Status
		<p>(5) Blasting only for loosening of the strata and avoid fly rocks.</p> <p>(6) Maintaining suitable spacing and burden to avoid misfires/ fly rocks.</p> <p>(7) Restricting number of blast holes at any point of time to control ground vibrations.</p> <p>(8) Avoiding blasting on foggy days, after sunset and at times of high wind velocity.</p>
(xxiii)	Drills shall either be operated with dust extractors or equipped with water injection system.	Water injection and Dust Extraction systems are provided and operational in 4 drill machines for suppression of RSPM.
(xxiv)	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer point should also have efficient dust control arrangements. These should be properly maintained and operated.	<p>Mineral handling open areas are provided with water sprinkling system by mobile water sprinklers. Mineral handling plant such as, secondary crushing plant ore processing plant, 600 TPH plant & loading have been provided with the following dust control measures</p> <ol style="list-style-type: none"> Dust suppression system at hopper. Dust extraction system (bag filter) at secondary crusher. Covering of conveyors from Hill top Hopper till dispatch point Dry fog system at 600 tph plant. Fixed water sprinkling system covering a length of 200m near 600TPH Plant. <p>Regular maintenance is undertaken for smooth operation of pollution control measures.</p>
(xxv)	Sewage treatment plant should be installed for the colony. ETP should also be provided for the workshop and wastewater generated during mining operation.	<p>The proposal for installation of STP for township sewage is under processing as follows :</p> <ol style="list-style-type: none"> Feasibility study has been completed under consultancy of IIT Kharagpur Land identification and demarcation in consultation with Revenue officer, Barbil has been completed Tender specification and other technical details with outsourcing modalities are under finalization by SAIL's Engineering Division and Project Division . <p>Meanwhile, individual septic tanks followed by soaking pits have been provided in all quarters and office locations . 3 nos. of ETPs (Oil and Grease catch traps) have been provided at mechanical workshops and equipment washing junctions to collect and treat workshop effluent.</p>

<u>Sl. No.</u>	<u>Condition</u>	<u>Compliance Status</u>
(xxvi)	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.	All newly appointed workers undergo a comprehensive medical examination (Pre-Employment Medical Examination) and subsequently a Periodical Medical Examination (PME) at regular intervals. All workers undergo a PME every 5 years; however workers whose age is >45 years the PME is done every 3 years. All contractual workers also undergo medical examination. The findings are maintained in each worker's individual medical record, valid throughout his duration of service. These records are manually maintained and computerized. A three tier health monitoring program is in vogue at Bolani Mines. The mine's hospital has an Occupational Health O.P.D. Centre, which is run by Occupational Health Physician. The mines' hospital is a 60 bedded multi-specialty hospital with facilities to handle major and minor surgeries and casualty department. A 4-bedded ICU and a blood bank are being added.
(xxvii)	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.	The labourers engaged in the construction activity reside in nearby villages. However, provision has been made, as and when necessary, for the housing of construction labour adjacent to the construction sites in non-forest lands, in the form of temporary structures removed after the completion of the project. Infrastructural facilities are available, since inception, at Bolani such as safe drinking water, medical health care etc. are enjoyed by the workers.
(xxviii).	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna such as elephant, leopard, sloth bear, wolf, gaur, python etc. Spotted in the study area and contribute towards the cost of implementation of the plan and/ or Regional Wild life Management plan for conservation of flora and fauna so prepared by the State Government. 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 three months.	The following measures adopted for conservation of Flora and Fauna at the project site is as follows : a. A Site Specific Wild Life Conservation plan has been prepared as per guidelines of Chief Wild life Warden by engaging an expert agency. The plan has been approved by the State Forest and Wildlife Department vide order no 4506/1 WL(C)SSP-126/2012 Dt. 23.06.2014 with a total financial implication of Rs.1676.41 lakhs to Bolani Ores Mines, M/s SAIL which is under implementation. Out of the above amount , an amount of Rs 994.0 lakhs have been deposited with Forest Department for activities to be implemented in the project impact area . Bolani Ores Mines has also deposited necessary funds towards implementation of Regional Wild life management plan, i.e., an

Sl. No.	Condition	Compliance Status
		<p>amount of Rs 5,68,22,350 (Five cores sixty eight lakhs and twenty two thousands three hundred fifty only) with CAMPA on A/C No.-1585 for Regional Wild Life Management fund for 5.10 Sq. miles Mining Lease (ML) .</p> <p>b. The following measures have also been undertaken by Bolani Ores Mines inside the ML area :</p> <ol style="list-style-type: none"> 1. Concrete Check dam over Nallahs for water Harvesting structure (WHS) constructed across Balagoda Nallah near Magazine to provide water facility for animals and birds 2. Plantation over degraded forest land in the gap within ML . 3. Cost towards logistic support to local forest departments and 4. Two(2) nos of vehicles have been provided to local Forest department 5. Collection and broadcasting of native / local grass seeds in B & C mining areas 6. Fencing around G-Mining Pit and D - Mining area has been undertaken to prevent wildlife from entering the mining premises.
(xxix)	<p>The critical parameters such as RSPM (Particulate matter with size less than 10 micron i.e. PM₁₀ and NO_x in the ambient air within the impact zone, peak particle velocity at 300 m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006- IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for the compliance.</p>	<p>Ambient air quality monitoring for Particulate matter with size less than 10 micron i.e. PM₁₀, PM_{2.5} and NO_x in the ambient air within the impact zone is being carried out in core & buffer zone and the report is being uploaded to OSPCB Server on daily basis . No water is discharged out of the mine premises .</p> <p>Further, water analysis reports of perennial streams in and around the lease is regularly submitted in the compliance reports. Monitoring data is being uploaded on the Company's website as part of this report and also displayed on a display board at the main entrance gate of the mine.</p>


Sl. No.	Condition	Compliance Status
(xxx)	A final mine closure plan along with details of Corpus Fund should Be submitted to the Ministry of Environment & Forest 5 years in Advance of final mine closure for approval.	Final Mine Closure plan along with details of Corpus fund will be submitted to the Ministry 5 years in advance of final mine closure for approval. However the Progressive Mine Closure Plan (PMCP) is approved by IBM.
(xxxii)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests and No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	There has been no change in mining method and scope of working as per the elaborations in the approved Mining Scheme / mining plan. Mining will be done as per the approved mining plan. Prior approval will be sought from Ministry of Environment, Forests and Climate Change to alter any mineral excavation process.
(xxxii.)	At least four ambient air quality-monitoring stations 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. PM ₁₀), and NO _x 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.	Four nos. of Ambient Air quality monitoring locations have been fixed in core zone and buffer zone, in consultation with State Pollution Control Board, where SPM (PM ₁₀ & PM _{2.5}) including other parameters are monitored with the assistance of OSPCB approved laboratory. The Air monitoring reports are enclosed in Annexure-I(A) .
(xxxiii)	Industrial waste water (workshop and waste water from mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	<p>i. Effluent generated from the beneficiation plant is treated in Thickeners followed by Tailing Ponds. The clear water to the tune of 60% is being recycled and the underflow from thickener is discharged into Tailing Dam.</p> <p>ii. 3 nos. of Oil and Grease catch traps have been provided at mechanical workshops and equipment washing junctions to collect and treat workshop effluent.</p>
(xxxiv)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on	a. Adequate amount of Dust Masks are provided to all working personnel in the mines. The Fugitive Dust emission is within norms suggested in NAAQMS, and due care is being taken to further

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	safety and health aspects.	<p>reduce the RSPM levels and provide a dust free environment for the working personnel.</p> <p>b. In-house training programs, including Refresher Training, Safety Awareness Training, Mock Drill Training etc., are held at Mines Vocational Training Centre (MVTC) on regular basis to augment the awareness of safety and communicate latest technological developments in mining and other allied sectors, among the working personnel.</p> <p>c. Bolani Ores Mines has also implemented Environment Management System (EMS) as per ISO 14001:2004 standard and Quality Management System (QMS) as per ISO 9001:2008 standard, which is certified by BIS.</p>
(xxxv)	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>Occupational Health Survey is carried out regularly to assess the existing condition and to check the effectiveness of the management measures and to observe any contractions due to exposure to dust and take corrective measures. The findings are maintained in the worker's medical record maintained throughout the duration of his service. Medical tests are carried out at the Bolani Mine Hospital. A three tier health monitoring program is in vogue at Bolani Mines.</p> <p>In case of a person, who is found to be suffering from some work related disorder, he is treated accordingly at the mine's hospital or referred to SAIL's Hospital at Rourkela or to specialized hospitals elsewhere as per the requirement. If deemed necessary, the worker is reassigned elsewhere in the mine either temporarily or permanently. The course of action taken is recorded in the worker's medical file.</p>
(xxxvi)	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.	<p>An Environment Management Cell (EMC) is established as a separate section under the Mines Department under direct control of Dy. General Manager (Mines). The details of constitution is as follows :</p> <ol style="list-style-type: none"> 1. Assistant General Manager (Env & Lease) 2. Junior Manager (Env & Lease) 3. Foreman (Env & Lease) <p>Assistant General Manager (Environment & Lease) co-ordinates the day to day activities pertaining to communications related to statutory clearances and compliances of Environment, Forest & Lease Renewal issues and reports to the Dy General Manager (Mining) and Mines Manager who being statutory head regularly reviews the compliances of various Stipulations, Acts</p>

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		<p>and Regulations pertaining to Environmental Matters of Mines and reports to Head of Mines. One (1) Junior Manager (Environment & Lease) is posted in the EMC who expedites initiation of proposals as per Environmental Management Plan and co-ordinates field implementation jobs. A Mining Foreman (Environment & Lease) assists him in the day to day activities. Necessary measures are also being taken up for capacity building of the Environment Management Cell by appointment of required qualified personnel as planned in EMP.</p> <p>Further, an Environmental Management System (EMS) has been implemented at Bolani Ore Mines which has been certified as per ISO 14001-2004 Standard. The EMS of BOM covers Mining activities, Maintenance activities, Mineral Beneficiation and all other allied activities. As per the EMS, a senior executive of the organization in the level of DGM (Mech.) functions as Management Representative and is responsible for strict implementation.</p>
(xxxvii)	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 fund earmarked for environmental protection measures is kept in separate account and is not diverted for other purpose. An amount of Rs.142.00 lakhs was spent for environment & forest protection measures during the year 2017-18 against an allocated budget of Rs.198.00 lakhs.
(xxxviii)	The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environmental and Forests, its Regional Office, Bhubaneswar, the respective Zonal office of Central Pollution Control Board and State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It	Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office – MoEF&CC, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board. Copy of the compliance report inclusive of Environmental Parameters Monitoring data is being uploaded to the SAIL web site i.e. www.sail.co.in .

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	shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.	
(xxxix)	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestion/ representation has been received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent, The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Center and Collector's office/ Tehsildar's office for 30 days.	Copies of clearance letter were given to local bodies from whom suggestion/ representation has been received while processing the proposal.
(xL)	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and 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 Boards and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of the this Ministry located Bhubaneswar.	Advertisements regarding grant of environmental clearance was published in Odiya daily SAMBADA, Bhubaneswar & Sambalpur Edition on date 27-12-2012 and Business Standard on date 27-12-2012. A copy of the same has been deposited with the authorities at Regional Office of the MoEF, Bhubaneswar.
7	The Ministry or any other competent authority may alter /modify the above conditions or stipulate any further condition in the interest of environment protection.	Agreed to. The conditions will be complied as and when stipulated.

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8	Failure to comply with any of the condition mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Duly Noted.
9	The above condition will be enforced inter-alia, under the provisions of the Water (prevention & Control of Pollution) Act, 1974, the Air (prevention and control of pollution) Act, 1981, the Environment (protection) Act, 1986 and public liability Insurance Act, 1991 along with their amendments and rules made thereunder.	Noted.
10	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	Duly Noted.


GENERAL MANAGER
BOLANI ORES MINES

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