



स्टील अथॉरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला इस्पात संयंत्र
ROURKELA STEEL PLANT
बोलानी अयस्क खदान
BOLANI ORES MINES

Ref No: - BOM/ENV/6.9/HD-241

Date:-16.02.2022

To,

Dy. Director General of Forests (Central),
Ministry of Environment, Forest and Climate Change,
Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar – 751023

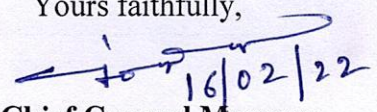
Sub: Six monthly status of compliance to the conditions stipulated in the Environmental Clearance granted by MoEFCC for 15000 TPA Manganese Ore production from 6.90 sq. Miles ML vide letter no. J-11015/396/2008-IA.II(M) dated 21/12/2012 for the period Jul'21 – Dec'21

Sir,

Please find enclosed herewith the Six monthly compliance report for the period Jul'21 – Dec'21 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 15000 TPA Manganese Ore from 6.90 sq Miles ML vide ministry's letter no. J-11015/396/2008-IA.II(M) dated 21/12/2012. The report also contains the updated status of the environmental monitoring reports pertaining to the above period.

Thank you,

Yours faithfully,


Chief General Manager
Bolani Ores Mines

Encl: As above

Copy:

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
मुख्य महाप्रबंधक (खान) / Chief General Manager (Mines)
सेल-आर.एस.पी-बोलानी अयस्क खदान
SAIL-RSP-Bolani Ores Mines
बोलानी-758037, क्योझर, ओडीशा
Bolani-758 037, Keonjhar, Odisha

1. Director, IA Division, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. 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-11015/396/2008-IA.II(M) dated 21/12/2012)
OF
BOLANI ORES MINES (6.90 Sq Miles ML) In Keonjhar
District of Odisha

For the Period **July'21 - December'21**



STEEL AUTHORITY OF INDIA LIMITED
ROURKELA STEEL PLANT
BOLANI ORES MINES
BOLANI- 758037

A. SPECIFIC CONDITIONS

- i. **Environmental Clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as applicable.**

Compliance:

Not Applicable as the Provision of Wildlife (Protection) ACT 1972 is not attracted to the Project.

- ii. **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.**

Compliance:

The Mining operations in this ML have not been resumed yet. In case of working below the ground water table, a detailed hydrogeological study will be carried out and prior approval of the Ministry of Environment & Forest and Central Ground Water Authority will be obtained for working below Ground Water Table.

- iii. **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.**

Compliance:

The Mining operations in this ML have not started yet. Mitigation measures are regularly implemented to control the RSPM levels. On production of ROM from this lease, total dispatch will be through rail route. As such, in order to improve the RSPM quality, SAIL-Bolani Ore Mines has completed the implementation of following mitigation measures:

- a) Repaired and blacktopped the Road from Karo Bridge to Bolani entry point (3.2 km) at a cost of Rs.732 lakhs.
- b) Repaired and blacktopped the Balagoda - Bolani road (2.4 km) at a cost of Rs.20 lakhs.
- c) Dry Fog Dust suppression system has been installed in the 600 TPH Crushing & Screening Plant
- d) In addition to water sprinkling on haul roads, water sprinkling facility has been extended to the Public roads outside this lease.
- e) Fixed water sprinkling system has been installed in the 600 TPH areas.
- f) During ROM production from this ML, additional water sprinkling measures as planned in EMP will be undertaken.
- g) Truck Mounted Mist cannon with a throw of 40-50m has been procured. Photographs of Mist cannon are enclosed as **Annexure - II**.

- h) Proposal for hiring of another Truck Mounted Mist Cannon is in tendering process.

Regular Environmental Audits are part of the Environmental Management System (EMS) implemented at Bolani Ore Mines, which is certified under ISO-14001:2015 standard. These audits check the conformance of the air quality to the applicable norms and thereby effectiveness of the pollution control equipment / facilities is regularly reviewed for taking up any additional safeguard measures, if any required.

- iv. **The biological survey shall be repeated during October- December and mid-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.**

Compliance:

Necessary biological surveys were conducted by expert committees and Wild Life Experts and based on the same, Site Specific Wildlife Conservation Plan has been prepared and approved by the state Forest and Wildlife Department vide order no 10680/1WL-FC-Mrl-SSP-228/2018 Dt.22.11.2018 with a total financial outlay of Rs.1088.431 lakhs. An amount of Rs.772.999 lakhs has already been deposited in CAMPA account of Forest Dept. for interventions in Project impact area.

The Study revealed no Wildlife corridors within the Mining Lease area.

- v. **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.**

Compliance:

Detailed study of the area for identification of orchids by the MoEF&CC empaneled consultant, M/s Grow Green Consortium Pvt. Ltd, had been completed. A Report based on survey including recommendations for preservation of the species has been submitted to Regional Office of MoEF&CC vide our letter no. BOM/ENV/HD-1707A dt. 17.07.2019.

- vi. **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.**

Compliance:

Over Burden (OB) generated from the mines is dumped at earmarked sites as per the IBM approved review of Mining Plan. All inactive dumps shall be reclaimed and rehabilitated after resumption of mining activities.

- vii. **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.**

Compliance:

Check dams and Check weirs have been proposed at appropriate places in consultation with Rainwater Harvesting Experts and Divisional Forest Office, Keonjhar. The plan for Runoff control management as approved by IBM, is being implemented from 2020-21 irrespective of the resumption of mining activities.

- viii. **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**

Compliance:

All Mineral stack yards have been provided with Retaining walls with Garland drains for effective runoff management.

OB and Top soil dumps shall be provided with retaining walls when the mining activities are resumed.

- ix. **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.**

Compliance:

Necessary biological surveys were conducted by expert committees and Wild Life Experts and based on the same, Site Specific Wildlife Conservation Plan has been prepared and approved by the state Forest and Wildlife Department vide order no 10680/1WL-FC-Mrl-SSP-228/2018 Dt. 22.11.2018 with a total financial outlay of Rs.1088.431 lakhs. An amount of Rs.772.999 lakhs has already been deposited in CAMPA account of Forest Dept. for interventions in Project impact area.

The Study revealed no Wildlife corridors within the Mining Lease area.

- x. **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.

Compliance:

The core zone of 6.90 sq. miles ML falls in the buffer zone of adjoining 5.10 sq. miles ML and vice versa, both being the Mining Leases of same user agency i.e., M/s SAIL. Hence, the 1(One) nos. of Continuous Ambient Air quality monitoring Stations installed in buffer zone of 5.10 sq. miles lease fall in the core zone of 6.90 sq. miles ML and 2 (two) nos. CAAQM Stations installed in core zone of 5.10 sq. miles lease fall in the buffer zone of 6.90 sq. miles ML. The details of Air quality monitoring locations are provided as follows:

SL. NO.	LOCATION	PARAMETERS MONITORED	ZONE	REMARKS
AMBIENT AIR QUALITY				
1	CISF Colony	PM ₁₀ , PM _{2.5}	Buffer	CAAQMS-1
2	Campus Office	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	Buffer	CAAQMS-2
3	JNRC (Township)	PM ₁₀ , PM _{2.5}	Core	CAAQMS-3
4	Near Karo Bridge	PM ₁₀ , PM _{2.5}	Core	CAAQMS-4
5	Maingate Entry	PM ₁₀ , PM _{2.5}	Buffer	
6	Bolani Basthi (Habitation area)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	Core	
7	Mount Club (Township)	PM ₁₀ , PM _{2.5}	Buffer	
8	DAV Public School (Township)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	Core	
9	Karo Plantation site	PM ₁₀ , PM _{2.5}	Core	
10	Balagoda (Habitation)	PM ₁₀ , PM _{2.5}	Core	
FUGITIVE DUST MONITORING (WORKZONE)				
11	F Mining area near hilltop Feed Crusher	RSPM, SPM	Outside ML	
12	G Mining area	RSPM, SPM	Outside ML	
13	D & Panposh Haul road	RSPM, SPM	Outside ML	
14	600 TPH cum Lump Loading plant area	RSPM, SPM	Within ML	

SL. NO.	LOCATION	PARAMETERS MONITORED	ZONE	REMARKS
15	Fines Loading plant area	RSPM, SPM	Within ML	
16	Fines handling site	RSPM, SPM	Within ML	
17	Fines Transportation Route	RSPM, SPM	Within ML	

Bolani Ore Mines (BOM) is regularly monitoring water quality within the complex at 12 water quality monitoring stations identified by the characteristics of sub-water shed confining the contributing and receiving streams of hydrologic regime of the area spread over Core and Buffer zone of its adjoining Leases. The details of stations are as follows:

SL. NO.	LOCATION	PARAMETERS MONITORED	LOCATION	REMARKS
WATER QUALITY MONITORING				
18	Karo River Upstream	pH, TSS, TDS, Oil & Grease, BOD, COD, Iron, Manganese, Arsenic, Mercury, Lead, Cadmium, Hexavalent Chromium, Copper, Zinc, Nickel, Cyanide, Flouride, Total Residual Chlorine, Fecal Coliform, Sulfide, Phenolic Compounds, Nitrate Nitrogen	6.90 sq. miles ML	Flowrate Measured
19	Karo River Downstream		6.90 sq. miles ML	
20	Karo River near Kali Mandir		6.90 sq. miles ML	
21	Jhinkaria Nallah		5.10 sq. miles ML	Flowrate Measured
22	Panposh Nallah		5.10 sq. miles ML	Flowrate Measured
23	Tailing Pond Seepage		6.90 sq. miles ML	Effluent
24	CBRS/ Bottom garage effluent		5.10 sq. miles ML	Effluent
25	Bolani well		6.90 sq. miles ML	Ground water level monitored using piezometer
26	Gouda Basthi well		6.90 sq. miles ML	
27	Balagoda well		6.90 sq. miles ML	
28	Mountclub Tap water		5.10 sq. miles ML	Drinking water

The Collected Data is analyzed regularly to identify, predict and evaluate the environmental impacts of the ongoing mining and allied activities. Accordingly, potential impacts on environment have been assessed and suitable Environmental Management Plan has been formulated.

B. GENERAL CONDITIONS

- i. **No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests**

Compliance:

The Mining operation in this ML has not been resumed. However, there will be no change in Mining technology or scope of work, other than that which has been prescribed in approved Mining Plan/Review of Mining Plan. Prior approval from MoEF&CC shall be sought to change Mining technology or scope of working.

- ii. **No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.**

Compliance:

No change in the calendar plan including excavation, quantum of mineral iron ore and waste will be made.

- iii. **The project proponent shall obtain Consent to establish from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.**

Compliance:

Extension for validity of Consent to Establish has been granted vide Order no. 4897/Ind-II-NOC-5374 dt 22/05/2019, till 20.12.2023. Subsequently, CTO has been granted vide no. 4764 Dt. 23/03/2021 (copy enclosed in previous six monthly compliance report).

The conditions are effectively implemented and a compliance report has already been submitted to OSPCB during grant of consent to operate. The Mining operation in this ML has not started yet.

- iv. **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.**

Compliance:

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) has been approved by IBM vide their letter no. MRMP/A/16-ORI/BHU/2021-22 Dt. 05.08.2021.

- v. **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.**

Compliance:

The Rainwater Harvesting measures, proposed in report of “Technical Feasibility Study on Rain Water Harvesting & Master Plan for Ground Water Recharges” by consultant, M/s KRG Rainwater Foundation, have been approved by CGWB Bhubaneswar vide their letter no.: 5-22/ CGWA/ SER/2018-19-1306 Dt. 26.12.2018.

The following measures have been taken up during Jun’21-Dec’21:

- i. The job, amounting to Rs.23.32 lakhs, of Boulder patching the sidewalls and construction of a Baffle wall in the middle of the Mega Settling Pond near Bolani Entrance, for separation of the chambers, has been completed.

Meanwhile, departmental initiatives for Soil and moisture Conservation had been taken up, measures such as de-silting of network of seasonal water channels, Plantations of drought hardy plant species on the degraded lands, water harvesting structures along seasonal channels, have been taken up by Bolani Ore Mines, SAIL to augment ground water recharge, as per schemes prepared with in-house expertise, in line with prevailing guidelines of CGWB. Bolani Ore Mines is not using any ground water either for domestic purpose or for industrial purpose, neither has any plan to do so for future mining activities.

- vi. **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.**

Compliance:

Not applicable at present as Mining operations in this ML have not been resumed. However, the same will be complied, as soon as the Mining operation starts.

- vii. **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.**

Not applicable at present as Mining operations in this ML have not started yet. However, on commencement of mining operation, Blasting will be carried out only during the daytime and controlled blasting will be practiced, with due precaution to control ground vibrations and fly rocks and boulders.

- viii. **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.**

Compliance:

In the Mineral handling areas such as Loading plant area, High Pressure fixed dust suppression system in 600 TPH Plant and fixed water sprinkling systems have been provided.

- ix. **Sewage treatment plant should be installed for the colony. ETP should also be provided for the workshop and wastewater generated during mining operation.**

Compliance:

Based on the conceptual plan submitted by IIT KGP a detail feasibility report (FR), Technical Specification (TS) for STP of capacity 2.4 MLD Capacity has been prepared by CET, an in-house consultant of SAIL, for execution. Implementation period of the job is 24 months.

In this regard, Two Work Orders have been issued for laying of Drainage Network and Construction of STP at financial outlays of Rs. 4.40 crores and Rs. 6.68 crores respectively (copies of LOAs are attached as **Annexure-III**). The Job of installing the drainage network is in final stages of completion.

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 in the adjoining 5.10 sq. miles ML for collection and treatment of workshop effluent.

- x. **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.**

Compliance:

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, for 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 maintained throughout his service. These records are manually maintained and also computerized. The above tests are carried out at the Bolani Mines Hospital. A three-tier health monitoring program is in vogue the hospital. The mine's hospital has an Occupational Health Department O.P.D. run by Occupational Health Physician. The mine hospital is a 50 bedded multi-specialty hospital with facilities to handle major and minor surgeries and a casualty department.

- xi. **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.**

Compliance:

Most of the labours engaged in the construction activity belong to nearby villages. However, provisions have also been made, as and when required, for the housing of construction labour in adjacent to the construction sites in non-forest lands on temporary basis till completion of the project. Infrastructure and facilities, available at Bolani such as safe drinking water, medical health care etc. are enjoyed by the labors.

- xii. **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.**

Compliance:

As per present practice, monitoring of ground water quality and levels of existing wells inside the ML area is done quarterly in the existing wells of Bolani and Balagoda Village and data is submitted along with compliance reports.

The water quality reports are enclosed as **Annexure-I(C)**.

- xiii. **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.**

Compliance:

Water Drawl agreement for extraction of the 7 cusec (for envisaged level of production) of surface water from Karo River and tributaries has been executed with Executive Engineer, Baitarini Division, Salapada vide agreement no.424 Dt.23.02.2019, with validity of 03 (three) years.

Presently the Average consumption is well within the permitted quantity.

- xiv. **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.**

Compliance:

The Policy towards Corporate Environmental Responsibility including details of set up have been submitted to Ministry vide our letter no RMD/BOM/E&L/5.1sqMiles/EC/2013/91 dt 18-03-2013. Necessary steps are being taken for implementation of the same (common for the adjoining 5.10 sq. miles ML of SAIL) regularly.

SAIL has always been 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

- xv. **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. PM10) and 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.**

Compliance:

The core zone of 6.90 sq. miles ML falls in the buffer zone of adjoining 5.10 sq. miles ML and vice versa, both being the Mining Leases of same user agency i.e., M/s SAIL. Hence, the 1(One) nos. of Continuous Ambient Air quality monitoring Stations installed in buffer zone of 5.10 sq. miles lease fall in the core zone of 6.90 sq. miles ML and 2 (two) nos. CAAQM Stations installed in core zone of 5.10 sq. miles lease fall in the buffer zone of 6.90 sq. miles ML. The details of the Environmental parameter monitoring stations are provided in compliance status of Special Condition No. x (A) above.

The AAQ monitoring reports for the period Jul’21-Dec’21 are enclosed as **Annexure – I(A).**

- xvi. **Data on Ambient Air Quality [RSPM (PM10) and NOx] should regularly be submitted to the Ministry including its Regional Office, Bhubaneswar and the State Pollution Control Board/ Central Pollution Control Board once in six months.**

Compliance:

At present, the data on ambient air quality (RSPM, SO₂, NO_x & CO) is regularly submitted on six-monthly basis along with the compliance status reports.

After the installation of CAAQMS system, the data on ambient air quality (PM₁₀, PM_{2.5}, SO₂, NO_x & CO) will be automatically uploaded to OSPCB server. The AAQ monitoring reports for the period Jul'21-Dec'21 are enclosed as **Annexure – I(A)**.

- xvii. **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.**

Compliance:

Till date there is no resumption of mining activity. So, there is no generation of top soil. On commencement of mining the top soil excavated till date has been utilized for rehabilitation of OB dumps or plantation. No Top soil has been generated during Jul'21-Dec'21.

Any top soil generated due to resumption of mining activities will be utilized for plantation and Nursery development.

- xviii. **Measures should be taken for control of noise levels below 85dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provide with ear plugs/ muffs.**

Compliance:

Critical areas responsible for noise generation beyond the norms are duly identified. Accordingly, site-specific measures pertinent to the Noise generation source will provided to minimize the noise exposure levels on resumption of mining activity. Some of the Noise control measures implemented by BOM are as follows:

- a) To avoid the noise generation from blown-out holes in blasting, proper stemming is carried out under the supervision of a qualified Foreman.
- b) To control unnecessary noise generation from the HEMMs, periodical maintenance of the equipment is carried out. Further, all HEMM operator cabins are sound proof.
- c) Engine testing cabins are fully isolated to avoid noise leakage from testing procedures.
- d) All control panels of the ore processing plant and Loading Plant are placed in noise isolated cabins.
- e) All working personnel are provided with Noise Plugs as a part of standard PPE kit and Noise Isolation Earmuffs are provided to all personnel working near noise prone areas.
- f) Further, to minimize the exposure of personnel deployed near Noise generating Sources, the personnel are rotated every Four hours.

Additionally, regular Noise level monitoring is carried out at the identified critical areas. The noise monitoring report for the period of Jul'21-Dec'21 is enclosed in **Annexure – I(D)**.

- xix. **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.**

Compliance:

All vehicle and equipment maintenance will be carried out at designated workshops and washing bays provided with 03(Three) nos. of ETPs (Oil and Grease catch traps) to collect and treat workshop effluent. The quality of the treated water conforms to the prescribed standards. The treated water is used for vehicle and floor washing.

The monitoring results of effluent are enclosed as **Annexure – I(C)**.

- xx. **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.**

Compliance:

An Environment Management Section (EMS) is established as a separate section under the Mines Department under direct control of Chief General Manager (Mines). The details of constitution is as follows :

1. General Manager (Env & Lease)
2. Manager (Env & Lease)
3. Mining Mate (Env & Lease)

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 General Manager (Mining) and Mines Manager who being statutory head regularly reviews the compliances of various Stipulations, Acts and Regulations pertaining to Environmental Matters of Mines and reports to Head of Mines. One (1) Manager (Environment & Lease) is posted in the EMC who expedites initiation of proposals as per Environmental Management Plan and coordinates field implementation of the jobs. A Mining Mate (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. Further, an Environmental Management System (EMS) has been implemented at Bolani Ore Mines which has been certified as per ISO 14001:2015 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 GM(Mech.), I/c CMC & CBRs functions as Management Representative and is responsible for strict implementation.

- xxi. **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.

Compliance:

The fund earmarked for environmental protection measures is kept in separate account and is not diverted for other purpose. An amount of Rs. 275.17 lakhs has been booked for environment & forest protection measures till date against an allocated budget of Rs.275.00 lakhs.

- xxii. Project authorities should inform to the Regional Office, Bhubaneswar regarding date of financial closures and final approval of the project by concerned authorities and date of start of land development work.**

Compliance:

Bolani Ores Mines will inform Regional Office, Bhubaneswar regarding date of financial closures and final approval of the project by concerned authorities and date of start of land development work as soon as the mining commences.

- xxiii. Regional office of this Ministry located at Bhubaneswar shall monitor compliance of stipulated conditions. The project authorities should extend full co-operation to the officer(s) of the Regional Office by furnishing requisite date/ information/ monitoring reports.**

Compliance:

BOM has and always will extend wholehearted co-operation to the inspecting authorities by furnishing requisite date/ information/ monitoring reports and minutely examining the scope of further actions for improvement.

- xxiv. 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 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.**

Compliance:

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

- xxv. 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.

Compliance:

Copies of clearance letter were given to concerned local bodies, from whom suggestion/representation has been received while processing the proposal.

- xxvi. The 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.

Compliance:

Noted for Compliance.

- xxvii. The environmental statement for each financial year ending 31st march in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of the compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

Compliance:

Environment Statement for 2020-21 of Bolani Ores Mines was submitted vide our letter no. BOM/ENV/STMT/HD-173 Dt.14.09.2021. The environment statement is uploaded on the website of the SAIL along with the status of the compliance of environmental clearance conditions and is also sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

- xxviii. 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.

Compliance:

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.

8. The Ministry or any other competent authority may alter /modify the above conditions or stipulate any further condition in the interest of environment protection.

Compliance:

Agreed to. The conditions will be complied as and when stipulated.

9. 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.

Compliance:

Noted.

10. 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 there under.

Compliance:

Noted.

11. 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

Compliance:

Noted.

H.B.

8/12

16/02/22
Chief General Manager(Mines)
Bolani Ores Mines

RSP - SAIL

जयदेव चट्टोपाध्याय/Joydev Chattopadhyay
मुख्य महाप्रबंधक (खान) / Chief General Manager (Mines)
सेल-आर.एस.पी-बोलानी अयस्क खदान
SAIL-RSP-Bolani Ores Mines
बोलानी-758037, क्योंझर, ओडिशा
Bolani-758 037, Keonjhar, Odisha

ANNEXURE - I(A)
AMBIENT AIR QUALITY

Pollution Monitoring Data of Bolani Ores Mines, M/s SAIL

AAQMS 2 - Campus Store

Date Time	PM2.5			PM10			SO2			NO			NO2		
	µg / m3			µg / m3			µg / m3			µg / m3			µg / m3		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
01/07/2021	21.71	0	26.22	44.8	0	54.46	8.88	0	15.33	3.49	0	3.62	7.17	0	7.22
02/07/2021	23.19	0	27.52	48.4	0	55.8	9.04	0	23.49	3.51	0	3.62	7.17	0	7.22
03/07/2021	21.41	0	25.82	40.2	0	50.5	8.75	0	18.92	3.51	0	3.66	7.17	0	7.24
04/07/2021	17.59	14.21	22.74	44.2	31.22	58.97	8.75	1.65	19.88	3.52	0	3.63	7.16	0	7.21
05/07/2021	13.26	13.16	14.21	47.4	34.4	59.31	8.95	0.05	21.24	3.5	0	3.64	7.17	0	7.22
06/07/2021	13.16	12.72	13.16	50.7	21.49	57.7	8.77	5.27	15.73	3.51	3.4	3.64	7.17	7.1	7.23
07/07/2021	15.04	13.16	26	59.2	13.16	65.85	8.92	0.17	19.6	3.51	0	3.61	7.17	0	7.22
08/07/2021	29.32	0	37.64	60.4	0	73.57	8.29	0	17.06	3.5	0	3.64	7.16	0	7.21
09/07/2021	20.05	17.57	24.85	38.4	20.24	44.42	8.39	1.21	15.67	3.5	0	3.63	7.17	0	7.21
10/07/2021	23.26	20.34	27.09	43.6	34.94	49.82	8.08	2.9	15.07	3.51	0	3.63	7.17	0	7.22
11/07/2021	20.19	16.41	26.08	40.4	30.09	62.5	8.52	3.83	16.91	3.51	0	3.63	7.17	0	7.22
12/07/2021	20.5	0	24.26	41.8	0	61.39	7.96	0	18.11	3.51	0	3.63	7.17	0	7.22
13/07/2021	15.2	0	26	31.2	0	62	8.27	0	15.48	3.5	0	3.6	7.17	0	7.21
14/07/2021	14.86	0	16.96	30	0	33.42	8.31	0	13.17	3.51	0	3.62	7.17	0	7.21
15/07/2021	14.36	0	14.36	31.2	0	34.34	8.2	0	16.94	3.51	0	3.64	7.17	0	7.24
16/07/2021	15.83	0	26	34.3	0	62	8.9	0	15	3.51	0	3.65	7.17	0	7.21
17/07/2021	18.23	15.07	24.83	38	32.72	46.63	8.39	0	25.92	3.51	0	3.61	7.17	0	7.27
18/07/2021	19.4	0	24.83	38.6	0	51.07	8.59	0	13.94	3.51	0	3.65	7.17	0	7.23
19/07/2021	19.99	0	25.69	39.1	0	49.36	8.37	0	15.56	3.51	0	3.6	7.17	0	7.22
20/07/2021	19.3	0	23.41	33	0	42.43	8.42	0	14.7	3.51	0	3.61	7.18	0	7.21
21/07/2021	19.72	0	23.43	38.3	0	52.22	8.34	0	14.3	3.51	0	3.65	7.17	0	7.24
22/07/2021	21.04	16.15	25.46	38.1	20.51	43.48	8.48	0.77	12.15	3.51	0	3.63	7.18	0	7.23
23/07/2021	20.62	0	24.59	34.3	0	40.47	8.16	0	12.38	3.52	0	3.65	7.18	0	7.22
24/07/2021	16.33	0	20.12	28.6	0	34.46	8.18	0	13.62	3.5	0	3.6	7.17	0	7.22
25/07/2021	15.37	13.87	18.58	28.2	16.68	35.01	8.05	0	13.19	3.51	0	3.65	7.18	7.13	7.23
26/07/2021	19.68	16.66	27.78	37.8	11.36	43.13	8.21	0	16.85	3.51	0	3.64	7.18	0	7.22
27/07/2021	22.08	0	27.88	39	0	48.89	8.39	0	12.91	3.51	0	3.64	7.18	0	7.23
28/07/2021	18.49	14.98	25.19	32.9	22.75	42.63	8.05	0.94	13.94	3.51	0	3.63	7.17	0	7.21
29/07/2021	17.11	14.38	26	29.4	24.8	62	8.28	1.2	13.67	3.5	3.4	3.6	7.18	7.12	7.21
30/07/2021	17.71	0	22.66	31.1	0	37.26	7.95	0	12.87	3.52	0	3.64	7.17	0	7.23
31/07/2021	16.56	0	20	28.2	0	31.54	8.47	0	12.67	3.52	0	3.61	7.17	0	7.21

	NOx			CO		
	µg / m3			mg / m3		
	Avg	Min	Max	Avg	Min	Max
01/07/2021	10.66	0	11	0.6	0	3
02/07/2021	10.67	0	11	0.9	0	3.75
03/07/2021	10.68	0	11	0.4	0	1.99
04/07/2021	10.69	0	11	0.7	0	2.88
05/07/2021	10.68	0	11	0.7	0	2.9
06/07/2021	10.68	10.5	11	0.6	0.01	2.52
07/07/2021	10.67	0	11	0.5	0	2.15
08/07/2021	10.69	0	11	0.6	0	2.6

09/07/2021	10.67	0	11	0.7	0	3.24
10/07/2021	10.68	0	11	0.6	0	2.32
11/07/2021	10.68	0	11	0.6	0	2.58
12/07/2021	10.68	0	11	0.8	0	2.75
13/07/2021	10.68	0	11	0.8	0	2.42
14/07/2021	10.67	0	11	0.6	0	2.36
15/07/2021	10.68	0	11	0.5	0	2.04
16/07/2021	10.68	0	11	0.6	0	2.64
17/07/2021	10.68	0	11	1	0	3.48
18/07/2021	10.68	0	11	0.6	0	2.3
19/07/2021	10.68	0	11	0.6	0	2.5
20/07/2021	10.69	0	11	0.6	0	2.77
21/07/2021	10.69	0	11	0.5	0	2.91
22/07/2021	10.69	0	11	1.3	0	3.86
23/07/2021	10.7	0	11	0.7	0	3.03
24/07/2021	10.68	0	11	0.6	0	3.32
25/07/2021	10.68	0	11	0.7	0	3.42
26/07/2021	10.69	0	11	0.6	0	2.43
27/07/2021	10.69	0	11	0.5	0	2.03
28/07/2021	10.69	0	11	0.6	0	3.17
29/07/2021	10.68	10.5	11	0.5	0	2.43
30/07/2021	10.69	0	11	0.6	0	2.57
31/07/2021	10.69	0	11	0.7	0	3.18

Pollution Monitoring Data of Bolani Ores Mines, M/s SAIL						
AAQ_4_Near Karo Bridge						
Date Time	PM2.5			PM10		
- HH:MM, DD MM	µg / m3			µg / m3		
	Avg	Min	Max	Avg	Min	Max
01/07/2021	60.8	56.51	66.21	208.6	149.9	490.5
02/07/2021	59.82	56.3	62.24	180.58	131.2	261.7
03/07/2021	55.59	52.04	60.6	140.63	97.84	198.7
04/07/2021	55.77	50.8	60.81	140.65	104.7	183.7
05/07/2021	58.87	54.47	64.98	162.61	117.7	214
06/07/2021	61.9	0	66.12	184.2	0	233.6
07/07/2021	68.1	63.22	74.48	223.72	32.51	319.5
08/07/2021	106.02	57.5	350.5	110.17	32.55	194.3
09/07/2021	58.18	54.13	70.61	127.77	92.94	208.4
10/07/2021	66.57	63.73	71.35	177.32	142.4	222.5
11/07/2021	60.67	55.74	68.8	146.6	86.88	326.9
12/07/2021	57.04	50.55	68.8	115.81	73.76	289.3
13/07/2021	50.41	48.51	52.42	78.69	55.02	130.5
14/07/2021	50.91	48.38	60.52	81	60.26	117.1
15/07/2021	51.04	49.15	52.95	90.51	64.85	146.3
16/07/2021	51.95	49.16	56.62	71.84	10.21	126.7
17/07/2021	75.13	50.69	228.3	122.34	10.78	387.9
18/07/2021	56.11	51.51	59.91	161.12	98.62	253.9
19/07/2021	54.17	54.17	54.17	147.62	86.66	189.5
20/07/2021	51.43	40	54.17	110.15	76.83	223.6
21/07/2021	101.56	40	619	92.53	42	154.3
22/07/2021	102.83	46.52	632	101.19	75.99	122
23/07/2021	153.27	46.52	509.3	78.18	61.69	92.7
24/07/2021	116.69	46.9	538.1	58.23	48.89	67.85
25/07/2021	65.4	46.63	255.4	89.16	49.33	236.8
26/07/2021	136.14	46.52	682.4	107.09	57.96	236.8
27/07/2021	154.14	46.9	571.4	97.22	74.59	121.7
28/07/2021	129.76	46.9	525.6	80.46	54.98	126.5
29/07/2021	109.46	46.52	396	62.38	49.55	100.7
30/07/2021	97.98	46.9	589.6	76.88	55.84	96.9
31/07/2021	85.29	46.9	428.9	59.48	42	74.7

Pollution Monitoring Data of Bolani Ores Mines, M/s SAIL						
AAQ_1_CISF Colony						
Date Time	PM2.5			PM10		
	µg / m3			µg / m3		
	Avg	Min	Max	Avg	Min	Max
01/07/2021	33.64	33.25	34.48	63.11	59.45	66.99
02/07/2021	33.68	33.2	34.6	63.31	60.23	65.4
03/07/2021	33.38	32.17	33.7	62.21	59.87	67.47
04/07/2021	33.5	32.21	33.79	63.24	60.14	68.53
05/07/2021	33.75	33.21	34.99	63.6	61.09	68.51
06/07/2021	33.57	32.44	35.14	62.88	60.15	66.44
07/07/2021	33.64	32.14	35.93	63.17	60.29	71.12
08/07/2021	33.75	33.21	36.16	62.51	60.4	64.85
09/07/2021	33.46	33.2	33.78	63.46	60.13	72.91
10/07/2021	33.53	33.2	34.37	63.51	60.48	74.91
11/07/2021	33.7	33.21	34.73	63.44	59.3	79.61
12/07/2021	33.57	32.58	34.61	62.63	60.29	66.78
13/07/2021	33.53	32.35	34.54	63.25	60.42	68.66
14/07/2021	33.53	32.1	34.34	63.79	60.03	80.63
15/07/2021	33.61	33.21	35.19	62.64	60.27	65.69
16/07/2021	33.57	32.69	34.32	63.38	60.1	67.44
17/07/2021	33.75	32.73	35.06	63.1	61.15	69.13
18/07/2021	33.7	33.21	35.09	62.96	60.65	64.74
19/07/2021	33.42	32.35	33.93	63.16	60.12	70.28
20/07/2021	33.86	32.49	35.63	62.38	59.21	64.54
21/07/2021	33.53	32.5	34.25	63.92	60.33	73.62
22/07/2021	33.86	33.22	36.05	64.24	61.7	73.68
23/07/2021	34.04	32.77	43.87	61.99	60.3	64.52
24/07/2021	35.5	35.2	36.09	63.25	60.47	65.15
25/07/2021	35.45	34.03	35.71	62.41	60.25	64.46
26/07/2021	35.6	34.18	36.34	63.77	60.25	70.47
27/07/2021	35.52	34.26	36.3	62.39	60.05	74.82
28/07/2021	35.71	34.26	37.08	64.19	62.52	71.12
29/07/2021	35.47	34.32	35.72	63.84	60.48	72.26
30/07/2021	35.6	35.38	36.41	64.54	61.77	76.22
31/07/2021	35.65	35.34	36.86	63.37	61.15	65.59

Pollution Monitoring Data of Bolani Ores Mines, M/s SAIL						
AAQ_3_JNRC						
Date Time	PM2.5			PM10		
- HH:MM, DD MM	µg / m3			µg / m3		
	Avg	Min	Max	Avg	Min	Max
01/07/2021	25.03	16.5	35.01	53.72	37.28	70.88
02/07/2021	26.33	18.75	32.56	56.67	40.95	72.76
03/07/2021	21.5	14.66	29.89	41.45	24.37	60.28
04/07/2021	23.69	12.26	34.17	44.92	17.51	74.22
05/07/2021	25.83	16.92	37.62	49.46	27.16	73.31
06/07/2021	33.15	27.65	43.03	66.79	51.28	88.79
07/07/2021	40.58	31.85	70.3	66.04	52.9	86.37
08/07/2021	35.67	22.13	43.93	50.08	29.45	66.16
09/07/2021	22.8	17.83	32.29	28.97	21.35	43.3
10/07/2021	30.4	22.7	36.69	27.33	20.1	36.09
11/07/2021	22.69	15.51	29.39	31.73	16.73	52.71
12/07/2021	20.07	12.74	25.53	24.77	15.64	38.58
13/07/2021	11.14	8.54	15.48	18.22	14.87	22.54
14/07/2021	8.84	6.79	11.64	16.54	13.35	20.33
15/07/2021	11.88	8.5	15.1	18.62	15.85	21.64
16/07/2021	17.06	11.05	26.48	21.56	15.72	32.42
17/07/2021	17.92	11.48	23.17	21.72	17	25.98
18/07/2021	22.2	17.74	27.3	27.34	18.55	36.75
19/07/2021	24.76	11.42	39.2	31.67	16.04	49.93
20/07/2021	15.79	11.72	25.57	28.72	20.3	38.52
21/07/2021	21.54	0	29.12	26.91	0	34.97
22/07/2021	21.36	12.67	26.4	23.61	12.67	29.12
23/07/2021	14.97	10.09	22.01	20.44	14.11	24.38
24/07/2021	8.3	6.04	13.53	21.72	16.08	28.79
25/07/2021	10.91	7.47	16.93	22.91	18.22	29.56
26/07/2021	18.97	11.65	29.66	20.8	14.58	31.89
27/07/2021	16.29	10.67	21.73	33.79	8.73	144.9
28/07/2021	16.28	8.26	28.09	27.08	20.51	44.08
29/07/2021	10.41	7.36	14.29	27.96	20.86	60.01
30/07/2021	12.67	8.32	17.19	18.4	12.23	36.48
31/07/2021	9.34	6.2	14.27	17.57	12.7	22.34