



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला स्टील प्लांट
ROURKELA STEEL PLANT
बोलानी ओर्स माइन्स
BOLANI ORES MINES

Ref No: - BOM/ENV/6.9/HD-257

Date:-20.07.2023

To,

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

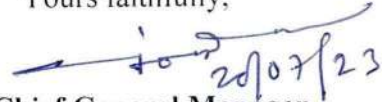
Sub: Six monthly status of compliance to the conditions stipulated in the Environmental Clearance granted by MoEFCC for 15000 TPA Manganese Ore production from 6.90 sq. Miles ML vide letter no. J-11015/396/2008-IA.II(M) dated 21/12/2012 for the period Jan'23 – Jun'23

Sir,

Please find enclosed herewith the Six monthly compliance report for the period Jan'23 – Jun'23 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
CGM (Mines), BOM
BOLANI

Encl: As above

Copy:

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

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड, राउरकेला स्टील प्लांट, बोलानी ओर्स माइन्स, पो-बोलानी-758037, जिला-क्योंझर, ओडिशा
Steel Authority of India Limited, Rourkela Steel Plant, Bolani Ores Mines, P.O.: Bolani-758037, Dist : Keonjhar, Odisha
दूरभाष / Telephone : 06767-260211 (O) फैक्स / Fax : 06767-260172, Mobile : +91 8986881005
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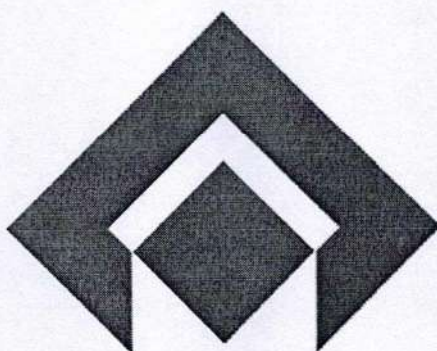
Regd. Office : Ispat Bhawan, Lodi Road, New Delhi - 110003, Phone : 01124367481-88, Fax 01124367015

हर किसी की ज़िन्दगी से जुड़ा हुआ है सेल

- There's a little bit of SAIL in everybody's life

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 January'23 - June'23



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 are carried out above the ground water table at present. 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:

Mitigation measures are regularly implemented to control the RSPM levels. The total dispatch of Ore is 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**.

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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 as per the provisions of the Mining Plan.

- 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 under implementation since 2020-21.

- 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*
AMBIENT AIR QUALITY			
1	Bolani Basthi Community Center (Habitation area)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	6.90 Core & 5.10 Buffer
2	General Office Area	PM ₁₀ , PM _{2.5}	5.10 Core & 6.90 Buffer
3	Field Station (Township Nursery – near Hospital)	PM ₁₀ , PM _{2.5}	5.10 Core & 6.90 Buffer
4	DAV Public School (Township)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	6.90 Core & 5.10 Buffer
5	Karo Guest House	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	6.90 Core & 5.10 Buffer
6	Limtur Village	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x & CO	6.90 Core & 5.10 Buffer
FUGITIVE DUST MONITORING (WORKZONE)			
SL. NO.	LOCATION	PARAMETERS MONITORED	ZONE*
7	Maingate Entry	RSPM, SPM	5.10 ML
8	F Mining area near hilltop Feed Crusher	RSPM, SPM	5.10 ML
9	G Mining area	RSPM, SPM	5.10 ML
10	D & Panposh Haul road	RSPM, SPM	5.10 ML
11	Mn Quarry - 10	RSPM, SPM	6.90 ML
12	Mn Quarry - 5	RSPM, SPM	6.90 ML
13	600 TPH cum Lump Loading plant area	RSPM, SPM	6.90 ML
14	Fines Loading plant area	RSPM, SPM	6.90 ML
15	Fines handling site (Near Weighbridge)	RSPM, SPM	5.10 ML

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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:

SURFACE WATER TO BE MONITORED MONTHLY				
SL. NO.	LOCATION	PARAMETERS MONITORED	ZONE*	REMARKS
16	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 to be Measured
17	Karo River Downstream		6.90 sq. miles ML	
18	Bottom garage effluent		5.10 sq. miles ML	Effluent
19	Jhinkaria Nallah		5.10 sq. miles ML	Flowrate to be Measured
20	Panposh Nallah		5.10 sq. miles ML	Flowrate to be Measured
21	Tailing Pond Seepage/ Balagoda nallah/ Mega settling pond outlet		Both	Seasonal
22	CBRS/ G-area Mechanical ETP		5.10 sq. miles ML	Effluent
23	Outlet of water treatment plant		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.

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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:

There is no change in Mining technology or scope of work from that which is approved in 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. 4631 Dt. 24/03/2023.

The conditions are effectively implemented and a compliance report has already been submitted to OSPCB during grant of consent to operate.

- 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.

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:

Vehicular emissions are kept under control and regularly monitored. Maintenance of vehicles used in mining operations and in transportation of Mineral is carried out regularly. The vehicles are covered with a tarpaulin and are not overloaded.

- 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.**

Blasting is carried out only during the daytime and controlled blasting is 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. 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:

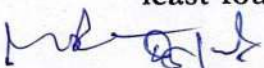
All newly appointed workers undergo a comprehensive medical examination (Pre-Employment Medical Examination) and subsequently a Periodical Medical Examination (PME) at regular intervals. All workers undergo a PME every 5 years; however, for workers whose age is >45 years the PME is done every 3 years. 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.

- xii. **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.

- xiii. **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.662 Dt.23.02.2023, with validity of 01(one) year.

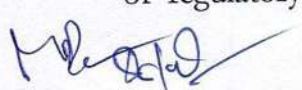
Presently the average consumption is well within the permitted quantity.

- 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 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.**

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 Jan’23-Jun’23 are enclosed as **Annexure – I(A)**.

- xvi. **Data on Ambient Air Quality [RSPM (PM₁₀) and NO_x] 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 Jan’23-Jun’23 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:

Top soil generated during Jan’23-Jun’23 was 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 Jan'23-Jun'23 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:

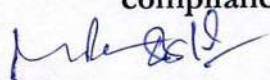
The fund earmarked for environmental protection measures is kept in separate account and is not diverted for other purpose. An amount of Rs. 137.17 lakhs has been booked for environment & forest protection measures till date against an allocated budget of Rs.350.00 lakhs for the period of 2023-24.

- 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 2021-22 of Bolani Ores Mines was submitted vide our letter no. BOM/ENV/STMT/HD-73 Dt.05.09.2022. 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:

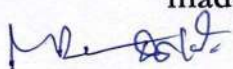
Duly noted. The conditions will be complied as and when stipulated.

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.


Chief General Manager (Mines)

Bolani Ores Mines

RSP - SAIL

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

ANNEXURE - I(A)
AMBIENT AIR QUALITY

ENVIRONMENTAL MONITORING REPORT

MONTH: JANUARY - 2023

BOLANI ORES MINES

6.90SQ MILES ML

**STEEL AUTHORITY OF INDIA
LIMITED**

**At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)**

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6
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Ref. No. BBL/ENV/3767

AMBIENT AIR MONITORING REPORT

Date: 07/02/2023

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha				
Location:		DAV Public School				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.01.2023	73.5	38.8	7.2	20.8	0.31
2	02-03.01.2023	78.5	43.6	7.4	21.2	0.33
3	03-04.01.2023	49.8	27.5	6.4	18.8	0.24
4	04-05.01.2023	52.8	28.4	6.6	19.2	0.25
5	05-06.01.2023	53.0	28.9	6.6	19.2	0.25
6	06-07.01.2023	78.2	44.2	7.8	21.4	0.33
7	07-08.01.2023	47.2	26.2	6.4	18.6	0.24
8	08-09.01.2023	49.8	26.8	6.4	18.8	0.25
9	09-10.01.2023	53.4	29.3	6.6	19.4	0.26
10	10-11.01.2023	49.7	26.1	6.4	18.6	0.25
11	11-12.01.2023	59.9	33.2	6.8	19.8	0.28
12	12-13.01.2023	---	---	---	---	---
13	13-14.01.2023	---	---	---	---	---
14	14-15.01.2023	67.0	36.8	6.8	20.4	0.29
15	15-16.01.2023	62.9	34.6	6.6	20.2	0.27
16	16-17.01.2023	74.4	41.5	7.2	21.4	0.32
17	17-18.01.2023	77.5	43.2	7.6	21.6	0.33
18	18-19.01.2023	79.5	44.8	7.6	21.8	0.34
19	19-20.01.2023	54.7	29.3	6.6	19.4	0.26
20	20-21.01.2023	75.4	42.2	7.4	21.4	0.33
21	21-22.01.2023	59.5	33.6	6.6	20.2	0.27

(184)

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Ref. No.BBL/ENV/3767

Date: 07/02/2023

22	22-23.01.2023	53.9	29.8	6.4	19.8	0.26
23	23-24.01.2023	53.0	29.2	6.4	19.6	0.25
24	24-25.01.2023	74.5	41.9	7.2	21.4	0.32
25	25-26.01.2023	76.1	42.7	7.4	21.6	0.33
26	26-27.01.2023	77.9	43.8	7.6	21.8	0.34
27	27-28.01.2023	48.2	25.6	6.4	18.8	0.24
28	28-29.01.2023	45.2	23.1	6.4	18.6	0.23
29	29-30.01.2023	53.5	29.3	6.6	19.4	0.27
30	30-31.01.2023	50.1	26.8	6.4	19.0	0.26
31	31-01-1.2.2023	76.4	42.4	7.6	21.6	0.33
Avg,		62.3	34.3	6.9	20.1	0.28
Limit as per CPCB Not: fication, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

Mitra S. K. Private Limited

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Ref. No.BBL/ENV/3768

Date: 07/02/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.O: Bolani, Dist-Keonjhar, Odisha				
Location:		Bolani Community Center				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.01.2023	79.7	44.6	7.8	21.8	0.33
2	02-03.01.2023	60.6	33.5	6.6	19.6	0.28
3	03-04.01.2023	58.7	35.1	6.4	19.4	0.27
4	04-05.01.2023	49.3	26.8	6.4	18.8	0.24
5	05-06.01.2023	77.8	43.7	7.8	21.4	0.31
6	06-07.01.2023	57.8	31.4	6.6	19.4	0.27
7	07-08.01.2023	48.0	25.6	6.4	18.8	0.24
8	08-09.01.2023	75.6	42.5	7.6	20.4	0.31
9	09-10.01.2023	41.3	20.5	6.2	18.2	0.23
10	10-11.01.2023	67.2	36.2	6.8	20.4	0.28
11	11-12.01.2023	74.5	41.6	7.2	21.2	0.32
12	12-13.01.2023	---	---	---	---	---
13	13-14.01.2023	---	---	---	---	---
14	14-15.01.2023	56.5	30.4	6.4	19.4	0.24
15	15-16.01.2023	76.6	42.7	7.4	21.6	0.33
16	16-17.01.2023	72.9	41.8	7.0	21.0	0.31
17	17-18.01.2023	74.3	42.5	7.2	21.2	0.32
18	18-19.01.2023	62.6	34.6	6.8	20.2	0.26
19	19-20.01.2023	71.8	40.3	7.2	20.8	0.30
20	20-21.01.2023	68.8	37.8	7.0	20.6	0.28
21	21-22.01.2023	64.8	35.7	6.6	20.2	0.27

(85)

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18 Roudhary

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Ref. No.BBL/ENV/3768

Date: 07/02/2023

22	22-23.01.2023	59.3	32.6	6.4	19.6	0.26
23	23-24.01.2023	76.4	42.5	7.4	21.6	0.33
24	24-25.01.2023	72.7	40.3	7.2	20.8	0.31
25	25-26.01.2023	77.7	43.5	7.6	21.8	0.32
26	26-27.01.2023	58.9	34.1	6.8	19.0	0.27
27	27-28.01.2023	70.6	40.3	6.8	21.6	0.31
28	28-29.01.2023	78.2	43.8	7.8	21.8	0.32
29	29-30.01.2023	70.0	39.1	6.8	21.0	0.29
30	30-31.01.2023	71.3	39.8	7.0	20.8	0.30
31	31-01-1.2.2023	53.3	29.6	6.4	19.2	0.25
Avg.		66.5	37.0	7.0	20.4	0.29
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

Mitra S. K. Private Limited

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Ref. No. BBL/ENV/3769

AMBIENT AIR MONITORING REPORT

Date: 07/02/2023

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Karo Cuest House		Limtur Village	
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
1	01-02.01.2023	76.2	42.1	57.7	30.8
2	02-03.01.2023	81.0	44.5	51.3	28.1
3	03-04.01.2023	59.2	32.4	75.6	42.3
4	04-05.01.2023	51.6	28.2	42.1	21.6
5	05-06.01.2023	69.5	38.7	79.2	44.2
6	06-07.01.2023	79.8	44.6	50.2	27.1
7	07-08.01.2023	71.0	38.5	49.5	26.8
8	08-09.01.2023	70.8	38.2	45.1	23.5
9	09-10.01.2023	44.0	22.3	40.4	20.4
10	10-11.01.2023	47.9	25.4	47.3	24.6
11	11-12.01.2023	75.0	41.1	57.9	31.3
12	12-13.01.2023	---	---	---	---
13	13-14.01.2023	---	---	---	---
14	14-15.01.2023	52.9	28.6	56.3	30.4
15	15-16.01.2023	80.9	44.5	58.8	31.5
16	16-17.01.2023	76.9	42.3	73.2	40.7
17	17-18.01.2023	72.5	40.2	51.6	28.2
18	18-19.01.2023	61.3	33.8	52.2	38.8
19	19-20.01.2023	68.8	37.2	45.3	23.6
20	20-21.01.2023	70.3	39.4	45.4	23.3
21	21-22.01.2023	72.8	40.3	42.2	21.8

18/1/23



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Signature

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Page-2

Ref. No.BBL/ENV/3769

Date: 07/02/2023

22	22-23.01.2023	65.4	36.5	57.1	42.2
23	23-24.01.2023	75.8	42.3	43.3	21.8
24	24-25.01.2023	76.3	42.8	42.1	21.3
25	25-26.01.2023	64.7	35.4	46.8	24.2
26	26-27.01.2023	79.7	44.2	78.5	38.9
27	27-28.01.2023	77.2	43.3	65.6	36.4
28	28-29.01.2023	58.0	32.6	42.8	21.2
29	29-30.01.2023	71.0	39.6	46.1	23.3
30	30-31.01.2023	73.0	40.2	46.4	23.6
31	31-01-1.2.2023	67.8	37.3	79.4	43.7
Avg.		68.7	37.8	54.1	29.5
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80
Sampling & Analysis done According to		IS: 5182 Part- 23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)

Checked by:



For Mitra S. K. Private Limited

Shaukhan
Authorized Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: FEBRUARY- 2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

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Ref. No.BBL/ENV/3816

Date: 09/03/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha				
Location:		DAV Public School				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.02.2023	59.4	33.1	6.4	19.2	0.25
2	02-03.02.2023	61.2	34.4	6.6	19.6	0.26
3	03-04.02.2023	58.5	32.7	6.4	19.0	0.24
4	04-05.02.2023	71.5	40.2	6.8	20.6	0.30
5	05-06.02.2023	62.8	35.2	6.6	19.6	0.26
6	06-07.02.2023	54.6	29.6	6.4	18.8	0.24
7	07-08.02.2023	50.5	27.4	6.2	18.2	0.23
8	08-09.02.2023	66.8	36.5	6.6	19.0	0.28
9	09-10.02.2023	78.6	44.3	7.4	21.2	0.32
10	10-11.02.2023	70.1	39.1	6.8	20.8	0.30
11	11-12.02.2023	72.6	40.4	7.0	20.8	0.31
12	12-13.02.2023	50.3	27.2	6.2	18.8	0.23
13	13-14.02.2023	70.0	39.3	7.0	20.8	0.30
14	14-15.02.2023	74.6	41.4	7.4	21.2	0.31
15	15-16.02.2023	64.7	35.6	6.6	19.4	0.27
16	16-17.02.2023	71.4	40.2	7.2	20.0	0.30
17	17-18.02.2023	62.6	34.4	6.6	19.6	0.27
18	18-19.02.2023	66.5	37.6	6.8	20.0	0.28
19	19-20.02.2023	76.8	42.8	7.4	21.0	0.33
20	20-21.02.2023	72.6	40.2	7.2	20.6	0.31
21	21-22.02.2023	62.2	34.5	6.6	19.8	0.28




Cont. Page-2

Mitra S. K. Private Limited



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Ref. No.BBL/ENV/3816

Date: 09/03/2023

22	22-23.02.2023	59.3	33.1	6.4	19.2	0.25
23	23-24.02.2023	74.1	41.4	7.4	20.8	0.32
24	24-25.02.2023	78.7	43.9	7.6	21.2	0.34
25	25-26.02.2023	57.6	32.6	6.4	19.2	0.25
26	26-27.02.2023	67.1	37.2	6.6	20.0	0.28
27	27-28.02.2023	61.1	34.4	6.4	19.6	0.26
28	28-01-2.3.2023	66.2	36.5	6.6	20.0	0.27
Avg.		65.8	36.6	6.8	19.9	0.28
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

At/P.O.: BARBIL Ward No-6
 Dist.: Keonjhar, Odisha - 758035
 CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269
 E : barbil@mitrask.co.in
 W : www.mitrask.com

Ref. No. BBL/ENV/3817

Date: 09/03/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.O.: Bolani, Dist-Keonjhar, Odisha				
Location:		Bolani Community Center				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.02.2023	67.2	37.3	6.8	19.6	0.28
2	02-03.02.2023	80.4	45.6	7.4	21.2	0.33
3	03-04.02.2023	77.9	44.2	7.2	20.8	0.32
4	04-05.02.2023	75.9	42.4	7.0	20.6	0.31
5	05-06.02.2023	58.1	31.3	6.4	18.8	0.25
6	06-07.02.2023	52.4	28.2	6.2	18.4	0.24
7	07-08.02.2023	60.6	33.5	6.6	19.6	0.26
8	08-09.02.2023	62.0	34.0	6.6	19.2	0.27
9	09-10.02.2023	79.6	45.1	7.2	20.2	0.32
10	10-11.02.2023	52.3	28.4	6.4	18.4	0.23
11	11-12.02.2023	79.3	44.8	7.4	21.2	0.32
12	12-13.02.2023	68.3	38.9	6.8	20.4	0.29
13	13-14.02.2023	75.0	42.6	7.4	21.2	0.33
14	14-15.02.2023	76.1	42.5	7.4	21.4	0.34
15	15-16.02.2023	55.4	31.2	6.4	18.6	0.24
16	16-17.02.2023	72.8	40.8	7.2	21.0	0.30
17	17-18.02.2023	59.2	33.2	6.4	19.2	0.25
18	18-19.02.2023	72.9	40.3	7.0	21.2	0.31
19	19-20.02.2023	62.7	33.4	6.6	20.8	0.27
20	20-21.02.2023	74.9	41.7	7.4	21.2	0.32
21	21-22.02.2023	63.3	35.6	6.6	20.2	0.27

Cont. Page-2

Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6
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Ref. No.BBL/ENV/3817

Date: 09/03/2023

22	22-23.02.2023	62.4	34.5	6.6	20.0	0.26
23	23-24.02.2023	53.0	28.8	6.4	18.6	0.24
24	24-25.02.2023	61.0	32.7	6.6	19.4	0.27
25	25-26.02.2023	54.6	29.6	6.4	18.8	0.24
26	26-27.02.2023	75.9	42.4	7.0	21.2	0.31
27	27-28.02.2023	74.6	41.5	7.2	21.0	0.32
28	28-01-2.3.2023	82.9	45.2	7.4	21.8	0.34
Avg.		67.5	37.5	6.9	20.1	0.29
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:

(Signature)



For Mitra S. K. Private Limited

(Signature)
Authorized Signatory

At/P.O.: BARBIL Ward No-6
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Ref. No.BBL/ENV/3818

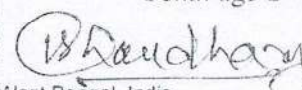
Date: 09/03/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Karo Cuest House		Limtur Village	
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
1	01-02.02.2023	75.3	42.3	49.0	26.6
2	02-03.02.2023	78.3	43.8	48.1	25.8
3	03-04.02.2023	63.1	34.7	79.7	44.1
4	04-05.02.2023	57.1	31.1	61.0	33.0
5	05-06.02.2023	62.2	34.5	64.8	35.6
6	06-07.02.2023	80.0	45.2	65.5	36.1
7	07-08.02.2023	78.0	43.8	48.8	25.8
8	08-09.02.2023	73.4	41.1	68.0	37.2
9	09-10.02.2023	72.5	40.3	48.4	25.5
10	10-11.02.2023	75.3	42.1	55.9	30.3
11	11-12.02.2023	71.9	40.2	44.1	22.8
12	12-13.02.2023	73.1	40.8	74.4	41.5
13	13-14.02.2023	78.2	43.2	70.5	39.2
14	14-15.02.2023	78.4	44.3	75.9	42.4
15	15-16.02.2023	72.0	40.2	74.4	41.3
16	16-17.02.2023	73.2	41.1	63.0	34.6
17	17-18.02.2023	80.3	45.4	41.9	21.4
18	18-19.02.2023	79.4	44.2	70.5	38.4
19	19-20.02.2023	78.4	43.9	60.7	33.8
20	20-21.02.2023	74.8	41.5	52.8	28.5
21	21-22.02.2023	69.4	38.8	51.3	28.1




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Mitra S. K. Private Limited

A/P O..BARBIL Ward No-6
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Ref. No.BBL/ENV/3818

Date: 09/03/2023

22	22-23.02.2023	55.2	29.6	63.7	35.3
23	23-24.02.2023	77.0	43.3	71.9	40.4
24	24-25.02.2023	66.1	37.2	68.7	39.3
25	25-26.02.2023	76.4	42.4	71.6	40.0
26	26-27.02.2023	77.3	43.3	60.5	33.2
27	27-28.02.2023	74.0	41.2	64.2	35.1
28	28-01-2.3.2023	81.4	45.3	71.2	39.2
Avg.		73.3	40.9	62.2	34.1
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80
Sampling & Analysis done According to		IS: 5182 Part- 23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: MARCH- 2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Ref. No.BBL/ENV/3894

Date: 08/04/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha				
Location:		DAV Public School				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.03.2023	87.8	49.6	7.0	20.8	0.30
2	02-03.03.2023	81.5	46.2	6.8	20.2	0.28
3	03-04.03.2023	74.2	41.4	6.6	19.6	0.27
4	04-05.03.2023	83.6	47.6	6.8	20.4	0.28
5	05-06.03.2023	85.3	48.1	7.0	20.6	0.29
6	06-07.03.2023	80.2	45.2	6.8	20.2	0.28
7	07-08.03.2023	76.7	42.5	6.6	19.4	0.27
8	08-09.03.2023	66.8	36.1	6.4	18.8	0.25
9	09-10.03.2023	88.1	49.8	7.0	21.0	0.31
10	10-11.03.2023	58.9	32.2	6.2	18.4	0.24
11	11-12.03.2023	76.9	42.6	6.6	19.4	0.27
12	12-13.03.2023	67.1	37.1	6.4	19.2	0.25
13	13-14.03.2023	70.2	39.4	6.6	19.4	0.26
14	14-15.03.2023	63.0	36.8	6.4	19.2	0.25
15	15-16.03.2023	87.7	49.1	7.2	20.8	0.30
16	16-17.03.2023	61.4	34.4	6.6	18.8	0.26
17	17-18.03.2023	88.7	49.8	7.2	21.0	0.30
18	18-19.03.2023	72.5	40.2	6.6	20.2	0.28
19	19-20.03.2023	57.5	31.2	6.4	18.6	0.26
20	20-21.03.2023	43.7	22.6	6.2	18.2	0.23
21	21-22.03.2023	44.5	22.8	6.2	18.2	0.24

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Cont. Page-2

Mitra S. K. Private Limited



At/P.O.: BARBIL Ward No-6
Dist.: Keonjhar, Odisha - 758035
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Ref. No.BBL/ENV/3894

Date: 08/04/2023

22	22-23.03.2023	82.9	52.7	7.2	21.2	0.32
23	23-24.03.2023	40.5	19.3	6.0	18.2	0.22
24	24-25.03.2023	75.9	42.5	6.8	20.0	0.28
25	25-26.03.2023	68.7	37.4	6.6	19.4	0.27
26	26-27.03.2023	75.4	42.2	6.8	19.8	0.28
27	27-28.03.2023	67.2	37.3	6.6	19.4	0.27
28	28-29.03.2023	57.7	31.4	6.4	18.2	0.25
29	29-30.03.2023	88.4	49.2	7.0	20.8	0.30
30	30-31.03.2023	77.7	43.4	6.8	19.8	0.29
31	31-01.3-4.2023	68.2	37.2	6.6	19.4	0.28
Avg.		71.6	39.9	6.7	19.6	0.27
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:

(Signature)

For Mitra S. K. Private Limited

(Signature)
Authorized Signatory



Ref. No.BBL/ENV/3895

Date: 08/04/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.				
Site:		Bolani Ores Mines				
Address:		At/P.O: Bolani, Dist-Keonjhar, Odisha				
Location:		Bolani Community Center				
Sl. No	Date of Sampling	Concentration of Pollutants				
		$\mu\text{g}/\text{m}^3$				mg/m^3
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
1	01-02.03.2023	87.3	49.3	7.2	21.0	0.30
2	02-03.03.2023	40.3	19.8	6.2	18.6	0.23
3	03-04.03.2023	55.8	30.5	6.4	19.0	0.25
4	04-05.03.2023	50.7	27.6	6.4	18.8	0.24
5	05-06.03.2023	81.2	46.1	7.0	20.0	0.28
6	06-07.03.2023	64.4	35.5	6.6	19.4	0.26
7	07-08.03.2023	83.4	47.6	7.2	20.6	0.29
8	08-09.03.2023	62.0	34.3	6.4	19.2	0.26
9	09-10.03.2023	71.5	40.2	6.6	20.0	0.27
10	10-11.03.2023	76.7	42.5	6.8	20.4	0.28
11	11-12.03.2023	88.5	49.4	7.4	21.2	0.31
12	12-13.03.2023	83.2	46.8	7.2	21.0	0.29
13	13-14.03.2023	86.6	48.2	7.4	21.2	0.30
14	14-15.03.2023	81.2	46.4	7.0	20.6	0.29
15	15-16.03.2023	68.9	37.6	6.8	19.6	0.27
16	16-17.03.2023	60.8	33.4	6.6	19.2	0.25
17	17-18.03.2023	89.4	50.5	7.4	21.0	0.31
18	18-19.03.2023	85.0	47.1	7.2	20.8	0.30
19	19-20.03.2023	42.1	20.8	6.2	18.4	0.25
20	20-21.03.2023	36.1	17.3	6.0	18.2	0.24
21	21-22.03.2023	51.1	27.6	6.4	19.0	0.26

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At/P.O.: BARBIL Ward No-6
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Ref. No.BBL/ENV/3895

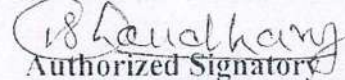
Date: 08/04/2023

22	22-23.03.2023	46.1	23.5	6.2	18.6	0.27
23	23-24.03.2023	73.7	41.4	6.4	20.0	0.29
24	24-25.03.2023	48.0	24.5	6.2	18.6	0.25
25	25-26.03.2023	54.9	29.6	6.4	18.8	0.26
26	26-27.03.2023	41.9	19.3	6.2	18.2	0.24
27	27-28.03.2023	43.3	20.8	6.2	18.2	0.25
28	28-29.03.2023	81.3	45.7	7.0	20.8	0.29
29	29-30.03.2023	90.9	52.5	7.6	21.4	0.33
30	30-31.03.2023	87.5	49.2	7.4	21.2	0.31
31	31-01.3-4.2023	89.3	50.3	7.4	21.4	0.32
Avg.		67.8	37.3	6.8	19.8	0.28
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80	2
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part- 6:2006 (Reaff.2012)	IS: 5182 Part-10: 1999 (Reaff.2014) (NDIR)

Checked by:



For Mitra S. K. Private Limited


Authorized Signatory


Ref. No.BBL/ENV/3896

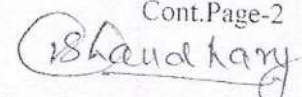
Date: 08/04/2023

AMBIENT AIR MONITORING REPORT

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.O: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Karo Cuest House		Limtur Village	
		PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³
1	01-02.03.2023	87.2	48.6	83.4	47.5
2	02-03.03.2023	32.2	15.3	60.0	33.4
3	03-04.03.2023	50.7	27.5	87.5	49.2
4	04-05.03.2023	38.7	18.4	74.1	41.2
5	05-06.03.2023	59.5	32.1	81.2	45.8
6	06-07.03.2023	46.5	24.3	88.5	49.6
7	07-08.03.2023	77.8	43.6	84.2	47.4
8	08-09.03.2023	63.4	35.1	68.0	37.3
9	09-10.03.2023	55.7	30.5	58.9	31.7
10	10-11.03.2023	69.7	38.8	77.6	43.3
11	11-12.03.2023	91.5	52.2	53.2	29.1
12	12-13.03.2023	77.6	43.8	75.0	41.4
13	13-14.03.2023	73.3	41.4	87.5	49.2
14	14-15.03.2023	86.9	48.7	49.5	28.8
15	15-16.03.2023	50.4	27.1	85.4	48.3
16	16-17.03.2023	63.2	34.3	63.0	34.5
17	17-18.03.2023	89.2	50.4	67.2	36.8
18	18-19.03.2023	36.9	17.6	43.9	21.7
19	19-20.03.2023	91.4	52.1	63.0	34.6
20	20-21.03.2023	74.1	41.3	85.6	48.0
21	21-22.03.2023	44.6	22.8	51.2	27.6



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Ref. No.BBL/ENV/3896

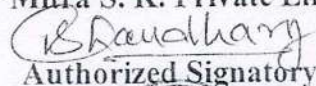
Date: 08/04/2023

22	22-23.03.2023	81.0	45.6	38.5	18.3
23	23-24.03.2023	91.1	51.8	55.4	29.8
24	24-25.03.2023	86.6	49.2	38.3	18.1
25	25-26.03.2023	58.4	31.3	84.1	47.5
26	26-27.03.2023	80.4	45.5	39.6	19.3
27	27-28.03.2023	81.9	46.2	82.1	46.2
28	28-29.03.2023	80.3	45.2	58.6	30.4
29	29-30.03.2023	89.1	50.1	33.9	15.6
30	30-31.03.2023	94.3	52.6	87.2	49.1
31	31-01.3-4.2023	87.5	49.3	78.4	43.2
Avg.		70.7	39.1	67.2	36.9
Limit as per CPCB Notification, New Delhi, 18 th November 2009, for Ambient Air Quality		100	60	80	80
Sampling & Analysis done According to		IS: 5182 Part-23: 2006 (Reaff.2012)	Lab Sop No. TPM /MSK/E/ 5/C Based on USEPA CFR40, Part 50 Appendix L, 2016	IS: 5182 Part-2: 2001 (Reaff.2012)	IS:5182 Part-6:2006 (Reaff.2012)

Checked by:



For Mitra S. K. Private Limited



Authorized Signatory





CENTRAL LABORATORY STATE POLLUTION CONTROL BOARD, ODISHA

Plot No. B-59/2 & 59/3, Chandaka Industrial Estate, Patia,
Bhubaneswar - 751 024

E-mail: centrallab@ospcboard.org

TEST REPORT

Page 1 of 2

1. ULR No. :
- 2 (i) Report No.: AR/25/06/2023
- 3 (i) Date : 30.06.2023
- 2(ii) Amendment No :
- 3(ii) Amendment Date :
4. Sample Submitted By : Sri B Jena, SSA of Central Laboratory, Bhubaneswar
(Name and address)
5. Reference Letter No. : Letter No-7052,dtd.03.05.2023
6. Date of sample receipt :29.05.2023
7. Sample Description :

(i) Discipline : Chemical Testing
(Biological Testing,
Chemical testing)

(ii) Group: Atmospheric Pollution
(Water/ Pollution and Environment
Soil and Hazardous Waste /
Atmospheric Pollution)

(iii) Sub Group: Stack
(Surface water/ Ground water/ Wastewater
Soil and Hazardous Waste /
Effluent/ Ambient Air/ Stack)
8. Analysis Starting Date-Analysis Completion Date : 29.05.2023 to 01.06.2023
9. If uncertainty is desired by Customer :
10. Analysis Results :
(Attach separate sheet if necessary)

Sl. No.	Parameter, Unit	Standards/ Regulatory Limits	*Test Method	Ambient Air Quality Monitoring of M/s Bolani Ores Mines Other/AS/May/20/2023						
				Results						
				Entry Gate of Bolani Ore Mines	Premises Karo Guest House	Fine Selling Transporion Route near CISF Campous	Inside DAV Public School	Bolani Town Ship Near Mount Club	Nimtur Village	Near Bolani Community Center
1	SO ₂ (µg/m ³)	80 (24 Hourly)	IS-5182 (Part-2)-2001	≤4.0	≤4.0	≤4.0	≤4.0	≤4.0	≤4.0	≤4.0
2	NO ₂ (µg/m ³)	80 (24 Hourly)	IS-5182 (Part-6)-2006	14.8	11.6	16.3	12.4	19.7	10.7	12.7
3	CO(mg/m ³)	04 (1 Hourly)	IS-5182 (Part-X)-1999	0.05	0.04	0.05	0.04	0.04	0.04	0.04
4	PM ₁₀ (µg/m ³)	100 (24 Hourly)	IS-5182 (Part-23)-2006	144.0	39.0	76.0	106.0	96.0	81.0	70.0
5	PM _{2.5} (µg/m ³)	60 (24 Hourly)	IS-5182 (Part-24)-2019	28.0	18.0	27.0	28.0	32.0	36.0	45.0

11. Deviation from Test Method , if any :
12. If Sampling Conducted by the Central Laboratory, Yes/ No.
If Yes

(a) Date of Sampling : 22.05.2023 to 26.05.2023

(b) Method Used* : IS 5182(P-14) :2000

(c) Sampling done by:- Sri A.K.Mallick, FA & Sri S.C.Das,FA

-----End of Test Report-----

Authorised Signatory
 (Atmospheric Pollution)
 Dr S.K.Mohanty,SES

Board Analyst
 Mr N.Mallick,CES

Note :

- (i) The results stated above relate only to the items tested.
- (ii) This report shall not be reproduced in full or in part without written approval from the In-charge of the Central Laboratory
- (iii) The laboratory is not responsible for the authenticity of photocopied Test Reports.
- (iv) The Test Item will not be retained for more than 15 days from the date of issue of Test Report except in case as required by applicable Regulation

Head Office: State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar - 751 012, FAX: 2562822/2560955 TEL: 2564033/2563294 EPABX: 2561909/2562847

E-mail : paribesh1@ospcboard.org Website : www.ospcboard.org



CENTRAL LABORATORY STATE POLLUTION CONTROL BOARD, ODISHA

Plot No. B-59/2 & 59/3, Chandaka Industrial Estate, Patia,
Bhubaneswar - 751 024

E-mail: centrallab@ospboard.org

TEST REPORT

Page 2 of 2

1. ULR No. :
- 2 (i). Report No.: AR/26/06/2023
- 3 (i). Date : 30.06.2023
4. Sample Submitted By : Sri B Jena, SSA of Central Laboratory, Bhubaneswar
(Name and address)
5. Reference Letter No. : Letter No-7053, dtd.03.05.2023
6. Date of sample receipt :29.05.2023
7. Sample Description :

(i) Discipline : Chemical Testing
(Biological Testing,
Chemical testing)

(ii) Group: Atmospheric Pollution
(Water/ Pollution and Environment
Soil and Hazardous Waste /
Atmospheric Pollution)

(iii) Sub Group: Stack
(Surface water/ Ground water/ Wastewater
Soil and Hazardous Waste /
Effluent/ Ambient Air/ Stack)
8. Analysis Starting Date-Analysis Completion Date : 29.05.2023 to 01.06.2023
9. If uncertainty is desired by Customer :
10. Analysis Results :
(Attach separate sheet if necessary)

Sl. No.	Parameter, Unit	Standards/ Regulatory Limits	*Test Method	Ambient Air Quality Monitoring of M/s Bolani Ores Mines Other/AS/May/21/2023						
				Results						
				Near F- Quarry Hopper	Near D- Panposh 600TPH Houl Road	Near Lump Loading Plant	Near Fines Loading Plant	Near G- Mining Area	Near Fines Selling Area	Near D- Mining Area
1	PM ₁₀ (µg/m ³)	100 (24 Hourly)	IS-5182 (Part-23)- 2006	133.0	153.0	182.0	85.0	86.0	119.0	183.0
2	SPM (µg/m ³)	1200 (24 Hourly)	-	762.0	494.0	522.0	412.0	334.0	367.0	609.0

11. Deviation from Test Method , if any :
12. If Sampling Conducted by the Central Laboratory, Yes/ No.
If Yes

(a) Date of Sampling : 22.05.2023 to 26.05.2023

(b) Method Used* : IS 5182(P-14) :2000

 (c) Sampling done by:- Sri A.k.Mallick, FA & Sri S.C.Das,FA

-----End of Test Report-----

20.06.2023
 Authorised Signatory
 (Atmospheric Pollution)
 Dr S.K.Mohanty, SES

Board Analyst
 Mr N.Mallick, CES

Note :

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Head Office: State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar - 751 012, FAX : 2562822/2560955 TEL : 2564033/2563294 EPABX : 2561909/2562847
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ANNEXURE - I(B)
FUGITIVE DUST REPORT

ENVIRONMENTAL MONITORING REPORT

MONTH: JANUARY - 2023

BOLANI ORES MINES

6.90SQ MILES ML

**STEEL AUTHORITY OF INDIA
LIMITED**

**At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)**

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

**At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.**

Mitra S. K. Private Limited

A/P.O.: BARBIL Ward No-6
Dist.: Keonjhar, Odisha - 758035
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Ref. No. BBL/ENV/3770

ANALYSIS REPORT OF FUGITIVE

Date: 07/02/2023

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Near Weigh Bridge		Near 600 TPH	
		RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$	RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$
1	01.01.2023	132.8	585.3	236.9	1029.6
2	02.01.2023	143.1	625.4	173.8	693.3
3	03.01.2023	108.2	598.2	169.6	692.4
4	04.01.2023	141.5	641.1	231.3	994.5
5	05.01.2023	90.8	307.6	158.2	606.3
6	06.01.2023	148.0	639.5	237.3	1062.6
7	07.01.2023	60.5	199.3	137.1	496.8
8	08.01.2023	96.9	326.2	222.1	941.5
9	09.01.2023	64.7	222.6	120.4	424.2
10	10.01.2023	213.1	972.4	168.7	599.6
11	11.01.2023	262.6	1160.5	222.9	908.2
12	12.01.2023	---	---	---	---
13	13.01.2023	---	---	---	---
14	14.01.2023	80.8	220.8	237.1	1062.8
15	15.01.2023	113.7	523.2	80.0	270.4
16	16.01.2023	117.1	545.4	230.8	752.5
17	17.01.2023	118.2	556.1	178.9	698.3
18	18.01.2023	184.3	876.7	217.6	937.3
19	19.01.2023	77.8	268.3	131.4	458.6
20	20.01.2023	113.5	141.5	228.0	989.2
21	21.01.2023	94.1	329.6	232.2	1038.6

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Ref. No.BBL/ENV/3770

Date: 07/02/2023

22	22.01.2023	52.1	176.2	193.3	762.3
23	23.01.2023	160.0	652.4	181.5	717.5
24	24.01.2023	220.3	1073.5	193.9	759.2
25	25.01.2023	68.6	220.2	252.9	1145.4
26	26.01.2023	75.9	248.4	179.9	694.8
27	27.01.2023	90.2	317.7	212.2	876.3
28	28.01.2023	66.9	216.3	246.3	1092.1
29	29.01.2023	148.9	618.2	248.1	1107.2
30	30.01.2023	76.5	249.3	221.0	936.4
31	31.01.2023	54.0	184.8	238.7	1052.5
Avg.		116.4	472.3	199.4	820.7
Limit as per MOEF Notification New Delhi the 4 th October -2010 (G.S.R809 (E)). PM: 1200					
Sampling & Analysis done According to RPM: IS:5182 Part 23:2006 (Reaff. 2012) SPM: IS:5182 Part 4:1999 (Reaff. 2014),					

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: FEBRUARY- 2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po - Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Mitra S. K. Private Limited

At/P.O : BARBIL Ward No-6
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Ref. No.BBL/ENV/3819

Date: 09/03/2023

ANALYSIS REPORT OF FUGITIVE

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.o: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Near Weigh Bridge		Near 600 TPH	
		RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$	RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$
1	01.02.2023	136.1	515.5	214.4	802.2
2	02.02.2023	55.9	171.3	238.4	1036.3
3	03.02.2023	99.9	331.4	233.3	662.8
4	04.02.2023	110.4	376.5	225.8	948.4
5	05.02.2023	100.3	337.8	240.4	1045.6
6	06.02.2023	59.3	183.2	212.3	856.3
7	07.02.2023	59.0	181.2	201.2	791.5
8	08.02.2023	192.1	726.8	224.5	938.8
9	09.02.2023	100.3	334.4	157.4	573.4
10	10.02.2023	93.6	308.2	127.0	448.6
11	11.02.2023	117.4	405.6	222.8	919.5
12	12.02.2023	58.6	184.3	213.2	851.3
13	13.02.2023	77.6	255.5	213.8	858.2
14	14.02.2023	93.3	320.1	220.4	914.4
15	15.02.2023	129.0	453.7	209.8	838.1
16	16.02.2023	75.2	247.8	222.8	914.6
17	17.02.2023	132.7	465.3	210.0	851.3
18	18.02.2023	143.2	514.2	203.8	709.8
19	19.02.2023	69.7	219.6	238.2	1038.2
20	20.02.2023	125.6	432.4	214.9	866.3
21	21.02.2023	116.5	402.3	189.2	729.5

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Cont. Page-2

B. K. Prasad

Mitra S. K. Private Limited

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Ref. No.BBL/ENV/3819

Date: 09/03/2023

22	22.02.2023	89.3	292.5	156.8	572.6
23	23.02.2023	128.0	448.7	230.4	978.4
24	24.02.2023	87.4	293.8	227.4	963.8
25	25.02.2023	74.4	234.1	204.5	805.2
26	26.02.2023	64.7	199.6	241.4	1047.6
27	27.02.2023	102.2	341.3	204.9	807.5
28	28.02.2023	144.8	516.4	217.4	913.2
Avg.		101.3	346.2	211.3	845.8
Limit as per MOEF Notification New Delhi the 4 th October -2010 (G.S.R809 (E)). PM: 1200					
Sampling & Analysis done According to RPM: IS:5182 Part 23:2006 (Reaff. 2012) SPM: IS:5182 Part 4:1999 (Reaff. 2014),					

Checked by:



For Mitra S. K. Private Limited

Authorized Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: MARCH-2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po - Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Ref. No. BBL/ENV/3897

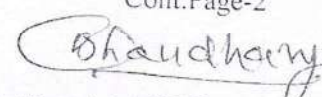
Date: 08/04/2023

ANALYSIS REPORT OF FUGITIVE

Name of the Client:		Steel Authority of India Limited.			
Site:		Bolani Ores Mines			
Address:		At/P.O: Bolani, Dist-Keonjhar, Odisha			
Sl. No	Date of Sampling	Concentration of Pollutants			
		Sample Location			
		Near Weigh Bridge		Near 600 TPH	
		RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$	RPM $\mu\text{g}/\text{m}^3$	SPM $\mu\text{g}/\text{m}^3$
1	01.03.2023	121.9	418.6	225.0	943.6
2	02.03.2023	140.2	505.4	158.2	588.1
3	03.03.2023	162.2	602.1	198.0	788.4
4	04.03.2023	174.7	652.3	218.4	906.3
5	05.03.2023	90.0	298.5	204.1	802.5
6	06.03.2023	164.1	619.3	207.4	811.2
7	07.03.2023	104.3	348.2	227.3	976.7
8	08.03.2023	88.1	283.4	144.5	514.8
9	09.03.2023	91.9	299.6	210.0	850.2
10	10.03.2023	153.8	563.3	229.9	972.1
11	11.03.2023	154.7	556.1	231.7	982.4
12	12.03.2023	73.3	229.7	73.3	231.6
13	13.03.2023	165.7	506.2	201.3	793.3
14	14.03.2023	164.0	501.6	237.0	1032.9
15	15.03.2023	212.3	855.4	231.3	977.4
16	16.03.2023	65.2	207.5	182.8	689.2
17	17.03.2023	80.4	261.2	197.1	788.6
18	18.03.2023	238.5	1036.4	235.9	1029.4
19	19.03.2023	53.3	169.2	65.2	204.1
20	20.03.2023	79.9	259.8	78.6	256.5
21	21.03.2023	70.6	223.5	143.3	513.8



Cont. Page-2



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Ref. No.BBL/ENV/3897

Date: 08/04/2023

22	22.03.2023	89.8	298.6	145.2	518.6
23	23.03.2023	49.7	142.8	102.2	338.3
24	24.03.2023	75.3	242.2	117.1	409.2
25	25.03.2023	67.3	222.1	67.3	209.7
26	26.03.2023	64.7	211.4	62.0	196.5
27	27.03.2023	43.3	120.8	78.2	254.6
28	28.03.2023	119.5	412.3	218.0	908.3
29	29.03.2023	82.6	271.2	134.4	471.2
30	30.03.2023	50.6	148.9	227.5	966.4
31	31.02.2023	74.2	216.5	212.7	552.3
Avg.		108.6	376.9	169.8	660.6
Limit as per MOEF Notification New Delhi the 4 th October -2010 (G.S.R809 (E)). PM: 1200					
Sampling & Analysis done According to RPM: IS:5182 Part 23:2006 (Reaff. 2012) SPM: IS:5182 Part 4:1999 (Reaff. 2014),					

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory



ANNEXURE - I(C)
WATER QUALITY MONITORING

ENVIRONMENTAL MONITORING REPORT

MONTH: JANUARY - 2023

BOLANI ORES MINES

6.90SQ MILES ML

**STEEL AUTHORITY OF INDIA
LIMITED**

**At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)**

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6
Dist.: Keonjhar, Odisha - 758035
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Ref. No. BBL/ENV/3771

Date: 07/02/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.o: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	14.01.2023
Type of Sample:	Drinking Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Location:					Well at Balagoda Basti	Well at Bolani Basti	Filtration Plant Outlet
Sl No.	Test Parameters	Unit	Requirement (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result	Result	Result
1	pH value at 25 °C	---	6.5-8.5	No Relaxation	6.54	7.05	6.95
2	Total Suspended Solid (as TSS)	mg/l	500	2000	3.8	<2.5	<2.5
3	Oil and Grease	mg/l	---	---	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	0.2	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	---	---	3.4	<2.0	<2.0
6	Chemical Oxygen Demand (COD)	mg/l	---	---	12.0	8.0	<4.0
7	Arsenic (as As)	mg/l	0.01	0.05	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	---	---	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5	15	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	0.1	0.3	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	1.0	1.5	0.10	0.17	<0.1
17	Sulfide (S ²⁻)	mg/l	---	---	<0.01	<0.01	<0.01
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	Not Detected	---	Not Detected	Not Detected	Not Detected
20	Total Iron (as Fe)	mg/l	0.3	No Relaxation	0.10	<0.05	<0.05
21	Total Dissolved Solid (as TDS)	mg/l	500	2000	144.0	338.0	20.0

Checked by



For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

A/P.O.: BARBIL Ward No-6
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Ref. No.BBL/ENV/3772

Date: 07/02/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.o: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	14.01.2023
Type of Sample:	Surface Water

CHEMICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Karo near Lease Boundary	Jhikaria before joining Karo	Karo River Intake	Panposh Nala
Sl No.	Test Parameters	Unit		Result	Result	Result	Result
1	pH value at 25 °C	---	5.5-9.0	7.42	7.60	7.62	6.35
2	Total Suspended Solid (as TSS)	mg/l	50/100	3.6	<2.5	3.8	4.5
3	Oil and Grease	mg/l	10	<5.0	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	30	3.4	<2.0	5.1	3.1
6	Chemical Oxygen Demand (COD)	mg/l	250	12.0	8.0	20.0	12.0
7	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	<0.1	<0.1	<0.1	<0.1
17	Dissolved Oxygen (DO)	mg/l	---	6.0	6.3	5.8	6.1
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	1.0	<0.001	<0.001	<0.001	<0.001
19	Nitrate Nitrogen	mg/l	---	0.18	<0.1	0.16	0.17
20	Total Iron (as Fe)	mg/l	3.0	0.21	0.08	0.22	0.23
21	Total Dissolved Solid (as TDS)	mg/l	---	90.0	24.0	92.0	48.0

Checked by:



For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

A/P.O.: BARBIL Ward No-6
Dist.: Keonjhar, Odisha - 758035
CIN: U51909WB1956PTC023037



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Ref. No.BBL/ENV/3773

Date: 07/02/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	14.01.2023
Type of Sample:	Effluent Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Tailing Pond Seepage	Bottom Garage Washing ETP	CBRS GTP
Sl No	Test Parameters	Unit		Result	Result	Result
1	pH value at 25 °C	---	5.5-9.0	7.26	6.59	7.18
2	Total Suspended Solid (as TSS)	mg/l	50/100	24.0	26.5	14.0
3	Oil and Grease	mg/l	10	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	30	3.2	22.0	12.0
6	Chemical Oxygen Demand (COD)	mg/l	250	12.0	74.0	54.0
7	Arsenic(as As)	mg/l	0.2	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	0.25	0.36	0.15
17	Dissolved Oxygen (DO)	mg/l	---	5.7	5.2	5.5
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	1.0	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	100	49.0	<1.8	33.0
20	Total Iron (as Fe)	mg/l	3.0	0.77	2.8	1.5
21	Total Dissolved Solid (as TDS)	mg/l	---	86.0	118.0	230.0

Checked by :



For Mitra S.K. Private Limited

Authorised Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: FEBRUARY- 2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Mitra S. K. Private Limited

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Ref. No. BBI/ENV/3820

Date: 09/03/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.o. Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	06.02.2023
Type of Sample:	Drinking Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Location:					Well at Balagoda Basti	Well at Bolani Basti	Filtration Plant Outlet
Sl No.	Test Parameters	Unit	Requirement (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result	Result	Result
1	pH value at 25 °C	---	6.5-8.5	No Relaxation	6.58	7.05	6.50
2	Total Suspended Solid (as TSS)	mg/l	500	2000	<2.5	<2.5	<2.5
3	Oil and Grease	mg/l	---	---	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	0.2	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	---	---	<2.0	<2.0	<2.0
6	Chemical Oxygen Demand (COD)	mg/l	---	---	<4.0	<4.0	<4.0
7	Arsenic (as As)	mg/l	0.01	0.05	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	---	---	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5	15	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	0.1	0.3	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	1.0	1.5	<0.1	0.15	<0.1
17	Sulfide (S ²⁻)	mg/l	---	---	<0.01	<0.01	<0.01
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	Not Detected	---	Not Detected	Not Detected	Not Detected
20	Total Iron (as Fe)	mg/l	0.3	No Relaxation	0.22	<0.05	<0.05
21	Total Dissolved Solid (as TDS)	mg/l	500	2000	142.0	298.0	22.0

Checked by:



For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

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Ref. No. BBL/ENV/3821

Date: 09/03/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O.: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	06.02.2023
Type of Sample:	Surface Water

CHEMICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Karo near Lease Boundary	Jhikaria before joining Karo	Karo River Intake	Panposh Nala
Sl No.	Test Parameters	Unit		Result	Result	Result	Result
1	pH value at 25 °C	---	5.5-9.0	7.16	7.29	7.39	6.65
2	Total Suspended Solid (as TSS)	mg/l	50/100	3.6	6.4	4.8	4.2
3	Oil and Grease	mg/l	10	<5.0	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	30	<2.0	<2.0	<2.0	<2.0
6	Chemical Oxygen Demand (COD)	mg/l	250	8.0	<4.0	<4.0	<4.0
7	Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	<0.1	<0.1	<0.1	<0.1
17	Dissolved Oxygen (DO)	mg/l	---	5.4	6.0	5.6	6.7
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	1.0	<0.001	<0.001	<0.001	<0.001
19	Nitrate Nitrogen	mg/l	---	0.16	<0.1	<0.1	0.20
20	Total Iron (as Fe)	mg/l	3.0	0.55	0.48	0.40	0.42
21	Total Dissolved Solid (as TDS)	mg/l	---	124.0	30.0	94.0	54.0

Checked by :



For Mitra S.K. Private Limited

Authorised Signatory

Mitra S. K. Private Limited

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Ref. No.BBL/ENV/3822

Date: 09/03/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	06.02.2023
Type of Sample:	Effluent Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Tailing Pond Seepage	Bottom Garage Washing ETP	CBRS GTP
Sl No	Test Parameters	Unit		Result	Result	Result
1	pH value at 25 °C	---	5.5-9.0	7.45	7.34	7.81
2	Total Suspended Solid (as TSS)	mg/l	50/100	25.0	30.0	14.0
3	Oil and Grease	mg/l	10	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20°C	mg/l	30	3.8	13.0	10.0
6	Chemical Oxygen Demand (COD)	mg/l	250	16.0	56.0	44.0
7	Arsenic(as As)	mg/l	0.2	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	0.30	0.40	0.17
17	Dissolved Oxygen (DO)	mg/l	---	5.4	5.0	5.1
18	Phenolic Compounds (as C6H5OH)	mg/l	1.0	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	100	22.0	17.0	11.0
20	Total Iron (as Fe)	mg/l	3.0	1.2	1.4	1.1
21	Total Dissolved Solid (as TDS)	mg/l	---	96.0	144.0	220.0

Checked by :



For Mitra S.K. Private Limited

Authorised Signatory

ENVIRONMENTAL MONITORING REPORT

MONTH: MARCH-2023

BOLANI ORES MINES

6.90SQ MILES ML

STEEL AUTHORITY OF INDIA
LIMITED

At/P.O: Bolani, Dist.-Keonjhar-758037
(Odisha)

Conducted By:



M/s. MITRA S.K. PRIVATE LIMITED

At/Po - Barbil
Dist : Keonjhar, Odisha
Pin - 758 035.

Mitra S. K. Private Limited

At/P.O: BARBIL Ward No-6
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Ref. No. BBL/ENV/3898

Date: 08/04/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	18.03.2023
Type of Sample:	Drinking Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Location:					Well at Balagoda Basti	Well at Bolani Basti	Filtration Plant Outlet
Sl No.	Test Parameters	Unit	Requirement (Acceptable Limit)	Permissible limit in the absence of alternate Source	Result	Result	Result
1	pH value at 25 °C	---	6.5-8.5	No Relaxation	6.94	7.32	7.13
2	Total Suspended Solid (as TSS)	mg/l	500	2000	<2.5	<2.5	<2.5
3	Oil and Grease	mg/l	---	---	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	0.2	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	---	---	<2.0	<2.0	<2.0
6	Chemical Oxygen Demand (COD)	mg/l	---	---	<4.0	<4.0	<4.0
7	Arsenic (as As)	mg/l	0.01	0.05	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	---	---	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	0.05	1.5	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5	15	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	0.1	0.3	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	1.0	1.5	<0.1	0.15	<0.1
17	Sulfide (S ²⁻)	mg/l	---	---	<0.01	<0.01	<0.01
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	Not Detected	---	Not Detected	Not Detected	Not Detected
20	Total Iron (as Fe)	mg/l	0.3	No Relaxation	0.16	<0.05	<0.05
21	Total Dissolved Solid (as TDS)	mg/l	500	2000	138.0	284.0	26.0

Checked by:

For Mitra S.K. Private Limited

Authorised Signatory



Mitra S. K. Private Limited

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Ref. No.BBL/ENV/3899

Date: 08/04/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	18.03.2023
Type of Sample:	Surface Water

CHEMICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Karo near Lease Boundary	Jhikaria before joining Karo	Karo River Intake	Panposh Nala
Sl No.	Test Parameters	Unit		Result	Result	Result	Result
1	pH value at 25 °C	---	5.5-9.0	7.62	7.69	7.71	7.49
2	Total Suspended Solid (as TSS)	mg/l	50/100	<2.5	3.2	2.7	2.6
3	Oil and Grease	mg/l	10	<5.0	<5.0	<5.0	<5.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	30	<2.0	<2.0	<2.0	<2.0
6	Chemical Oxygen Demand (COD)	mg/l	250	<4.0	<4.0	<4.0	<4.0
7	Arsenic(as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	<0.1	<0.1	<0.1	<0.1
17	Dissolved Oxygen (DO)	mg/l	---	5.5	6.2	5.6	6.0
18	Phenolic Compounds (as C6H5OH)	mg/l	1.0	<0.001	<0.001	<0.001	<0.001
19	Nitrate Nitrogen	mg/l	---	<0.5	<0.5	<0.5	<0.5
20	Total Iron (as Fe)	mg/l	3.0	0.15	0.19	0.30	0.25
21	Total Dissolved Solid (as TDS)	mg/l	---	104.0	22.0	96.0	38.0

Checked by:

For Mitra S.K. Private Limited

Authorised Signatory



Mitra S. K. Private Limited

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Ref. No.BBL/ENV/3900

Date: 08/04/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.O: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	06.02.2023
Type of Sample:	Effluent Water

CHEMICAL & MICRO BIOLOGICAL ANALYSIS OF WATER

Location:			Limit as per CPCB Inland Surface water	Tailing Pond Seepage Result	Bottom Garage Washing ETP Result	CBRS GTP Result
Sl No	Test Parameters	Unit				
1	pH value at 25 °C	---	5.5-9.0	7.50	7.34	7.26
2	Total Suspended Solid (as TSS)	mg/l	50/100	28.0	70.0	58.0
3	Oil and Grease	mg/l	10	<5.0	8.0	6.0
4	Free Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1
5	Biochemical Oxygen Demand (as BOD) 5 days at 20 °C	mg/l	30	<2.0	27.0	18.0
6	Chemical Oxygen Demand (COD)	mg/l	250	8.0	120.0	72.0
7	Arsenic(as As)	mg/l	0.2	<0.01	<0.01	<0.01
8	Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001
9	Lead (as Pb)	mg/l	0.1	<0.005	<0.005	<0.005
10	Cadmium (as Cd)	mg/l	2.0	<0.001	<0.001	<0.001
11	Hexavalent Chromium (as Cr+6)	mg/l	0.1	<0.01	<0.01	<0.01
12	Copper (as Cu)	mg/l	3.0	<0.02	<0.02	<0.02
13	Zinc (as Zn)	mg/l	5.0	<0.02	<0.02	<0.02
14	Manganese (as Mn)	mg/l	2.0	<0.02	<0.02	<0.02
15	Cyanide (as CN)	mg/l	0.2	<0.01	<0.01	<0.01
16	Fluoride (as F)	mg/l	2.0	0.31	<0.1	<0.1
17	Dissolved Oxygen (DO)	mg/l	---	6.2	5.5	5.9
18	Phenolic Compounds (as C6H5OH)	mg/l	1.0	<0.001	<0.001	<0.001
19	Fecal Coliform	MPN/10	100	90.0	6.0	80.0
20	Total Iron (as Fe)	mg/l	3.0	0.31	<0.05	<0.05
21	Total Dissolved Solid (as TDS)	mg/l	---	122.0	264.0	158.0

Checked by:

For Mitra S.K. Private Limited

Authorised Signatory



CENTRAL LABORATORY
STATE POLLUTION CONTROL BOARD, ODISHA

Plot No. B-59/2 & 59/3, Chandaka Industrial Estate, Patia,

Bhubaneswar - 751 024

E-mail: centrallab@ospeboard.org

TEST REPORT

Page 1 of 2

1. ULR No. : -----
- 2 (i) Report No. : OS/324/06/2023 2(ii) Amendment No : ---
- 3 (i) Date : 23.06.2023 3(ii) Amendment Date : ---
4. Sample Submitted By : Mr. Bhabagrahi Jena, SSA
(Name and address) Central Laboratory, SPCB, Odisha, Patia, Bhubaneswar
5. Reference Letter No. : (i) This office letter No.7052 VISC (LEM) 07/2023-24 dt.03.05.2023
(ii) Your letter No. CGM/B-2462 dt.20.03.2023
6. Date of sample receipt : 29.05.2023
7. Sample Description :
- | | | |
|--|---|--|
| (i) Discipline : Chemical Testing
and Biological Testing
(Biological Testing,
Chemical testing) | (ii) Group : Pollution and Environment

(Water/ Pollution and Environment
/ Atmospheric Pollution/ Soil and
Hazardous Waste) | (iii) Sub Group : Wastewater

(Surface water/ Ground water/ Wastewater
Effluent/ Ambient Air/ Stack/ Soil and
Hazardous Waste) |
|--|---|--|
8. Analysis Starting Date-Analysis Completion Date : 29.05 2023 – 21.06 2023
9. If uncertainty is desired by Customer : No
10. Analysis Results :
(Attach separate sheet if necessary)

Sl. No.	Parameter, Unit	Standards/ Regulatory Limits *	Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL
				Others/ May -23/ WW /696
				CBRS/ Mechanical ETP
				Results
1.	pH	5.5-9.0	4500-H ⁺ -B, APHA, 23 rd Edn., 2017	6.5
2.	Total Suspended Solids (TSS), mg/L	100, max	2540 D, APHA, 23 rd Edn., 2017	12.0
3.	Biochemical Oxygen Demand (BOD), mg/L	30, max	IS 3025. Part 44 (1999)	10.0
4.	Chemical Oxygen Demand (COD), mg/L	250, max	5220 B APHA, 23 rd Edn., 2017	38.0
5.	Residual Chlorine (R. Cl), mg/L	1.0, max	4500-Cl B, APHA, 23 rd Edn., 2017	ND
6.	Nitrate as N (NO ₃ ⁻ -N), mg/L	10.0	4500 - NO ₃ ⁻ -B, APHA, 23 rd Edn., 2017	1.199
7.	Nitrate (NO ₃ ⁻), mg/L	-	4500 - NO ₃ ⁻ -B, APHA, 23 rd Edn., 2017	5.309
8.	Sulphide (S ²⁻), mg/L	2.0	4500-S ²⁻ -F, APHA, 23 rd Edn., 2017	3.2
9.	Sulphide (as H ₂ S), mg/L	-	4500-S ²⁻ -F, APHA, 23 rd Edn., 2017	3.402
10.	Phenolic compound as Phenol (mg/L)	1.0, max	5530 B followed by C or D, APHA, 23 rd Edn., 2017	<0.001
11.	Cyanide (mg/L)	0.2, max	4500-CN ⁻ -C & 4500-CN ⁻ -F, APHA, 23 rd Edn., 2017	0.011
12.	Fluoride (F ⁻) mg/L	2, max	4500-F-C, APHA, 23 rd Edn., 2017	0.34
13.	Hexavalent Chromium (Cr ⁺⁶), mg/L	0.1, max	3500-Cr-B, APHA, 23 rd Edn., 2017	0.004
14.	Oil & Grease, mg/L	10, max	5520 B, APHA, 23 rd Edn., 2017	2.6

(Cont.)

Sl. No	Parameter, Unit	Standards/Regulatory Limits *	Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL
				Others/ May -23/ WW /696
				CBRS/ Mechanical ETP
				Results
15.	Cadmium (Cd), mg/L	2.0, max	3111 A, APHA, 23 rd Edn, 2017	0.0014
16.	Copper (Cu), mg/L	3.0, max		0.005
17.	Lead (Pb), mg/L	0.1, max		0.027
18.	Nickel (Ni), mg/L	3.0, max		0.016
19.	Zinc (Zn), mg/L	5.0, max		0.284
20.	Manganese (Mn), mg/L	2		0.193
21.	Total Iron (Fe), mg/L	3		1.462
22.	Mercury (Hg), mg/L	0.01, max	3112 B APHA, 23 rd Edn, 2017	0.00092
23.	Total Coliform (TC), MPN/100 ml	-	9221-B APHA, 23 rd Edn, 2017	<1.8
24.	Fecal Coliform (FC), MPN/100 ml	-	9221-E, APHA, 23 rd Edn, 2017	<1.8

* General standards for discharge of Environmental Pollutants. Schedule -VI (G.S.R. 422(E) dated 19.05.1993

11. Deviation from Test Method, if any :

12. If Sampling Conducted by the Central Laboratory, Yes/ No. - Yes
If Yes,

(a) Date of Sampling : 25.05.2023 & 26.05.2023 (b) Method Used* : Grab sampling (1060 B APHA, 23rd Edn., 2017)

(c) Name of Sampler with Designation : Mr. Bhabagrahi Jena, SSA

-----End of Test Report-----

Nishiprava
23/06/2023

Authorised Signatory
(Biological)

(Mrs. Nishiprava Pattanaik, SSA)

Usharani
23.6.2023

Authorised Signatory
(Water/wastewater)

(Dr.(Mrs)Usharani Patnaik, Addl. Chief Env. Scientist)

N. Mallick
23/6

Board Analyst

(Mr. Niranjana Mallick, Chief Env. Scientist)

Note :

(i) The results stated above relate only to the items tested

(ii) This report shall not be reproduced in full or in part without written approval from the In-charge of the Central Laboratory.

(iii) The laboratory is not responsible for the authenticity of photocopied Test Reports

(iv) The Test Item will not be retained for more than 15 days from the date of issue of Test Report except in case as required by applicable Regulation

Head Office: State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar - 751 012, FAX : 2562822/2560955
TEL : 2564033/2563294 EPABX : 2561909/2562847, E-mail : paribesh1@ospboard.org Website : www.ospboard.org



CENTRAL LABORATORY STATE POLLUTION CONTROL BOARD, ODISHA

Plot No. B-59/2 & 59/3, Chandaka Industrial Estate, Patia,
Bhubaneswar - 751 024

E-mail: centrallab@ospcbboard.org

TEST REPORT

Page 1 of 2

1. ULR No. : -----
- 2 (i) Report No. : OS/325/06/2023
- 3 (i) Date : 23.06.2023
- 2(ii). Amendment No : ---
- 3(ii). Amendment Date : ---
4. Sample Submitted By : Mr. Bhabagrahi Jena, SSA
(Name and address) Central Laboratory, SPCB, Odisha, Patia, Bhubaneswar
5. Reference Letter No. : (i) This office letter No 7052 VISC (LEM) 07/2023-24 dt 03.05.2023
(ii) Your letter No. CGM/B-2462 dt 20.03.2023
6. Date of sample receipt : 29.05.2023

7. Sample Description :

(i) Discipline : Chemical Testing
and Biological Testing
(Biological Testing,
Chemical testing)

(ii) Group : Water

(Water/ Pollution and Environment
/ Atmospheric Pollution/ Soil and
Hazardous Waste)

(iii) Sub Group : Ground water

(Surface water/ Ground water/ Wastewater
Effluent/ Ambient Air/ Stack/ Soil and
Hazardous Waste)

8. Analysis Starting Date-Analysis Completion Date : 29.05.2023 – 21.06.2023
9. If uncertainty is desired by Customer : No

10. Analysis Results :

(Attach separate sheet if necessary)

Sl. No.	Parameter, Unit	Standards/ Regulatory Limits *		Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL					
		Requirement (Acceptable limit)	Permissible limit in the absence of alternate source		Others/ May -23/ GW/697	Others/ May -23/ GW/698	Others/ May -23/ GW/699	Others/ May -23/ GW/700	Others/ May -23/ GW/ 701	Others/ May -23/ GW/702
					Bolani village well	Gouda Basti well	Balagoda village well	Tap water of Mount club	Tap water of Karo Guest House	Outlet of water treatment plant
1.	pH	6.5-8.5	No relaxation	4500-H ⁺ -B, APHA, 23 rd Edn., 2017	5.9	6.6	6.4	6.4	6.2	6.3
2.	Total Suspended Solids (TSS), mg/L	-	-	2540 D, APHA, 23 rd Edn., 2017	28.0	17.0	11.0	11.0	<10.0	<10.0
3.	Biochemical Oxygen Demand (BOD), mg/L	-	-	IS 3025 Part 44 (1999)	1.2	<1.0	<1.0	1.1	<1.0	<1.0
4.	Chemical Oxygen Demand (COD), mg/L	-	-	5220 B APHA, 23 rd Edn., 2017	7.5	7.5	7.5	7.5	7.5	7.5
5.	Residual Chlorine (R. Cl), mg/L	0.2, min	1.0, min	4500-Cl B, APHA, 23 rd Edn., 2017	ND	ND	ND	ND	ND	ND
6.	Nitrate as N (NO ₃ ⁻ -N), mg/L	-	-	4500 - NO ₃ ⁻ -B, APHA, 23 rd Edn., 2017	0.566	2.816	1.054	0.957	0.358	0.379
7.	Nitrate (NO ₃ ⁻), mg/L	45, max	No relaxation	4500 - NO ₃ ⁻ -B, APHA, 23 rd Edn., 2017	2.507	12.471	4.668	4.238	1.585	1.678
8.	Phenolic compound as Phenol (mg/L)	0.001, max	0.002, max	5530 B followed by C or D, APHA, 23 rd Edn., 2017	0.02	<0.001	0.015	0.011	<0.001	0.014
9.	Cyanide (mg/L)	0.05, max	No relaxation	4500-CN ⁻ -C & 4500-CN ⁻ -F, APHA, 23 rd Edn., 2017	0.006	0.007	0.005	0.006	0.004	0.003

Sl No	Parameter, Unit	Standards/ Regulatory Limits *		Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL					
					Others/ May -23/ GW /697	Others/ May -23/ GW /698	Others/ May -23/ GW /699	Others/ May -23/ GW /700	Others/ May -23/ GW /701	Others/ May -23/ GW /702
		Requirement (Acceptable limit)	Permissible limit in the absence of alternate source		Bolani village well	Gouda Basti well	Balagoda village well	Tap water of Mount club	Tap water of Karo Guest House	Outlet of water treatment plant
Results										
10	Sulphide (S ²⁻), mg/L	-	-	4500-S ⁺ -F, APHA, 23 rd Edn., 2017	1.6	1.6	1.6	1.6	3.2	3.2
11	Sulphide (as H ₂ S), mg/L	0.05	No relaxation	4500-S ⁺ -F, APHA, 23 rd Edn., 2017	1.701	1.701	1.701	1.701	3.402	3.402
12	Fluoride (F ⁻) mg/L	1.0, max	1.5, max	4500-F-C, APHA, 23 rd Edn., 2017	0.35	0.36	0.31	0.27	0.26	0.27
13	Hexavalent Chromium (Cr ⁶⁺), mg/L	-	-	3500-Cr-B, APHA, 23 rd Edn., 2017	0.005	0.003	0.006	0.005	0.004	0.006
14	Oil & Grease, mg/L	-	-	5520 B, APHA, 23 rd Edn., 2017	0.4	<0.3	<0.3	<0.3	<0.3	<0.3
15	Cadmium (Cd), mg/L	0.003, max	No relaxation	3111 A, APHA, 23 rd Edn., 2017	<0.0005	0.0012	0.0009	<0.0005	0.0008	0.0005
16	Copper (Cu), mg/L	0.05, max	1.5		0.002	0.002	0.001	0.006	0.011	0.001
17	Lead (Pb), mg/L	0.01, max	No relaxation		0.024	0.009	0.011	0.011	0.005	0.006
18	Nickel (Ni), mg/L	0.02, max	No relaxation		0.007	0.013	0.010	0.013	0.006	0.012
19	Zinc (Zn), mg/L	5, max	15, max		0.004	0.016	0.006	0.0095	0.083	0.005
20	Manganese (Mn), mg/L	0.1, max	0.3, max		0.006	0.024	0.018	0.034	0.005	0.025
21	Total Iron (Fe), mg/L	1.0, max	No relaxation		0.166	0.428	0.205	0.703	0.366	0.224
22	Mercury (Hg), mg/L	0.001, max	No relaxation	3112 B, APHA, 23 rd Edn., 2017	0.00077	0.00108	0.00123	0.00385	0.00046	0.00216
23	Total Coliform (TC), MPN/100 ml	Shall not be detectable in any 100 ml sample		9221-B, APHA, 23 rd Edn., 2017	920	170	1600	94	<1.8	13
24	Fecal Coliform (FC), MPN/100 ml			9221-E, APHA, 23 rd Edn., 2017	33	79	920	13	<1.8	13

* Drinking water specification, IS 10500: 2012 & its Amendments

11 Deviation from Test Method, if any

12 If Sampling Conducted by the Central Laboratory, Yes/ No - Yes
If Yes,

(a) Date of Sampling : 25.05.2023 & 26.05.2023 (b) Method Used* : Grab sampling (1060 B APHA, 23rd Edn., 2017)

(c) Name of Sampler with Designation : Mr. Bhabagrahi Jena, SSA

-----End of Test Report-----

Pattanaik
22/06/2023
Authorised Signatory
(Biological)

Usharani
23/6/2023
Authorised Signatory
(Water/wastewater)

N. Mallick
23/6
Board Analyst
(Mr. Niranjana Mallick, Chief Env. Scientist)

(Mrs. Nishiprava Pattanaik, SSA) (Dr. (Mrs) Usharani Patnaik, Addl. Chief Env. Scientist)

Note :
1. The results stated above relate only to the items tested.
2. This report shall not be reproduced in full or in part without written approval from the In-charge of the Central Laboratory.
3. The Laboratory is not responsible for the authenticity of photocopied Test Reports.
4. The Test Item will not be retained for more than 15 days from the date of issue of Test Report except in case as required by applicable Regulation.
Head Office : Odisha Pollution Control Board, Odisha, Pambesh Bhawan, A-118, Nilakanthanagar, Unit-VIII, Bhubaneswar - 751 012, FAX : 2562822/2560955
Tel : 2562822-2561999-2562847. E-mail : pambesh1@ospcb.org Website : www.ospcb.org



CENTRAL LABORATORY STATE POLLUTION CONTROL BOARD, ODISHA

Plot No. B-59/2 & 59/3, Chandaka Industrial Estate, Patia,

Bhubaneswar - 751 024

E-mail: centrallab@spcb.ori

TEST REPORT

- 1 ULR No : _____
- 2 (i) Report No : OS/326/06/2023 2(ii) Amendment No _____
- 3 (i) Date : 23 06 2023 3(ii) Amendment Date _____
- 4 Sample Submitted By : Mr. Bhabagrahi Jena, SSA
(Name and address) Central Laboratory, SPCB, Odisha, Patia, Bhubaneswar
- 5 Reference Letter No : (i) This office letter No 7052 VISC (LEM) 07/2023 dt 03.05.2023
(ii) Your letter No. CGM/B-2462 dt 20.03.2023
- 6 Date of sample receipt : 29.05.2023
- 7 Sample Description

(i) Discipline : Chemical Testing
and Biological Testing
(Biological Testing,
Chemical testing)

(ii) Group : Water

(Water/ Pollution and Environment
/ Atmospheric Pollution/ Soil and
Hazardous Waste)

(iii) Sub Group : Surface water

(Surface water/ Ground water/ Wastewater
Effluent/ Ambient Air/ Stack/ Soil and
Hazardous Waste)

8. Analysis Starting Date-Analysis Completion Date : 29 05 2023 – 21 06 2023

9 If uncertainty is desired by Customer : No

10. Analysis Results :

(Attach separate sheet if necessary)

Sl. No.	Parameter, Unit	Standards/ Regulatory Limits			Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL			
		IS : 2296 -1982 class B *	G.S.R. 742 (E) dt.25.9.2000 **	IS : 2296 -1982 class C ***		Others/ May -23/ SW/703 Jhinkana Nallah	Others/ May -23/ SW/704 U/s of Karo river	Others/ May -23/ SW/706 Panposh Nallah	Others/ May -23/ SW/707 D/s of Karo river
1.	pH	6.5-8.5	6.5-8.5	6.5-8.5	4500-IT ¹ -B, APHA, 23 rd Edn., 2017	6.2	6.5	6.1	6.5
2.	Total Suspended Solids (TSS), mg/L	-	-	-	2540 D, APHA, 23 rd Edn., 2017	23.0	22.0	12.0	13.0
3.	Biochemical Oxygen Demand (BOD), mg/L	3,max	3 mg/L or less	3, max	IS 3025 -Part-41 (1999)	1.1	1.2	1.1	1.1
4.	Chemical Oxygen Demand (COD), mg/L	-	-	-	5220 B APHA, 23 rd Edn., 2017	11.0	7.5	7.5	7.5
5.	Residual Chlorine (R. Cl), mg/L	-	-	-	4500-Cl ¹ B APHA, 23 rd Edn., 2017	ND	ND	ND	ND
6.	Nitrate as N (NO ₃ -N), mg/L	-	-	-	4500 -NO ₃ -B, APHA, 23 rd Edn., 2017	0.320	<0.3	0.594	0.356
7.	Nitrate (NO ₃), mg/L	-	-	50, max	4500 -NO ₃ -B APHA, 23 rd Edn., 2017	1.417	<1.329	2.631	1.577
8.	Sulphide (S ²⁻), mg/L	-	-	-	4500-S ²⁻ -F, APHA, 23 rd Edn., 2017	3.2	ND	1.6	1.6
9.	Sulphide (as H ₂ S), mg/L	-	-	-	4500-S ²⁻ -F, APHA, 23 rd Edn., 2017	3.402	ND	1.701	1.701
10.	Phenolic compound as Phenol, mg/L	0.005, max	-	0.005, max	5530 B followed by C or D, APHA, 23 rd Edn., 2017	<0.001	<0.001	<0.001	<0.001
11.	Cyanide, mg/L	0.05, max	-	0.05, max	4500-CN -C & 4500-CN -F, APHA, 23 rd Edn., 2017	0.005	0.004	0.005	0.003
12.	Fluoride (F ⁻) mg/L	1.5, max	-	1.5, max	4500-F -C, APHA, 23 rd Edn., 2017	0.27	0.26	0.34	0.36
13.	Hexavalent Chromium (Cr ⁶⁺), mg/L	0.05, max	-	0.05, max	4500-Cr-B APHA, 23 rd Edn., 2017	0.003	0.005	0.006	0.003
14.	Oil & Grease, mg/L	-	-	0.1, max	5520 B APHA, 23 rd Edn., 2017	2.2	0.8	3.0	2.6

Sl No	Parameter, Unit	Standards/ Regulatory Limits			Test Method	In and around of Bolani Iron Ore Mines of M/s SAIL			
		IS : 2296 - 1982 class B *	G.S.R. 742 (E) dt.25.09.2000 **	IS : 2296 - 1982 class C ***		Others/ May - 23/ SW /703	Others/ May -23/ SW /704	Others/ May -23/ SW /705	Others/ May -23/ SW /707
						Jhinkira Nallah	U/s of Karo river	Panposh Nallah	D/s of Karo river
						Results			
15	Cadmium (Cd), mg/L	-	-	0.01, max	3111 A, APHA, 23 rd Edn., 2017	<0.0005	<0.0005	<0.0005	0.0014
16	Copper (Cu), mg/L	-	-	1.5, max		0.002	0.003	0.003	0.004
17	Lead (Pb), mg/L	-	-	0.1, max		0.009	0.017	0.013	0.015
18	Nickel (Ni), mg/L	-	-	-		0.006	0.004	0.006	0.009
19	Zinc (Zn), mg/L	-	-	15, max		0.001	0.003	0.001	0.015
20	Manganese (Mn), mg/L	-	-	-		0.008	0.025	0.006	0.764
21	Total Iron (Fe), mg/L	-	-	50, max	3112 B, APHA, 23 rd Edn., 2017	0.239	0.251	0.324	0.618
22	Mercury (Hg), mg/L	-	-	-		0.00139	0.00092	0.00062	0.00062
23	Total Coliform (TC), MPN/100 ml	500, max	-	5000, max		330	790	330	1300
24	Fecal Coliform (FC), MPN/100 ml	-	500 (Desirable) 2500 (max. Permissible)	-		78	130	130	330

* Tolerance limit for inland surface water subject to pollution (IS : 2296-1982), for Class B)

** Primary water quality criteria for bathing water, G.S.R. 742 (E) dt.25.09.2000

*** Tolerance limit for inland surface water subject to pollution (IS : 2296-1982), for Class C)

11. Deviation from Test Method, if any :

12. If Sampling Conducted by the Central Laboratory. Yes/ No - Yes
If Yes,

(a) Date of Sampling : 25.05.2023 & 26.05.2023 (b) Method Used* : Grab sampling (1060 B APHA, 23rd Edn., 2017)

(c) Name of Sampler with Designation : Mr. Bhabagrahi Jena, SSA

-----End of Test Report-----

Nishiprava Pattanaik
23/06/2023
Authorised Signatory
(Biological)

(Mrs. Nishiprava Pattanaik, SSA)

Usharani Patnaik
23.6.2023
Authorised Signatory
(Water/wastewater)

(Dr. (Mrs) Usharani Patnaik, Addl. Chief Env. Scientist)

N. Niranjan Mallick
23/6
Board Analyst
(Mr. Niranjan Mallick, Chief Env. Scientist)

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Head Office: State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar - 751 012, FAX : 2562822/2560955
TEL : 2564033/2563294 EPABX : 2561909/2562847, E-mail : paribesh1@ospboard.org; Website : www.ospboard.org

ANNEXURE - I(D)
NOISE MONITORING DATA

NOISE MONITORING REPORT

MONTH OF JUNE- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	54.5
2	Karo Guest House	59.1
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	63.9
2	G-Area Mine pit	60.8
3	Panposh Quarry	69.6
4	D-Area Mine Pit	67.3
5*	Near Feed Hopper , F-area	76.9
6*	Secondary Crusher room	73.6
7*	Washing Plant	73.1
8	Loading Plant	67.4
9*	Inside operator's Cabin Drill Machine(in running condition)	74.9
10*	Inside operator's Cabin of running Dumper with Load	78.0
11*	Inside engine Testing Room during Engine Testing	80.2

*Noise Exposure less than - 8 hours

NOISE MONITORING REPORT

MONTH OF MAY- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	54.9
2	Karo Guest House	51.2
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	68.2
2	G-Area Mine pit	62.4
3	Panposh Quarry	66.8
4	D-Area Mine Pit	61.5
5*	Near Feed Hopper , F-area	75.4
6*	Secondary Crusher room	74.8
7*	Washing Plant	79.9
8	Loading Plant	68.5
9*	Inside operator's Cabin Drill Machine(in running condition)	80.5
10*	Inside operator's Cabin of running Dumper with Load	64.7
11*	Inside engine Testing Room during Engine Testing	79.4

*Noise Exposure less than - 8 hours

NOISE MONITORING REPORT

MONTH OF APRIL- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	55.0
2	Karo Guest House	49.6
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	64.8
2	G-Area Mine pit	66.7
3	Panposh Quarry	70.6
4	D-Area Mine Pit	69.4
5*	Near Feed Hopper , F-area	74.9
6*	Secondary Crusher room	71.8
7*	Washing Plant	70.7
8	Loading Plant	69.9
9*	Inside operator's Cabin Drill Machine(in running condition)	80.0
10*	Inside operator's Cabin of running Dumper with Load	76.9
11*	Inside engine Testing Room during Engine Testing	70.4

*Noise Exposure less than - 8 hours

NOISE MONITORING REPORT

MONTH OF MARCH- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	54.2
2	Karo Guest House	52.1
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	69.5
2	G-Area Mine pit	62.8
3	Panposh Quarry	71.2
4	D-Area Mine Pit	68.5
5*	Near Feed Hopper , F-area	74.5
6*	Secondary Crusher room	72.1
7*	Washing Plant	77.4
8	Loading Plant	70.6
9*	Inside operator's Cabin Drill Machine(in running condition)	79.5
10*	Inside operator's Cabin of running Dumper with Load	69.4
11*	Inside engine Testing Room during Engine Testing	78.8

*Noise Exposure less than - 8 hours

NOISE MONITORING REPORT

MONTH OF FEBRUARY- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	51
2	Karo Guest House	56
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	69.4
2	G-Area Mine pit	64.8
3	Panposh Quarry	69.7
4	D-Area Mine Pit	74.5
5*	Near Feed Hopper , F-area	79.3
6*	Secondary Crusher room	74.2
7*	Washing Plant	78.7
8	Loading Plant	79.4
9*	Inside operator's Cabin Drill Machine(in running condition)	77.7
10*	Inside operator's Cabin of running Dumper with Load	72.1
11*	Inside engine Testing Room during Engine Testing	80.6

*Noise Exposure less than - 8 hours

NOISE MONITORING REPORT

MONTH OF JANUARY- 2023

Sl No	Location	Noise Level 1 hr Leq in dB(A)
A	AMBIENT NOISE LEVEL	
1	Bolani Township	52
2	Karo Guest House	54
B	WORK ZONE NOISE LEVEL	
1	F- Area Mine Pit	70.0
2	G-Area Mine pit	68.2
3	Panposh Quarry	63.4
4	D-Area Mine Pit	74.2
5*	Near Feed Hopper , F-area	76.5
6*	Secondary Crusher room	70.2
7*	Washing Plant	78.9
8	Loading Plant	75.3
9*	Inside operator's Cabin Drill Machine(in running condition)	80.4
10*	Inside operator's Cabin of running Dumper with Load	74.4
11*	Inside engine Testing Room during Engine Testing	78.1

*Noise Exposure less than - 8 hours

ANNEXURE - I(E)
BIO-ASSAY TEST

Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6
Dist.: Keonjhar, Odisha - 758035
CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269
E : barbil@mitrask.co.in
W : www.mitrask.com



Ref. No. BBL/ENV/3902

Date: 31/03/2023

ANALYSIS REPORT OF WATER

Name of Client:	Steel Authority of India Ltd.
Site:	Bolani Ores Mines
Address:	P.o: Bolani, Dist-Keonjhar, Odisha
Date of Sampling:	18.03.2023
Type of Sample:	Surface Water

Sampling Location:				Karo River	Jhikaria Nala
Sl. No.	Test Parameters	Unite	Max. Tolerance Limit as per IS: 2490 and CPCB	Result	Result
01	Bio-assay	---	90% survival in 100% effluent	90% survival in 100% effluent	90% survival in 100% effluent

Checked by:-



For Mitra S. K. Private Limited

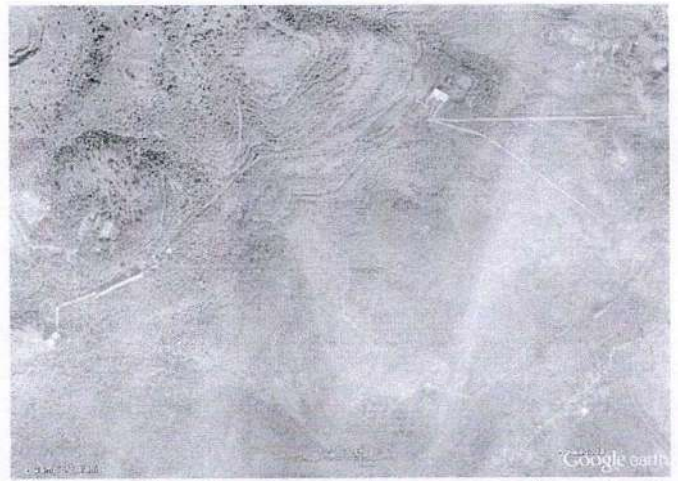
Authorized Signatory

ANNEXURE - II

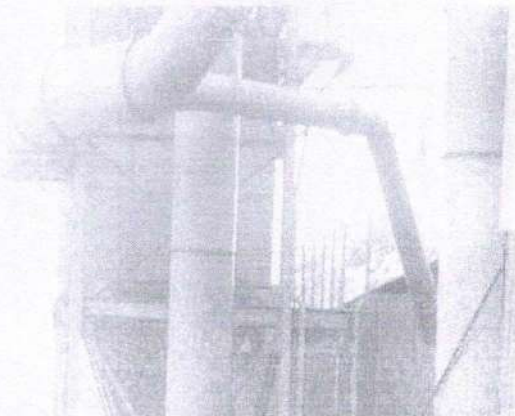
Annexure-II
PHOTOGRAPHS SHOWING MITIGATION MEASURES FOR COPNTROL OF
RESPIRABLE SUSPENDED PARTICULATE MATTERS (RSPM)



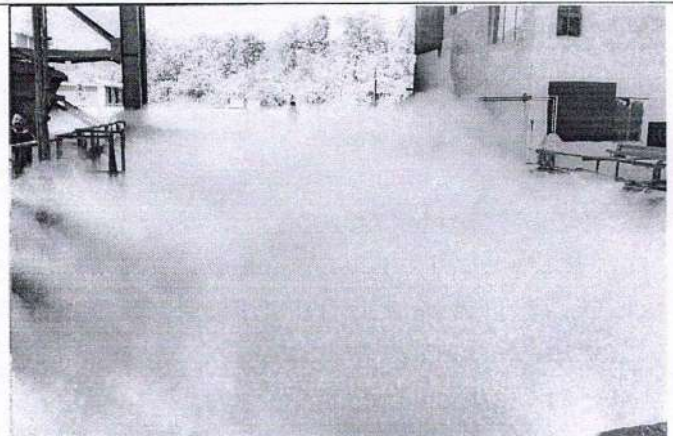
Photograph showing Covered conveyors from feed hopper at Hill top



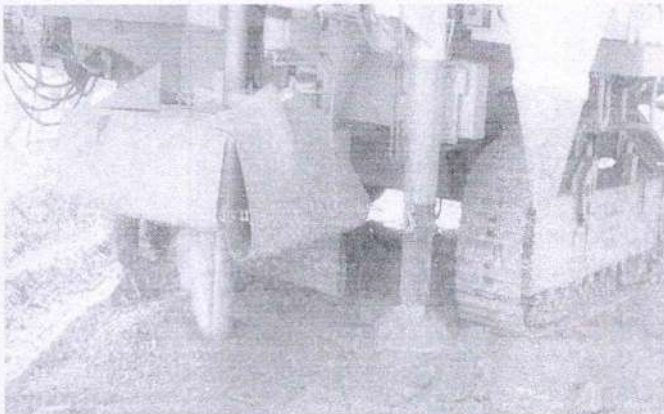
Imagery showing Covered conveyors from feed hopper at Hill top till Despatch Point



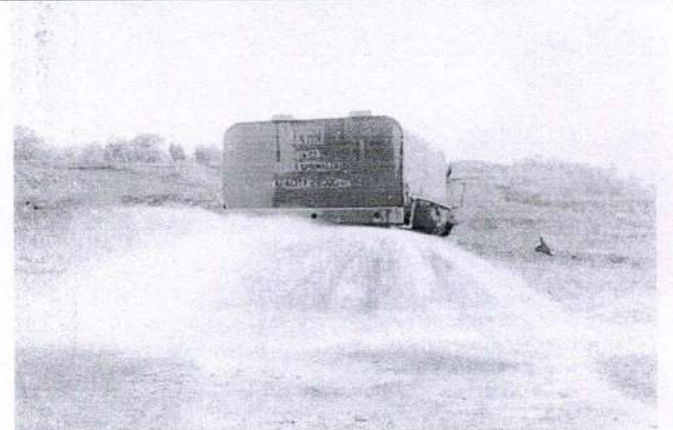
Photograph showing Bag House installed at secondary Crushing Point



Photograph showing Dry Fog Dust suppression System installed at Feed Hopper at Hill Top Plant



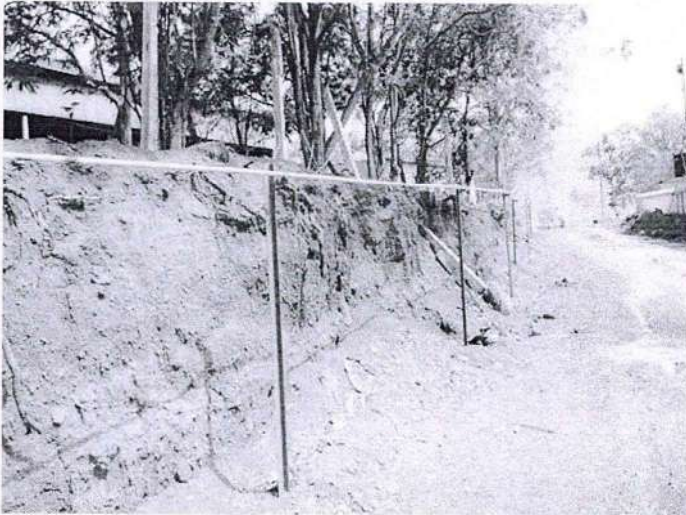
Photograph showing Wet Drilling



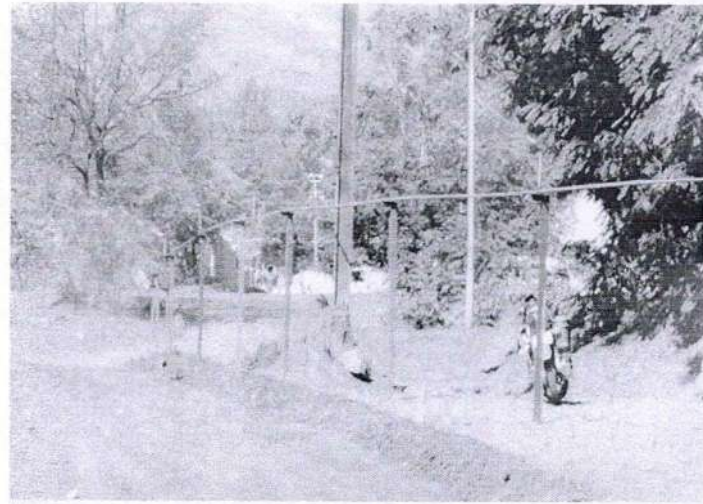
Photograph showing Water sprinkling on Haul Road by 28 KL BEML Water Sprinkler

Annexure-II
PHOTOGRAPHS SHOWING MITIGATION MEASURES FOR COPNTROL OF
RESPIRABLE SUSPENDED PARTICULATE MATTERS (RSPM)

FOR SUPPRESSION OF FUGITIVE DUST AROUND STOCK PILE AREAS AND HAUL ROAD



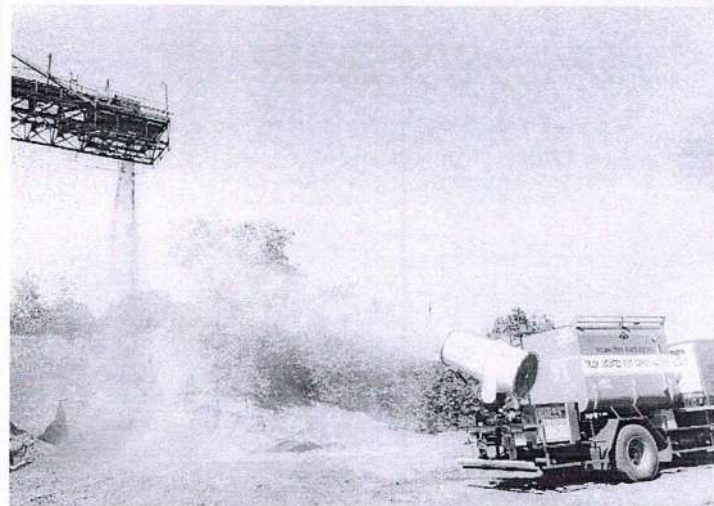
Photograph showing Fixed water sprinkling system on Haul Road from Panposh



Photograph showing water sprinkling system on Haul Road near 600 TPH Plant



Photograph showing Mist generation for suppression of dust at Ore stockpiles



Photograph showing Truck Mounted Mist cannon in operation