स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला इस्पात कारखाना
ROURKELA STEEL PLANT
बरसुआ लौह खादान - टेलडिही लौह खादान
BARSUA IRON MINES - TALDHI IRON MINES
P.O. TENSA - 770042
E-mail : gmofficebim@gmail.com

Ref. No. BIM/E&L/2024-25/132 Date: 30.11.2024

To,
The Director, IA Division,
Ministry of Environment, Forests and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh Road, Aliganj,
New Delhi – 110003

Sub: Six monthly status of compliance of conditions stipulated in Environmental Clearance (Grant Order of MoEF&CC F. No. J-11015/351/2006-IA.II(M), dated 28th April, 2023) for the period ending 30th September, 2024.

Sir,

Please find updated six monthly compliance report with respect to the conditions stipulated in Environmental Clearance of Barsua-Taldih-Kalta Iron Mines of M/s. SAIL for production of 16.0 MTPA ROM and handling of 2.0 MTPA Sub-grade dumps / tailings (Total Excavation: 22.0 MTPA) vide MoEF&CC F. No. J-11015/351/2006-IA.II(M), dated 28th April, 2023 for the period ending 30th September, 2024. The report also contains the updated status of environmental monitoring of air, water and noise pertaining to the period ending 30th September, 2024.

Thanking you,

Yours faithfully,
For SAIL/Barsua-Taldih-Kalta Iron Mines

(Himanshu Mishra)
Chief General Manager (Mines) BIM, TIM & KIM

Encl : As Above

Copy to:

1. The Dy. Director General of Forest (C), MoEF&CC,
   Govt. of India, Regional Office (EZ), A/3 Chandrasekharpur,
   Bhubaneswar-751023 (Odisha)
2. The Regional Director, Central Pollution Control Board,
   G97V+H5Q, Kasba New Market, Sector E,
   East Kolkata Twp, Kolkata, West Bengal – 700 107
3. The Member Secretary, Odisha State Pollution Control Board,
   Paribesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII,
   Bhubaneswar-751012 (Odisha)

Half Yearly Compliance Report
2024
01 Dec(01 Apr - 30 Sep)

Acknowledgement

Proposal Name	Expansion in production from 8.05 MTPA to 16.0 MTPA (ROM) and handling of 2.0 MTPA Sub-grade dumps, tailings and installation of new dry processing plant of 7.0 MTPA for Taldih and 4.0 MTPA for Kalta and augmentation of existing 3.5 MTPA Barsua Beneficiation plant along with adequate loading, siding and associated infrastructure in the amalgamated mine lease area of 2558.581 ha.
Name of Entity / Corporate Office	Barsua-Taldih-Kalta Iron Mines
Village(s)	BAHAMBA
District	SUNDARGARH

Proposal No.	IA-OR-MIN-291173-2021
Plot / Survey / Khasra No.	
State	ODISHA
MoEF File No.	J-11015-351-2006-IA.II(M)

Category	Non-Coal Mining
Sub-District	Lahunipara
Entity's PAN	*****7062F
Entity name as per PAN	STEEL AUTHORITY OF INDIA LTD

Compliance Reporting Details

Reporting Year 2024

Remarks (if any)

Reporting Period 01 Dec(01 Apr - 30 Sep)

Details of Production and Project Area

Name of Entity / Corporate Office Barsua-Taldih-Kalta Iron Mines

	Project Area as per EC Granted	Actual Project Area in Possession
Private	24.014	24.014
Revenue Land	114.696	114.696
Forest	2419.87	2419.87
Others	0	0
Total	2558.58	2558.58

Production Capacity

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Sub-grade, tailings	Million Tons per Annum (MTPA)	31/03/2025	2	0.54	2
2	Iron Ore (ROM)	Million Tons per Annum (MTPA)	31/03/2025	16	7.48	10

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	Corporate Environmental Responsibility	The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs.111.88 Crores. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Integrated Regional Office.

PPs Submission: Agreed to Comply The mitigation measures as proposed under EMP with budgetary provision of Rs.111.88 Crores will be implemented during expansion period and the implementation status of the same will be submitted to the Ministry's Integrated Regional Office.	Date: 01/12/2024

Sr.No.	Condition Type	Condition Details
2	Statutory compliance	This EC will be subject to the outcome of the Writ Petition (C) No-24282-2017 in the Hon'ble High Court of Odisha, Cuttack.

PPs Submission: Agreed to Comply Agreed	Date: 29/11/2024

Sr.No.	Condition Type	Condition Details
3	Statutory compliance	The Environmental Clearance (EC) is accorded for the reduced area of 2558.581 Ha (FC available 2419.871 ha plus non-forest land 138.710 ha) out of 2564.323 ha.

PPs Submission: Complied Agreed. The 5.742 ha of forest land has been surrendered to the Govt. of Odisha vide proceeding no. 10426/S and M, Bhubaneswar, dated 16.10.2023 and amended lease deed for reduced area of 2558.581 ha has been executed on 14.11.2024. Copy of lease deed is enclosed as Annexure - I.	Date: 30/11/2024

Sr.No.	Condition Type	Condition Details
4	Statutory compliance	No mining activity shall be carried out over an area of 5.742 ha (Schedule Tribe and Other Traditional Forest Dwellers).

PPs Submission: Complied Agreed. Amended lease deed for reduced area of 2558.581 ha has been executed on 14.11.2024.	Date: 29/11/2024

Sr.No.	Condition Type	Condition Details
5	Noise Monitoring & Prevention	The Project Proponent shall install the noiseless conveyor. Installation of the conveyor should be completed within two years after obtaining forest clearance of the proposed conveyor route.

PPs Submission: Agreed to Comply Noiseless conveyor will be installed from Kalta Iron Mines to Roxy Siding. Regarding installation	Date:

		of conveyor belt for transportation of ore from Kalta Iron Mines to Roxy Railway Siding, land survey of proposed conveyor route has been completed for technical analysis. The feasibility study report of the expansion schedule of Kalta Iron Mine has been finalized and under process for approval from SAIL's Board of Director. Application for forest clearance of the proposed conveyor route will be submitted after obtaining the approval of Board	29/11/2024
6	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall undertake the stringent air pollution measures to control the air pollution in the vicinity of the mine lease area and the efforts made and the outcome shall be submitted to the Ministry's Integrated Regional Office. The Project Proponent shall ensure that the concentration of the air pollutants does not exceed the prescribed National Ambient Air Quality Standards (NAAQS).	
		PPs Submission: Being Complied Stringent air pollution measures are being implemented to control the air pollution in the vicinity of the mine lease area. The statuses of implementation of environmental safeguards are being submitted to the Ministry's Integrated Regional Office along with six monthly compliance reports. The Air Quality for the period April, 2024 to September, 2024 is enclosed as Annexure - III.	Date: 30/11/2024
7	WATER QUALITY MONITORING AND PRESERVATION	The surface water quality from upstream and downstream are to be regularly monitored.	
		PPs Submission: Being Complied Regular monitoring of water quality of upstream and downstream of the nearby water body i.e. Kuradih Nallah as well as Samaj Nallah are being carried out and record of monitored data is being maintained and submitted to the MoEFCC and its Regional Office located at Bhubaneswar on six monthly basis. The monitoring is being done through an accredited laboratory M/s Superintendence Co. of India (P) Ltd. The surface water quality for the period from April, 2024 to September, 2024 is enclosed as Annexure - IV.	Date: 30/11/2024
8	WATER QUALITY MONITORING AND PRESERVATION	The Project Proponent needs to maintain zero discharge and garland drains, settling ponds needs to be properly designed. Stone pitching shall be made at suitable places to regulate water flow.	
		PPs Submission: Being Complied The surface run-off generated from the mines is channelized through a series of garland drain to the lowest level of the pit for collection of runoff and settlement of suspended solids. Also, wastewater generated from wet beneficiation plant is discharged to the existing tailing pond and the overflow as well as seepage water are being re-used through a 'Zero discharge system'. Check dams / Retaining wall / Toe walls have been provided at appropriate places to regulate water flow.	Date: 29/11/2024
9	MISCELLANEOUS	The Project Proponent needs to facilitate the online education system in the schools by providing Wi-Fi connectivity, smart classrooms and desktops, tablets.	
		PPs Submission: Being Complied Noted	Date: 29/11/2024
10	WATER QUALITY MONITORING AND PRESERVATION	The Project Proponent shall take adequate measures to protect the perennial nallas.	
		PPs Submission: Being Complied Due precautions are being taken and ensured that no natural watercourse / drainage channels obstructed due to any mining operation at the mines. Check dams / Retaining walls / Toe walls have been provided at strategic locations in Barsua-Taldih-Kalta Iron Mines to prevent flow of washout to nearby water bodies. Also, the surface run-off generated from the mine is channelized through a series of garland drains to the lowest level of the pits for collection of runoff and settlement of	Date: 29/11/2024

suspended solids		
11	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent needs to install the permanent water sprinklers along the haul road and the approach road. Further, 10 nos. of fog canon or mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area.
PPs Submission: Being Complied Fixed water sprinklers of about 4 km have been provided in the permanent haul roads of Mining area and about 2 km has been provided in the approach road at Barsua Railway Siding. Presently two numbers of fog cannon have been installed near mobile crushing and screening plant at Kalta and Taldih Block and one number vehicle mounted fog cannon has been provided for the fines handling area. Further, installation of additional 02 numbers is under process at Railway Siding of Kalta Block. The rest 05 numbers will be installed during 16.0 MTPA expansion phase		Date: 29/11/2024
12	PUBLIC HEARING	The budget of Rs. 21.88 Cr to address the concerns raised by the public including in the public hearing to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes.
PPs Submission: Being Complied To address the concerns raised by the public in the public hearing, an amount of Rs. 8.77 Cr has been incurred up to September, 2024. The action plans made to address the concerns raised by the public in the public hearing will be completed within 3 years.		Date: 29/11/2024
13	GREENBELT	The Project Proponent shall ensure the survival rate of 95 Percent for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95 percent survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office. Project proponent shall use saplings of 10 ft height for plantation.
PPs Submission: Being Complied Post plantation maintenance has been made compulsory to ensure the survival rate of 95 percent for planting the gap plantation and new plantation. 18 months old saplings from State Forest Department are being used for plantation		Date: 29/11/2024
14	MISCELLANEOUS	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories or consultants. Any non-compliance or infringement should be reported to the concerned authority.
PPs Submission: Agreed to Comply Presently monitoring is being done through an accredited laboratory M/s Superintendence Co. of India (P) Ltd. Proposal for establishment of in house laboratory is under process.		Date: 01/12/2024
15	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall commence the operation of the conveyor belt within 2 years from the date of issue of this EC, till the conveyor belt is implemented, SPCB shall grant CTO upto 12 MTPA Only (consisting of 4 MTPA from Barsua, 2 MTPA from Taldih and 4 MTPA from Kalta and 2 MTPA subgrade or tailings). After the operational of conveyor belt, SPCB may grant CTO upto 16 MTPA ((4 MTPA from Barsua, 8 MTPA from Taldih and 4 MTPA from

		Kalta) and 2 MTPA subgrade or tailings) based on site inspection of compliance of this conditions.
PPs Submission: Being Complied CTO granted for 12 MTPA capacity on 14.12.2023 with validity up to 31.03.2025		Date: 29/11/2024
16	AIR QUALITY MONITORING AND PRESERVATION	PP shall obtain NOC from Department of Steel and Mines, Odisha for extension of timeline to implement condition conveyor belt for transportation of minerals beyond the stipulated timeline as per guidelines, recommendation of NEERI.
PPs Submission: Complied NOC has been obtained from the Department of Steel and Mines, Odisha vide letter No. DMO-MCIII-MACON-0039-2023-6370-DoMG, dated 06.05.2023 for continuation of existing road transportation of iron ore from Taldih Iron Mines for 2 years and Kalta Iron Mines for 3 years w.e.f. 01.04.2023 in compliance to the recommended SOTM of CSIR-NEERI. Copy of the NOC is enclosed as Annexure - II.		Date: 29/11/2024
17	MISCELLANEOUS	The Project Proponent shall submit a progress report of implementation of the conveyor belt in compliance report of EC vide six monthly reports to the Integrated Regional Office (IRO), Ministry.
PPs Submission: Being Complied Towards installation of conveyor belt for transportation of ore from Taldih Iron Mine to Barsua Valley Siding, Letter of Acceptance (LOA) has been issued to M/s Adani Enterprises Limited vide letter no. 042/RSP/ROU/PROJ/NIT/TIM/22-23/03/1172 dated 27.09.2024 for development and operation of Mines at Taldih. Accordingly, conveyor route has been finalized and process of posting of pillars for obtaining tree felling permission from State Forest Department in line with existing Stage-II forest clearance is under progress. Regarding installation of conveyor belt for transportation of ore from Kalta Iron Mines to Roxy Railway Siding, land survey of proposed conveyor route has been completed for technical analysis. The feasibility study report of the expansion schedule of Kalta Iron Mine has been finalized and under process for approval from SAIL's Board of Director.		Date: 29/11/2024
18	MISCELLANEOUS	The Project Proponent shall also organize employment-based apprenticeship or internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly.
PPs Submission: Being Complied Apprenticeship training program are being provided to enhance the skill with appropriate stipend as per Rules. The data are being maintained to access the outcome of the training.		Date: 29/11/2024
19	LAND RECLAMATION	The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Integrated Regional Office.
PPs Submission: Agreed to Comply Addendum to the existing lease deed has been executed on 04.06.2020 incorporating the condition that "the mining lease holder (s) shall after ceasing mining operation, undertake re-grassing the mining area and any other area which may have disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc." in pursuant to judgment of Hon'ble Supreme Court in WP(C) No.114 of 2014.		Date: 01/12/2024

20	MISCELLANEOUS	The Project Proponent should follow-up the status of implementation on Site Specific Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Integrated Regional Office in the six-monthly compliance reports.

PPs Submission: Being Complied The Site Specific Wildlife Conservation Plans of Barsua-Taldih-Kalta Iron Mines were prepared for an implementation period of 10 years. The implementation of the plan was started from 2016-17 by the State Forest Department. The Site Specific Wildlife Conservation Plans will be revised after completion of implementation	Date: 29/11/2024

21	MINING PLAN	The Project Proponent shall effectively utilize the low grade Iron ore.

PPs Submission: Being Complied The low grade iron ore i.e. mineral rejects are being suitably blended from time to time, wherever possible with high-grade ore and / or feed to the beneficiation plant. In addition to the above, as allowed by Ministry of Mines, Govt. of India in its order dated 16.09.2019 with amendments on 04.01.2020 and 03.12.2020, the low grade ores and tailings lying at mine pit heads of SAIL Mines are being sold in the open market. During the period April, 2024 to September, 2024, 194875.64 Tonnes of tailings and 32146.13 Tonnes of sub-grade fines has been sold in open market.	Date: 29/11/2024

22	WASTE MANAGEMENT	The Project Proponent needs to utilize the mine waste water having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry.

PPs Submission: Being Complied Effluents generated from the ore beneficiation plant of Barsua Iron Mine is being treated in Thickeners and about 60 percent of clear water from the thickener is being recycled back to the system. The underflow from thickener is discharged into Tailing Dam for further solid - liquid separation. The overflow from the tailings pond is further collected in the Zero Discharge System and pumped back to the system for recycling. There is no industrial wastewater being generated at Taldih and Kalta Iron Mines as these mines are operating on dry basis. Further, Oil and Grease trap is provided for the workshop at Barsua-Taldih-Kalta Iron Mines. The treated water is used for floor washing.	Date: 29/11/2024

23	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent needs to complete the work of the concrete road from Kalta mine to NH-520 by September, 2023. No village road shall be used for transportation of minerals.

PPs Submission: Complied No village roads are being used for transportation of minerals. The concrete permanent approach road from Kalta Mine to NH-520 has been completed.	Date: 29/11/2024

24	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.

PPs Submission: Being Complied Compensation is being paid to the farmers of Kalta and Jhirpani as per the rate fixed by District Administration.	Date: 29/11/2024

25	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall take adequate measures to prevent the pilferage of mineral.

PPs Submission: Being Complied The vehicles carrying ore from Taldih as well as Kalta Iron Mine are being covered with tarpaulins to prevent the pilferage of mineral during transportation.	Date: 29/11/2024

26	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall carry out the vacuum cleaning all along the mineral transportation route.
PPs Submission: Being Complied Vacuum cleaning is being done all along the mineral transportation route to prevent accumulations dust and to minimize generation of fugitive dust emissions during plying of heavy vehicles.		Date: 29/11/2024
27	Corporate Environmental Responsibility	The Project Proponent shall explore the possibility of using atleast 20 percentage of electric vehicles or LNG or CNG instead of diesel operation within three years from the start of mining operations.
PPs Submission: Agreed to Comply Possibility of using electric vehicles instead of diesel operation vehicles is under consideration.		Date: 01/12/2024
28	Human Health Environment	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.
PPs Submission: Being Complied A full-fledged Occupational Health Centre (OHC) is run by the mines for regular health surveillance. Initial medical examination (IME) and Periodical Medical Examination (PME) of all workmen working in the mines is being done at OHC once in every five years/three/one year depending on category. During April, 2024 to September, 2024, IME for 186 nos. of contractual employees and PME for 620 nos. of contractual employees and 40 nos. of regular employees have been done and records are being maintained. Medical Health Camp and free Ambulance services in the nearby villages namely Taldih, Tantra, Bahamba, Sasyakala, Kalta, Roxy, Gundichanali etc. are being provided on regular basis. Also, Health Workers in peripheral PHCs are being provided as per requirement		Date: 29/11/2024

General Conditions

Sr.No.	Condition Type	Condition Details
1	LAND RECLAMATION	Land-Soil-Overburden Related: Project Proponent shall implement the following mitigation measures: (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan or scheme). The topsoil should be used for land reclamation and plantation appropriately. (ii) Fodder plots should be developed in the non-mineralized area in lieu of use of grazing land, if any. (iii) Over burden or low grade ore should be stacked at earmarked dump site (s) only and should not be kept active for long period. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc. (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water

		so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil. OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals. (v) Backfilling should be done as per approved mining plan or scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating (vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed of as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual Mine Lease Holders.
PPs Submission: Being Complied (i) Preservation of topsoil: During the developmental stage, it is likely that we may encounter some amount of topsoil. Topsoil will be stored temporarily and will be utilized in afforestation and horticultural activities. (ii) There are no fodder plots in the Amalgamated Barsua-Taldih-Kalta Iron Mines. However, the mining has been planned in such a way that the entire forest land will not be disturbed at a time which will support feeding of the livestock. (iii) OB/ low grade Ore are stacked at earmarked dump sites as per the approved Mining Plan. Dump stability study of Barsua-Taldih-Kalta Iron Mines has been done through NIT, Rourkela and stabilization is under progress as per recommendations. The measures like Geo-textile coir matting, grassing are already being implemented to take care of any erosion and for its stabilization. The plantation is monitored and maintained till it becomes self-sustaining. The records pertaining to plantation - species name, growth, area coverage is maintained at the mine. (iv) Garland drains, Check dams and settling pits have been provided at appropriate places to arrest silt and sediment flows to ensure that only clear water will leave from lease boundary. The structures are regularly de-silted and maintained properly. Garland drains has been constructed for the dumps as per approved mine plan. Settling pits of adequate capacity has been provided. (v) Back filling of the area will be done as per the approved Mining Plan. The afforestation of the dumps will be done accordingly. (vi) Hazardous wastes management is being done as per the provisions of Hazardous Waste management and handling Rules, 2016.		Date: 30/11/2024
2	AIR QUALITY MONITORING AND PRESERVATION	Project Proponent shall monitor the environmental quality parameters as per EC and CTE, CTO conditions, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE, CTO. Regional office of the MoEF and CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable Acts.
PPs Submission: Being Complied Mine is ensuring the strict compliance to monitoring of environmental quality parameters and implementation of air pollution control measures as per EC and CTE/CTO conditions. Amalgamated Barsua-Taldih-Kalta iron mines of SAIL is regularly submitting the half-yearly EC and CTO compliance reports to respective authorities. Amalgamated Barsua-Taldih-Kalta iron mines will continue to furnish the required information and extend all support during the site visits by statutory agencies.		Date: 29/11/2024
3	AIR QUALITY MONITORING AND	Project Proponent shall ensure the compliance of Suggested Ore Transport Mode (SOTM) with association of the State Government of

	PRESERVATION	Odisha. All existing mines should ensure adoption of SOTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years.
PPs Submission: Being Complied Presently the Iron Ore is being transported through closed conveyors from Barsua Iron Mines to Barsua Railway siding and through road from Taldih and Kalta Iron Mines to Barsua and Roxy Railway siding respectively. Under the proposed expansion of these mines to 16 MTPA ROM, the ore from Taldih and Kalta mines shall be processed and conveyed through closed Conveyor belts to the respective railway sidings in compliance to suggested SOTM. However, during the construction phase, Taldih Iron Mine shall continue to transport 2.0 MTPA of iron ore through existing transport road to Barsua Railway Siding and Kalta Iron Mines shall continue to transport 4.0 MTPA iron ore through existing transport road to Roxy Siding for which necessary NOC has been obtained from Govt. of Odisha. Final product is dispatched from the SAIL's private railway siding through rail.		Date: 29/11/2024
4	Human Health Environment	Occupational Health Related: Project Proponent shall implement the following mitigation measures: (i) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects periodically. (ii) Occupational health surveillance program for all the employees or workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed. (iii) Occupational health and safety measures related awareness programs including identification of work related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer).
PPs Submission: Being Complied (i) Personal Protective Equipment for working in dusty areas are provided to all personnel. Periodic training on safety and health aspects is carried out at the vocational training Centre. (ii) Initial Medical Examination and Periodic Medical Examinations are conducted for all employees at the BIM and KIM Hospital periodically and records are maintained. This is being carried out in compliance to Mines Act, 1952 and Rules 1956 and amendments thereto. The occupational health surveillance shows that there is no occurrence of any kind of occupational health diseases. (iii) Awareness programs on Occupational Health and Safety are being done regularly by BIM hospital, Tensa and IGH, Rourkela. Similar programs are arranged at site level to include all the contract workers as well. A full-time Occupational Health Centre has been established for periodic health check-up of employees and contract workers. All the health records are maintained.		Date: 30/11/2024
5	Statutory compliance	This Environmental Clearance (EC) is subject to orders or judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
PPs Submission: Agreed to Comply Agreed		Date: 30/11/2024
6	Statutory compliance	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in

		Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India and Ors before commencing the mining operations.
PPs Submission: Agreed to Comply Agreed		Date: 30/11/2024
7	Statutory compliance	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining and Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India and Ors.
PPs Submission: Agreed to Comply Subsequent to the judgment of Apex Court dated 02.08.2017, the Govt. of Odisha has issued demand notices to Barsua-Kalta Mines for payment of compensation towards excess production on or before 31st December, 2017 against EC / CTO capacity. Dy. Director of Mines (DDM), Koira vide letter dated 02.09.2017 issued a demand notice for payment of Rs. 66,89,42,779.50/- in respect of Barsua/ Kalta Iron Mines to recover price of mineral produced without / beyond EC alone under Section 21 (5) of MMDR Act, 1957. The said amount was deposited on 29.12.2017 under protest. Further, letter No.5962/Mines dtd 24.10.2017 of DDM, Koira has directed to pay compensation of Rs.90,19,71,684.40/- for mining in excess of the permissible limit under the Consent to Operate. Against the above stated demands, SAIL had filed a Writ Petition bearing WP (C) No- 24282/2017 in High Court of Odisha, Cuttack. The matter was heard and Hon'ble High Court had passed the stay order on 04.04.2018 and matter is sub-judice.		Date: 30/11/2024
8	Statutory compliance	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013-57-2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
PPs Submission: Being Complied The mitigation measures suggested in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area" is being followed during mining operation.		Date: 30/11/2024
9	AIR QUALITY MONITORING AND PRESERVATION	The State Govt. of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha. Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network or conveyor belt or pipelines etc. shall be submitted periodically to Regional office of the MoEF and CC.
PPs Submission: Being Complied SAIL will abide by the SOTM system as and when the guidelines are formed by the Department of Steel and Mines, Govt. of Odisha in this regard. The progress on implementation of SOTM is being submitted to MoEF and CC along with six monthly compliance reports.		Date: 29/11/2024
10	Statutory compliance	Project Proponent shall develop the parking plazas for trucks with proper basic amenities or facilities inside the mine. This should be

		done within one year for existing mines and new mines should have since beginning. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.
PPs Submission: Complied Parking plazas have already been developed at Taldih and Kalta Iron Mines with proper basic amenities.		Date: 29/11/2024
11	Statutory compliance	Department of Steel and Mines shall ensure the construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. This shall be completed within 2 Years.
PPs Submission: Being Complied SAIL will extend necessary support if any required.		Date: 29/11/2024
12	AIR QUALITY MONITORING AND PRESERVATION	Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Re- suspension" shall be adopted by PWD or NHAI or Mine Lease Holders within a time Period of 3 months for existing roads. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above-mentioned specific condition.
PPs Submission: Being Complied Vacuum cleaning is being done all along the mineral transportation route to prevent accumulations dust and to minimize generation of fugitive dust emissions during plying of heavy vehicles.		Date: 29/11/2024
13	Statutory compliance	In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept. of Steel and Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine-wise annual production scenario so that demand for iron ore can be anticipated, and actual production-dispatch does not exceed the suggested annual production.
PPs Submission: Agreed to Comply Amalgamated Barsua - Taldih - Kalta Iron Mines will abide by the guidelines issued by the Department of Steel and Mines, Govt. of Odisha in this regard.		Date: 29/11/2024
14	AIR QUALITY MONITORING AND PRESERVATION	Air Environment Related: Project Proponent shall implement the following mitigation measures: (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard. (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10. PM2.5, SO2. NOx and CO monitoring. Location of air quality monitoring 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 (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity. (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PM10. PM2.5, SO2, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral. (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate), Responsibility: Individual Mine Lease Holders and SPCB.
PPs Submission: Being Complied (i) Fugitive dust emissions from all the sources are being controlled regularly on daily basis. A network of fixed water sprinklers have been laid on permanent haul roads. Mobile water tankers 28 KL which can cover the entire width of the haul road are in use for dust suppression. All feed hoppers where ore is unloaded and all transfer chutes have been provided with dry-fog dust suppression system. Mist cannons and water injection systems have placed at mobile crushing and Screening plants to prevent and control of fugitive dust emission. Ambient air quality conforms to the CPCB norms. (ii) The core zone of mining activity is being monitored on daily basis by installing 12 Nos. of Fugitive emission stations through NABET accredited agency. Apart from this, four manual ambient air quality monitoring stations have been established for monitoring of PM10, PM2.5, SO2, NOx and CO twice in a week. Three (03) nos. of Continuous Ambient Air Quality monitoring system (CAAQMS) have been installed in consultation with the State Pollution Control Board out of which one is in the core zone and two are in the buffer zone and the data is being transmitted to SPCB server. (iii) Monitoring in buffer zone is being carried out through NABET accredited agency regularly nearest to human habitation. (iv) Vehicular emission of all the vehicles used in mining activities is being done at regular intervals. Maintenance of mining equipment is done on regular basis. It is mandatory for any vehicle entering the mine premises to have a PUC and valid fitness certificate. (v) It is ensured that all the vehicles exiting the mine gate are checked for use of tarpaulin cover and are not overloaded.		Date: 29/11/2024
15	Noise Monitoring & Prevention	Noise and Vibration Related: Project Proponent shall implement the following mitigation measures: (i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs or muffs (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored at least once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.
PPs Submission: Being Complied		Date:

		(i) Blasting operations are carried out in day time only and controlled blasting practices are being carried out by using Nonel and Delay techniques so as to ensure minimal ground vibration. (ii) Adequate measures are taken for control of work noise levels such as all HEMMs have acoustic cabins with air conditioners and the exhaust manifold have silencers. Noisy Operations have been identified and persons engaged in such operations are provided with earplugs/muffs. (iii) Monitoring of Noise level are being done on weekly basis at the major sources of noise generation within core zone. Necessary efforts are being made to maintain the noise level with in the acceptable limits of CPCB (CPCB, 2000). (iv)All efforts are taken to ensure that blasting due to ground vibrations remain within safe limits by using Nonel and Delay techniques.	30/11/2024
16	WATER QUALITY MONITORING AND PRESERVATION	Water or Wastewater Related: Project Proponent shall implement the following mitigation measures: (i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table. However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro- geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability or water aquifer system shall happen. The details or outcome of such study may be reflected or incorporated in the EIA-EMP report of the mine appropriately. (ii) Natural watercourse and-or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis. (iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis. (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region. (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains. retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river or other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL or NABET approved water testing laboratory However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable. (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees or colony, wherever applicable. (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt-soil generated should be measured on regular basis for its better utilization. (x) Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls. (xi) Trenches - garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal or	

		perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis. (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption or utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility. Individual Mine Lease Holders, SPCB and CGWB.	
PPs Submission: Being Complied (i) Based on observations from nearby wells and water bodies, the minimum depth of water table is 404 mRL and maximum depth of water table is 593 mRL. Based on the Conceptual Plan, the ultimate pit depth will be 617mRL hence, throughout the course of mining operations, the ground water table will remain Undisturbed and the mining operation will not intersect ground water table. (ii) No natural water course will be obstructed due to mining operations. Regular monitoring of the flow rate of the spring and perennial nallahs i.e. Kuradih Nalla at Barsua part and Samaj Nalla at Taldih and Kalta part are being done and records are being maintained. Further, water quality of Kuradih Nalla and Samaj Nalla at upstream and downstream locations with respect to Barsua, Taldih and Kalta Mines are being carried out on monthly basis. (iii) Regular monitoring of ground water level and quality is being carried out on monthly basis. Three numbers of open wells as well as tube wells have been selected all around the mines viz, Barsua Valley, Tensa and Kalta for regular monitoring of water levels and quality. Further, 2 Nos. of piezometers have been installed at Barsua valley and Taldih for ground water monitoring. (iv) During monsoon, accumulated mine pit water is not discharged outside and is allowed to seep through to augment the ground water resources. (v) A Technical Feasibility Study for hydro-geological, rain water harvesting and augmentation of ground water resources has been conducted through M/s Tirupati Balajee Maharaj Consultant (P) Ltd. Two (02) nos. of Check dams have been constructed, one in Kuradih nala near pump house and other at Tantra Village near Taldih Block as per recommendation. Also, one water body has been developed in the lease area for ground water recharge. (vi) Appropriate mitigation measures (viz. Garland drains, retaining walls, collection of runoff etc.) are taken to prevent pollution of nearby river/other water bodies. The water quality monitoring is being carried out on monthly basis by NABL accredited laboratory. (vii) There is no industrial wastewater being generated at Barsua-Taldih-Kalta Iron Mines. Maintenance of HEMMs is done centrally at Workshop. (viii) Oil and Grease trap is provided for the workshop at Barsua-Taldih-Kalta Iron Mine. The treated water is used for gardening and floor washing. (ix) Through a series of retention wall, garland drain, settling pits and check dams, it is ensured that no silt originating due to mining activity is transported in the surface water course or any other water body. (x) Adequate measures to prevent soil erosion like grass plantation/coir matting on dump slopes are practiced. Further plantation with native species is done on all old dump slopes. Dumps are protected by retaining walls. (xi) Retaining wall with Garland drain has been constructed at the foot of the dumps to arrest silt. Check dams have been constructed for retention of suspended solids and allowing flow of clear water. This prevents contamination of outside water bodies from the wash-offs of the lease area. The check dams are periodically de-silted to keep them efficient. (xii) The mine pit water is allowed to seep through to augment the ground water resources. (xiii) System for recovery and recycling of decanted water from the tailing pond has been provided at Barsua Iron Mine under Zero Discharge Project and it will be maintained in the future as well. Efforts are being made to reduce the specific water consumption in successive years.		Date: 30/11/2024
17	Statutory compliance	A copy of EC letter will be marked to concerned Panchayat or local NGO etc. if any, from whom suggestion or representation has been received while processing the proposal.	
PPs Submission: Complied Copy of this EC letter has been sent to the Sarpanch office of Tensa, Sasyakala, Kalta, Chordhara villages vide letter dated 29.04.2023.			Date: 30/11/2024
18	Statutory compliance	State Pollution Control Board or Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office, Tehsildar's Office for 30 days.	

PPs Submission: Complied Copy of this EC letter has been sent to the Tehsildar's Office, Koira, State Pollution Control Board Regional office, Rourkela, District Industries Centre, Rourkela and Collector's office, Sundargarh vide letter dated 29.04.2023.		Date: 30/11/2024
19	Statutory compliance	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board or Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
PPs Submission: Complied Grant of this EC has been widely advertised in three local newspapers i.e. The New Indian Express (English), The Prameya (Odia) and The Samaja (Odia) on dated 03.05.2023. Also, copy of the same forwarded to the MoEFCC IRO office at Bhubaneswar vide letter no. BIM/E and L/2023-24/028, dated 03.05.2023.		Date: 30/11/2024
20	Statutory compliance	The Project Proponent shall inform the MoEF and CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
PPs Submission: Agreed to Comply Agreed		Date: 30/11/2024
21	AIR QUALITY MONITORING AND PRESERVATION	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120 is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016-20-90-PCI-I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
PPs Submission: Being Complied 03 (three) Nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at Barsua and Kalta has been commissioned and the monitored data is being transmitted to SPCB server. Apart from this, 5 (five) nos. of ambient air quality monitoring stations at Barsua-Taldih-Kalta Iron Mines have been established at prominent places to monitor the critical parameters viz. PM10, PM2.5, NO2, CO and SO2. The monitored data are digitally displayed at the main gate of the mine.		Date: 30/11/2024
22	Noise Monitoring & Prevention	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs or muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers,

		personals, laborers are working without personal protective equipment.
PPs Submission: Being Complied Regular maintenances and periodic checks of the HEMM are being carried out to control noise below 85 dB (A) in the work environment. The operators engaged in blasting/ drilling operations and operator of HEMM are provided with PPEs such as ear plug/ ear muffs with helmet. Use of these protective measures is ensured by educating the workers on ill effect of the prolonged excessive exposure to high Noise levels and daily checks by shift mining engineers regarding usage of ear plug/ear muffs. The measured noise level in critical areas is enclosed as Annexure - X. Dust masks have been provided to personnel working in dusty areas and ensured by daily checks. Training on safety and health aspects is being imparted on regular basis.		Date: 30/11/2024
23	LAND RECLAMATION	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil or OB or Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah or River) Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains or sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
PPs Submission: Being Complied The surface run-off generated from the mines is channelized through a series of garland drain to the lowest level of the pit for collection of runoff and settlement of suspended solids and to prevent flow of sediments to nearby water bodies. The garland drains are periodically de-silted to keep them efficient.		Date: 30/11/2024
24	LAND RECLAMATION	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50 percent shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments or silt material. The sedimentation pits sumps shall be constructed at the corners of the garland drains.
PPs Submission: Being Complied Check dams / Retaining wall / Toe walls have been provided at appropriate places in Barsua-Taldih-Kalta mines to prevent direct flow of washout to nearby water bodies. Also, surface runoff management study of Barsua-Taldih-Kalta Mining Lease has been conducted through NIT Rourkela. The findings of the report are under implementation in a phased manner.		Date: 30/11/2024
25	Statutory compliance	Project Proponent and Department of Steel and Mines, Govt. of Odisha shall ensure the implementation of recommendations of carrying capacity study report conducted by CSIR-NEERI w.r.t. mining proposal of Iron Ore and, or manganese in the State of Odisha.
PPs Submission: Being Complied Agreed.		Date: 29/11/2024
26	Statutory compliance	Department of Steel and Mines, Govt. of Odisha should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines or zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone or mine may be followed adopting necessary environmental protection measures.

PPs Submission: Being Complied Amalgamated Barsua-Taldih-Kalta Iron Mines will adopt the necessary environmental protection and control measures and abide by the Sustainable Annual Production limit mentioned in Regional Plan prepared by the Department of Steel and Mines, Govt. of Odisha.		Date: 29/11/2024
27	Statutory compliance	Project Proponent shall construct the cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road with minimum 300 m inside the mine. This should be done within one year for existing mines and new mine should have since beginning. The Department of Steel and Mines, Govt. of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.
PPs Submission: Complied 300 m Concrete approach road from mine entrance and exit to the main road have been provided at Taldih Iron Mine, Barsua Railway Siding, Kalta Iron Mine and Roxy Railway Siding with proper drainage system		Date: 29/11/2024
28	AIR QUALITY MONITORING AND PRESERVATION	The Committee observed that as per the recommendations of NEERI report the PP needs to do regular vacuum cleaning of all mineral carrying roads aiming at "zero dust re-suspension" within 3 months. This Environmental Clearance for the expansion project shall be operated only after the compliance of the above mentioned specific condition.
PPs Submission: Being Complied Vacuum cleaning is being done all along the mineral transportation route to prevent accumulations dust and to minimize generation of fugitive dust emissions during plying of heavy vehicles.		Date: 29/11/2024
29	WATER QUALITY MONITORING AND PRESERVATION	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority or State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department or State Pollution Control Board.
PPs Submission: Being Complied Monthly monitoring of ground water level and quality is being carried out through a NABL accredited laboratory and the monitoring reports are being submitted along with six monthly compliance report. 3 nos. of open wells as well as tube wells have been selected all around the mines viz, Barsua Valley, Tensa and Kalta for regular monitoring of water levels and quality. Further, 2 Nos. of piezometers have been installed at Barsua valley and Taldih for ground water monitoring. The monitoring results of ground water level and quality are enclosed as Annexure - VI and Annexure - VII respectively.		Date: 30/11/2024
30	Noise Monitoring & Prevention	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights or masks away from the villagers and keeping the noise levels well within the prescribed limits for day-night hours.

PPs Submission: Being Complied The Crushing and Screening Plant of Barsua Iron Mines of M/s SAIL is operating since 1960 and is well housed with enclosures to reduce the impact of noise level on surroundings. The noise level in the nearby habitation areas are being monitored (both day and night time) on monthly basis through NABL accredited laboratory and found well within the limits. Copy of the monitoring result for the period from April, 2024 to September, 2024 is enclosed as Annexure - IX. There is no illumination directed towards villages or forest area outside the lease. All the illumination provided in the mines and other infrastructures are as per DGMS guideline.		Date: 30/11/2024
31	AIR QUALITY MONITORING AND PRESERVATION	No Transportation of the minerals shall be allowed in case of roads passing through villages or habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village or rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. (If applicable in case of road transport).
PPs Submission: Being Complied No village roads are being used for transportation of minerals. Pollution Under Control (PUC) certificate is made compulsory for deployment of vehicles in Mines. Scheduled / Preventive maintenance of HEMM and light vehicles are undertaken regularly to keep the vehicular emissions under control. The vehicles used for transportation of ore are covered with tarpaulins and ensured that there is no overloading with the help of weighbridge. The vehicular emission results are enclosed in Annexure - XI.		Date: 30/11/2024
32	AIR QUALITY MONITORING AND PRESERVATION	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
PPs Submission: Being Complied Dry Fog System (DFS) and Mist Cannons have been provided in crushing and screening plant. Also, fixed water sprinklers have been provided in the permanent haul roads. Further, regular water sprinkling is being done with 2 X 28 KL highly pressurized mobile water tankers for Barsua Block, 1 X 12 KL and 1 X 10 KL mobile water tanker for loading area of Barsua, 3 X 20 KL, 1 X 16 KL and 1 X 10 KL mobile water tankers for Kalta Block and 1 X 12 KL and 2 X 20 KL mobile water tankers for Taldih Block. All these dust control measures installed at the mines are sufficient to control fugitive dust emission.		Date: 30/11/2024
33	AIR QUALITY MONITORING AND PRESERVATION	The project proponent use leak proof trucks or dumpers carrying ore and other raw materials and cover them with tarpaulin.
PPs Submission: Being Complied It is ensured that all the vehicles exiting the mine gate are checked for use of tarpaulin cover and there is no overloading with the help of weighbridge to avoid spillage of ore during transportation.		Date: 30/11/2024
34	AIR QUALITY MONITORING AND	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

	PRESERVATION	
PPs Submission: Being Complied Water mist fog canons have been provided to cover temporary fine ore stock piles and loading areas.		Date: 30/11/2024
35	WATER QUALITY MONITORING AND PRESERVATION	The Project Proponent shall undertake regular monitoring of natural water course or water resources or springs and perennial nallahs existing or flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and-or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses or bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment. Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
PPs Submission: Being Complied Regular monitoring of water quality of Kuradih Nalla and Samaj Nalla at upstream and downstream locations with respect to Barsua, Taldih and Kalta Mines are being carried out on monthly basis. Further, the flow rate of the spring and perennial nallahs i.e. Kuradih Nalla at Barsua part and Samaj Nalla at Taldih and Kalta part are being done and record of monitored data is being maintained and submitted regularly to the Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board once in every six month along with six monthly compliance report. The monitoring is being done through an accredited laboratory M/s Superintendence Co. of India (P) Ltd. The surface water quality and flow rate of perennial nalla for the period from April, 2024 to September, 2024 is enclosed as Annexure - IV and Annexure - V respectively.		Date: 30/11/2024
36	WATER QUALITY MONITORING AND PRESERVATION	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off, acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS). Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012-1-2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
PPs Submission: Being Complied The quality of polluted water generated from wet beneficiation plant and tailing pond discharge is being monitored for metal contamination along with COD, TDS, DO, pH and TSS. The monitored data is being uploaded on the website of the company as well as digitally displayed at the main gate of the mine. The effluent quality for the period from April, 2024 to September, 2024 is enclosed as Annexure - VIII.		Date: 30/11/2024
37	WATER QUALITY MONITORING AND PRESERVATION	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board or State Ground Water Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.

PPs Submission: Being Complied A Technical Feasibility Study for hydro-geological, rain water harvesting and augmentation of ground water resources has been conducted through M/s Tirupati Balajee Maharaj Consultant (P) Ltd. Two (02) nos. of Check dams have been constructed, one in Kuradih nala near pump house and other at Tantra Village near Taldih Block as per recommendation. Also, one water body has been developed in the lease area for ground water recharge.		Date: 30/11/2024
38	WATER QUALITY MONITORING AND PRESERVATION	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
PPs Submission: Being Complied State-of-art Oil and grease traps have been provided for treating the effluents from workshop and garages in the HEMM maintenance unit. Effluents generated from the beneficiation plants are being treated in Thickeners followed by Tailing Ponds. The clear water to the tune of 60 percent is being recycled and the underflow from thickener is discharged into Tailing Dam.		Date: 30/11/2024
39	WATER QUALITY MONITORING AND PRESERVATION	The water balance or water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEFCC and State Pollution Control Board or Committee.
PPs Submission: Agreed to Comply A study on Water Management is under progress to find out the measures for reducing the consumption of water.		Date: 30/11/2024
40	Noise Monitoring & Prevention	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
PPs Submission: Being Complied The Peak Particle Velocity (PPV) as measured in the mines during the earlier studies at the 200 m to 250 m distance was 12.5 mm/sec. Using the empirical equations derived from trial blasting studies already conducted, the maximum PPV has been estimated to be 1.67 mm/sec at 530 m and minimum PPV of 0.12 mm/sec. at 5500 m distances. The results are well within the ceilings of maximum permissible PPV as per circular DGMS (Tech)/(S and T) Circular No.7 of 1997 dated 29/08/1997.		Date: 30/11/2024
41	MINING PLAN	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self- sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.
PPs Submission: Being Complied Currently, reclamation over an area of 3.8 ha in the fully exhausted mined out area forming dump No.-8 and back filling over an area of 8.0 ha of mined out benches in the eastern side of Quarry-3 is under progress. The Mine is in operation as per the approved Mining Plan/scheme and Progressive Mine Closure Plan.		Date: 30/11/2024
42	LAND RECLAMATION	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB or waste dumps or topsoil dump like

		height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines or circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
PPs Submission: Being Complied The over burden (OB) / sub-grade ore generated during the mining operations is being stored at earmarked sites only, as per the approved Modification of Mining Plan. Phase wise stabilization with installation of coir mats and broadcasting of grass seeds are carried out as per approved plan. For effective stabilization, terracing of the OB dumps with overall slope of the dump is being maintained to below 27 degree. Though the generation of top soil is very less, it is being stacked separately at earmarked site and used for rehabilitation of dumps and other areas through plantation.		Date: 30/11/2024
43	LAND RECLAMATION	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer or compactors thereby ensuring proper filling or leveling of dump mass. In critical areas, use of geo textiles or geo-membranes or clay liners or Bentonite etc. shall be undertaken for stabilization of the dump.
PPs Submission: Being Complied Geo-textile coir matting of 28000 Sq. m has been done in Barsua Block. Plantation of species like bamboo and Sal have been carried out over the dump and slopes for stabilization and prevention of washout. Masonry steps have been constructed on the slopes to allow runoff to flow down smoothly.		Date: 30/11/2024
44	AIR QUALITY MONITORING AND PRESERVATION	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
PPs Submission: Being Complied Fixed water sprinklers have been provided in the permanent haul roads. Further, regular water sprinkling is being done with 2 X 28KL highly pressurized mobile water tankers for Barsua Block, 1 X 12 KL and 1 X 10KL mobile water tanker for loading area of Barsua, 3 X 20 KL, 1 X 16 KL and 1 X 10 KL mobile water tankers for Kalta Block and 1 X 12 KL and 2 X 20 KL mobile water tankers for Taldih Block which is sufficient to keep the haul road in wet condition. The conveyor system used for ore transportation from the plant to stacking yards at Barsua Block is fully covered. Dry Fog System (DFS) and Mist Cannons have been provided in crushing and screening plant.		Date: 30/11/2024
45	GREENBELT	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

PPs Submission: Being Complied Safety Zone plantation over 93.679 ha safety zone area of Barsua-Taldih-Kalta Iron Mines has been completed through State Forest Department.		Date: 30/11/2024
46	MISCELLANEOUS	The concerned Regional Office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MOEFCC officer(s) by furnishing the requisite data or information or monitoring reports.
PPs Submission: Agreed to Comply Full co-operation is extended to the officer(s) of the regional office of MoEFCC by furnishing the requisition data information, monitoring reports etc.		Date: 30/11/2024
47	MISCELLANEOUS	In pursuant to Ministry's O.M No 22-34-2018-IA III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114-2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
PPs Submission: Agreed to Comply Addendum to the existing lease deed has been executed on 04.06.2020 incorporating the condition that "the mining lease holder (s) shall after ceasing mining operation, undertake re-grassing the mining area and any other area which may have disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc." in pursuant to judgment of Hon'ble Supreme Court in WP(C) No.114 of 2014.		Date: 30/11/2024
48	MISCELLANEOUS	The Ministry or any other competent authority may alter or modify the above conditions or stipulate any further condition in the interest of environment protection.
PPs Submission: Agreed to Comply Agreed		Date: 30/11/2024
49	MISCELLANEOUS	Concealing factual data failure to comply with any or submission of false or fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
PPs Submission: Agreed to Comply Agreed.		Date: 30/11/2024
50	Statutory compliance	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
PPs Submission: Complied Out of 2558.581 ha lease area, 2419.871 ha is Forest Land. Stage-II forest clearance for diversion of forest land over 2341.931 ha was granted by MoEFCC vide F. No. 8-90/1996-FC (pt.), dated 06.03.2013 and 77.94 ha was granted vide order no. F.No.8-18/2014-FC dated 23.10.2017.		Date: 30/11/2024
51	Statutory compliance	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
PPs Submission: Complied No notified National Park / Wildlife Sanctuary / Biosphere Reserve / Tiger Reserve are located		Date:

within 10 kms from the Mining Lease boundary. Hence it is not applicable to this project.		30/11/2024
52	Statutory compliance	The project proponent shall prepare a Site-Specific Conservation Plan and Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan or Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
PPs Submission: Being Complied Two Site Specific Wildlife Conservation Plans (SSWCP) were approved by Chief Wildlife Warden, Odisha vide letter dated 25.02.2013 for 2486.383 ha and 13.01.2016 for 77.94 ha. Amounts of Rs.17.82 Crores and Rs. 9.84 Crores were deposited for implementation of approved SSWCPs in Buffer Zone of Barsua-Taldih-Kalta Iron Mines. The details of cost incurred towards implementation of approved interventions of the Site Specific Wildlife Conservation Plans from the fund realised by SAIL are attached for reference.		Date: 30/11/2024
53	Statutory compliance	The project proponent shall obtain Consent to Establish or Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 197 4 from the concerned State Pollution Control Board or Committee.
PPs Submission: Being Complied Consent to Establish was obtained from SPCB, Odisha for a capacity of 16.0 MTPA ROM and excavation and dispatch of 2.0 MTPA sub-grade / tailings for Amalgamated Barsua-Taldih-Kalta Iron Mines Vide No. 9222/IND-II-CTE-6910, dated 07.06.2023. Consent to Operate has also been obtained from SPCB, Odisha vide Order no. 19762/IND-I-CON-1(A), dated 14.12.2023 for a quantity of 10.0 MTPA ROM and excavation and dispatch of 2.0 MTPA sub-grade / tailings with validity up to 31.03.2025.		Date: 30/11/2024
54	Statutory compliance	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water or from the competent authority concerned in case of drawl of surface water required for the project.
PPs Submission: Being Complied Department of Water Resources, Govt. of Odisha has allocated 3.406 cusec of Surface Water from Kuradih Nalla in favour of Barsua Iron Mines vide letter No. 4897/WR, dated 15.02.2021 and 0.328 cusec of Surface Water from Nazkura Nalla in favour of Kalta Iron Mines vide letter No. 22486/WR, dated 14.08.2024.		Date: 30/11/2024
55	Statutory compliance	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.
PPs Submission: Being Complied The Hazardous Waste Authorization obtained from SPCB, Odisha vide letter No. IND-IV-HW-423/4572 dated 30.03.2024 which is valid till 31.03.2025.		Date: 30/11/2024
56	AIR QUALITY MONITORING AND PRESERVATION	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.

PPs Submission: Being Complied Three nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been established at Barsua-Taldih-Kalta Iron Mines with real time monitoring with a facility for data transmission to SPCB server. Work order for Comprehensive Maintenance Contract (CMC) for CAAQMS equipments installed at Barsua-Taldih-Kalta Iron Mines has been issued to M/s Future Instruments vides Ref. No. RSP/MINES/CC/WO/05 of 2024-25, dated: 08/06/2024 for a period of two years for maintenance and calibration of the equipment on regular basis. Fugitive Dust Emission Monitoring is being done in twelve locations at Barsua-Taldih-Kalta Iron Mines through a NABL accredited laboratory on daily basis and report is being submitted once in six months to the State Pollution Control Board.		Date: 30/11/2024
57	AIR QUALITY MONITORING AND PRESERVATION	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986.
PPs Submission: Being Complied Fugitive Dust Emission Monitoring is being done in twelve locations at Barsua-Taldih-Kalta Iron Mines through a NABL accredited laboratory on daily basis and report is being submitted once in six months to the State Pollution Control Board.		Date: 30/11/2024
58	AIR QUALITY MONITORING AND PRESERVATION	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common or criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 degree each) covering upwind and downwind directions.
PPs Submission: Being Complied Three nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been established at Barsua-Taldih-Kalta Iron Mines out of which one is within and two are outside the Mining area covering upwind and downwind directions.		Date: 30/11/2024
59	AIR QUALITY MONITORING AND PRESERVATION	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments or machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC, Central Pollution Control Board.
PPs Submission: Being Complied Dry Fog System (DFS) and Mist Cannons have been provided in crushing and screening plants. Also, fixed water sprinklers have been installed in the permanent haul roads. Further, regular water sprinkling is being done with 2 X 28KL highly pressurized mobile water tankers for Barsua Block, 1 X 12 KL and 1 X 10KL mobile water tanker for loading area of Barsua, 3 X 20 KL, 1 X 16 KL and 1 X 10 KL mobile water tankers for Kalta Block and 1 X 12 KL and 2 X 20 KL mobile water tankers for Taldih Block which is sufficient to keep the haul road in wet condition and conform to the standards prescribed by the MoEFCC / Central Pollution Control Board.		Date: 30/11/2024
60	WATER QUALITY MONITORING AND PRESERVATION	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is

		in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
PPs Submission: Agreed to Comply As per the studies conducted, the minimum depth of water table is 404 mRL and maximum depth of water table is 593 mRL. Based on the approved Mining Plan, the ultimate pit depth will be 617mRL hence, throughout the course of mining operations, the ground water table will remain Undisturbed and the mining operation will not intersect ground water table.		Date: 30/11/2024
61	MINING PLAN	The Project Proponent shall adhere to approved mining plan, inter alia, including. total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden and dump management, O.B and dump mining, mineral transportation mode, ultimate depth of mining. concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
PPs Submission: Being Complied Mining is being done in accordance with approved Mining Plan/ Scheme of Mining. There is no change in the calendar plan including total excavation, mining technology, lease area and scope of working.		Date: 30/11/2024
62	AIR QUALITY MONITORING AND PRESERVATION	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
PPs Submission: Being Complied Proper ventilation system has been provided in the oil and lubricant storage room and battery storage room for adequate air changes.		Date: 30/11/2024
63	GREENBELT	The Project Proponent shall carryout plantation or afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department or Agriculture Department or Rural development department or Tribal Welfare Department or Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
PPs Submission: Being Complied Plantation/ afforestation of 1,97,781 saplings have been planted covering an area of 96.50 ha since 2011-12 in and around the mining lease area. During the period, gap plantation of 5181 saplings within the mining lease area has been completed. The detail of plantation is placed at Annexure - XII		Date: 30/11/2024
64	GREENBELT	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching. sun, should be scrupulously guarded or protected against felling and plantation of such trees should be promoted.
PPs Submission: Agreed to Comply		Date:

There is no grazing land present in the Amalgamated Barsua-Taldih-Kalta Iron Mines. However, the mining has been planned in such a way that the entire forest land will not be disturbed at a time which will support feeding of the livestock.		30/11/2024
65	Corporate Environmental Responsibility	The Project Proponent shall submit the time-bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEFCC Office Memorandum No.22-65-2017-IA.III dated 30 September 2020. The action plan shall be implemented within three years of commencement of the project.
PPs Submission: Being Complied A time bound action plan for the activities committed during public consultation has been prepared along with final EIA-EMP report for implementation within a period of 3 years of commencement of the project. A copy of the action plan is enclosed as Annexure - XIII.		Date: 30/11/2024
66	MISCELLANEOUS	The Project Proponent shall prepare digital map (land use and land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEFCC.
PPs Submission: Being Complied Digital processing of the entire lease area using remote sensing technique has been studied through satellite imagery i.e. Linear Imaging Self-Scanner during March, 2021 by IIT ISM, Dhanbad. Copy of the report is enclosed as Annexure - XIV.		Date: 30/11/2024
67	MISCELLANEOUS	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
PPs Submission: Being Complied The Barsua and Kalta Iron Mines are operating since 1960 and 1966 respectively. Development work in Taldih block started since 9th June 2016 and installation of various facilities at Taldih Block are under progress.		Date: 30/11/2024
68	MISCELLANEOUS	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC and its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
PPs Submission: Being Complied Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEFCC, New Delhi, Regional Office, MoEFCC, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board. Copy of the compliance report including environmental quality data is being uploaded to the SAIL web site i.e. www.sail.co.in.		Date: 30/11/2024
69	MISCELLANEOUS	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MOEFCC.
PPs Submission: Being Complied A full-fledged Environment and Lease Department has been established at Barsua Iron Mines to look after environmental aspects headed by an AGM (Env), who reports to Head of Mines. He is		Date: 30/11/2024

	further assisted by two officers for environmental management at mines.	
70	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
PPs Submission: Being Complied Oil and grease traps have been provided for treating the effluents from workshop and garages in the HEMM maintenance unit. The treated waste water is reused for vehicle and floor washing. Effluents generated from the beneficiation plants are being treated in Thickeners followed by Tailing Ponds. The clear water to the tune of 60 percent is being recycled and the underflow from thickener is discharged into Tailing Dam. The overflow as well as seepage water from tailing pond are being re-used through Zero discharge system.		Date: 30/11/2024
71	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers or sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act. 1986 and NABL accredited laboratories.
PPs Submission: Being Complied Monthly monitoring of ground water level and quality is being carried out through a NABL accredited laboratory and the monitoring reports are being submitted along with six monthly compliance report. 3 nos. of open wells as well as tube wells have been selected all around the mines viz, Barsua Valley, Tensa and Kalta for regular monitoring of water levels and quality. Further, 2 Nos. of piezometers have been installed at Barsua valley and Taldih for ground water monitoring. The results are enclosed as Annexure - VI and Annexure - VII respectively.		Date: 30/11/2024
72	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEFCC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
PPs Submission: Being Complied The relevant parameters in the effluents are being monitored monthly basis. The effluent quality for the period from April, 2024 to September, 2024 is enclosed as Annexure - VIII.		Date: 30/11/2024
73	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall treated and recycled.
PPs Submission: Being Complied The Tailing Pond at Barsua Iron Mine is located on the hard and plain area and is in operation since 1969. The overflow as well as seepage water from tailing pond are being re-used through Zero discharge system.		Date: 30/11/2024
74	WATER QUALITY MONITORING AND PRESERVATION	Adhere to "Zero Liquid Discharge"
PPs Submission: Being Complied Wastewater generated from wet beneficiation plant is discharged to the existing tailing pond and the overflow as well as seepage water are being re-used through a 'Zero discharge system'.		Date: 01/12/2024
75	WATER QUALITY	Sewage Treatment Plant shall be provided for treatment of domestic

	MONITORING AND PRESERVATION	wastewater to meet the prescribed standards.
PPs Submission: Partially Complied Individual septic tank with soak pits has been provided in the colony. The domestic effluents are discharged to soak pit via septic tank.		Date: 30/11/2024
76	WATER QUALITY MONITORING AND PRESERVATION	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
PPs Submission: Being Complied The surface run-off generated from the mines is channelized through a series of garland drain to the lowest level of the pit for collection of runoff and settlement of suspended solids and to prevent flow of sediments to nearby water bodies. The garland drains are periodically de-silted to keep them efficient.		Date: 30/11/2024
77	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall practice rainwater harvesting to maximum possible extent.
PPs Submission: Being Complied A Technical Feasibility Study for hydro-geological, rain water harvesting and augmentation of ground water resources has been conducted through M/s Tirupati Balajee Maharaj Consultant (P) Ltd. Two (02) nos. of Check dams have been constructed, one at Barsua Valley and other at Tantra Village near Taldih Block as per recommendation. Also, one water body has been developed in the lease area for ground water recharge.		Date: 30/11/2024
78	WATER QUALITY MONITORING AND PRESERVATION	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.
PPs Submission: Being Complied All efforts are being made for reduction of water consumption in the Mining areas as well as in the residential colony. System for recovery and recycling of decanted water from the tailing pond has been provided at Barsua Iron Mine under Zero Discharge Project.		Date: 30/11/2024
79	Noise Monitoring & Prevention	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
PPs Submission: Being Complied Monitoring of Noise level are being done on weekly basis at the major sources of noise generation within core zone. Necessary efforts are being made to maintain the noise level with in the acceptable limits of CPCB (CPCB, 2000). The result of noise monitoring is being submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.		Date: 30/11/2024
80	Noise Monitoring & Prevention	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.
PPs Submission: Being Complied The noise level in the nearby habitation areas are being monitored (both day and night time) on monthly basis through NABL accredited laboratory and found well within the limits.		Date: 30/11/2024
81	ENERGY PRESERVATION MEASURES	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.

PPs Submission: Being Complied Solar power of 20 KW has been provided in the Mining areas and Hospital and the same are being maintained regularly.		Date: 30/11/2024
82	ENERGY PRESERVATION MEASURES	Provide LED lights in their offices and residential areas.
PPs Submission: Being Complied All conventional lights have been replaced with LED lights in the office and residential colony.		Date: 30/11/2024
83	WASTE MANAGEMENT	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.
PPs Submission: Being Complied The hazardous wastes are being disposed of as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.		Date: 30/11/2024
84	WASTE MANAGEMENT	Kitchen waste shall be composted or converted to biogas for further use (to be decided on case to case basis depending on type and size of plant).
PPs Submission: Being Complied Municipal Solid waste disposal yard has been constructed for disposal of municipal waste collected through a dedicated door to door collection system.		Date: 30/11/2024
85	GREENBELT	Green belt shall be developed in an area equal to 33 percent of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.
PPs Submission: Being Complied Mining has been planned in such a way that at least 33 percent of the lease area shall be under forest cover all the time. Apart from this, Safety Zone plantation over 93.679 ha safety zone area of Barsua-Taldih-Kalta Iron Mines has been completed through State Forest Department. Further, so far 1,97,781 saplings have been planted covering an area of 96.50 ha since 20211-12 in and around the mining lease area. During the period, gap plantation of 5181 saplings within the mining lease area has been completed.		Date: 30/11/2024
86	GREENBELT	The project proponent shall prepare GHG emissions inventory for the plant and submit the programme for reduction of the same including carbon sequestration including plantation.
PPs Submission: Being Complied Agreed. The detail of plantation is enclosed as Annexure - XII.		Date: 30/11/2024
87	Human Health Environment	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
PPs Submission: Being Complied Initial Medical Examination and Periodic Medical Examinations are conducted for all employees at the BIM and KIM Hospital periodically and records are maintained. This is being carried out in compliance to Mines Act, 1952 and Rules 1956 and amendments thereto. The occupational health surveillance shows that there is no occurrence of any kind of occupational health diseases.		Date: 30/11/2024
88	Corporate Environmental Responsibility	The Project Proponent shall submit the time-bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the

		activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEFCC Office Memorandum No 22-65-2017-IA III dated 30 September 2020. The action plan shall be implemented within three years of commencement of the project.
PPs Submission: Being Complied A time bound action plan for the activities committed during public consultation has been prepared along with final EIA-EMP report for implementation within a period of 3 years of commencement of the project.		Date: 30/11/2024
89	Corporate Environmental Responsibility	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements or deviation or violation of the environmental forest wildlife norms or conditions. The company shall have defined system of reporting infringements or deviation or violation of the environmental or forest I wildlife norms or conditions and-or shareholders or stake holders. The copy of the board resolution in this regard shall be submitted to the MoEFCC as a part of six-monthly report.
PPs Submission: Being Complied SAIL has imbibed its commitment to preserve and protect environment in its workings through their Corporate Environmental Policy (CEP) and SAIL-Barsua-Taldih-Kalta mine's Integrated Environment Policy, approved by the Board of the company as well as the plant-level top management of Barsua-Taldih-Kalta Iron Mines. Barsua-Taldih-Kalta Iron Mines unit-level Integrated Policy has been derived from guiding principles of SAIL's Corporate Environment policy, which is more specific to the unit and addresses compliance to environmental, forest and other statutory conditions. In pursuit to adhere to the environmental policy for environmental-friendly mining process, the Standard operating procedures (SOPs) have been formulated, implemented and well established which takes care of the guiding principle. In line with SAIL's commitment for environmental protection, the above objective has been intended to be achieved through the following: (i) Conduct mining and processing operation in compliance with the relevant environment legislations. (ii) Conserve energy and other natural resources in minimising waste generation. (iii) Protect the environment by minimising pollution and its impact. (iv) Increase greenery in and around the Mine. (v) Encourage environmental awareness among all level of the employees. (vi) Periodical review of the system for continual improvement. The Environmental Policy of SAIL as well as Barsua-Taldih-Kalta Iron Mines is enclosed as Annexure - XV.		Date: 30/11/2024
90	Corporate Environmental Responsibility	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
PPs Submission: Being Complied A full-fledged Environment and Lease Department has been established at Barsua Iron Mines to look after environmental aspects headed by an AGM (Env), who reports to Head of Mines. He is further assisted by two officers for environmental management at mines. In addition there is a dedicated Environment and Lease (E and L) Department headed by Chief General Manager (RP and E) under Odisha Group of Mines, SAIL-Rourkela Steel Plant), Rourkela headed by Executive Director (ED), Mines.		Date: 30/11/2024
91	LAND RECLAMATION	Ecology-Biodiversity (Flora-Fauna) Related: Project Proponent shall implement the following mitigation measures: (i) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should

		be maintained by State Forest Department. (ii) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner. (iii) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation or plantation, type of plantation, type of tree species or grass species or scrubs etc., distance between the plants and survival rate should be recorded. (iv) Greenbelt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal or dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation. (v) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value. (vi) Details of compensatory afforestation done should be recorded and documented by respective forest divisions and State Forest Department should present mine-wise annual status, along with expenditure details. Responsibility: Individual Mine Lease Holders and State Forest and Wildlife Department.
PPs Submission: Being Complied (i) Two Site Specific wildlife conservation plans (SSWCP) were approved by Chief Wildlife Warden, Odisha vide dated 25.02.2013 for 2486.313 ha and 13.01.2016 for 77.94 ha. An amount of Rs.17.82 Crores and Rs. 9.84 Crores were deposited for implementation of approved SSWCPs in Buffer Zone of Barsua-Taldih-Kalta Iron Mines. (ii) Efforts are being made continually for afforestation by using local and mixed species saplings within and outside the mining lease area to enhance the biodiversity of the region. (iii) Green belt development done is monitored till it becomes self-sustaining. (iv) Green belt development is being done by using native species in consultation with State Forest Department. (v) Coir matting with bamboo plantation has been done over the OB dumps in order to stabilize the dumps. (vi) Details of compensatory afforestation done has been recorded and documented by Barsua-Taldih-Kalta Iron Mines along with expenditure details.		Date: 30/11/2024
92	MISCELLANEOUS	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
PPs Submission: Being Complied Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEFCC, New Delhi, Regional Office, MoEFCC, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.		Date: 30/11/2024
93	MISCELLANEOUS	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
PPs Submission: Being Complied The environmental statement report in prescribed format-V for the financial year 2023-24 has been		Date:

submitted vide letter no. BIM /E and L/2024-25/056, dated 17.07.2024 to the State Pollution Control Board and also the same has been uploaded to the company website www.sail.co.in.		30/11/2024
94	Corporate Environmental Responsibility	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry or Regional Office along with the Six Monthly Compliance Report.
PPs Submission: Being Complied Funds earmarked for environmental protection measures at the mines are booked separately and not being diverted for other purpose. Year wise expenditure for last 3 years on Environmental protection measures is furnished below. The details of expenditure are enclosed as Annexure - XVI.		Date: 30/11/2024
95	Corporate Environmental Responsibility	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
PPs Submission: Being Complied Barsua-Taldih-Kalta Iron Mines is certified with ISO 14001:2015 and as a part of compliance surveillance audit is being conducted annually and re-certification audit is being conducted once in every three years through third party.		Date: 30/11/2024
96	Corporate Environmental Responsibility	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
PPs Submission: Being Complied Agreed.		Date: 30/11/2024
97	MISCELLANEOUS	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
PPs Submission: Complied Grant of this EC has been widely advertised in three local newspapers i.e. The New Indian Express (English), The Prameya (Odia) and The Samaja (Odia) on dated 03.05.2023. Also, copy of the EC has been displayed in the SAIL web site i.e. www.sail.co.in.		Date: 30/11/2024
98	MISCELLANEOUS	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
PPs Submission: Complied Copy of this EC letter has been sent to the Sarpanch office of Tensa, Sasyakala, Kalta, Chordhara villages in addition to the Tehsildar's Office, Koira, SPCB Regional office and District Industries Centre, Rourkela and Collector's office, Sundargarh vide letter dated 29.04.2023.		Date: 30/11/2024
99	MISCELLANEOUS	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly

		basis.
PPs Submission: Being Complied The status of compliance of the stipulated environment clearance conditions, including results of monitored data is being uploaded to the company website www.sail.co.in on half-yearly basis.		Date: 30/11/2024
100	MISCELLANEOUS	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOX (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
PPs Submission: Being Complied Critical parameters i.e. PM10, PM2.5, Nox, SO2 and CO in ambient air and relevant parameters in the effluents are being monitored regularly. The monitored data is being displayed at the main gate of the mines. Also, the same is being uploaded to the company website www.sail.co.in along with six monthly compliance report.		Date: 30/11/2024
101	MISCELLANEOUS	The project proponent shall abide by all the commitments and recommendations made in the EIA-EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
PPs Submission: Being Complied Agreed.		Date: 30/11/2024
102	MISCELLANEOUS	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities. Commencing the land development work and start of production operation by the project.
PPs Submission: Being Complied The Barsua and Kalta Iron Mines are operating since 1960 and 1966 respectively. Development work in Taldih block started since 9th June 2016 and installation of various facilities at Taldih Block are under progress.		Date: 30/11/2024
103	MISCELLANEOUS	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
PPs Submission: Agreed to Comply Agreed.		Date: 30/11/2024
104	MISCELLANEOUS	The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and-or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system or rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network or conveyor system for 8 mines (under SOTM 1 and 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Joda region) and Roxy railway sidings in Koira region. Responsibility: Dept. of Steel and Mines, Govt. of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel and Mines, Govt. of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.

PPs Submission: Agreed to Comply SAIL will abide by the directions of Department of Steel and Mines, Govt. of Odisha in this regard.			Date: 30/11/2024
105	MISCELLANEOUS	State Govt. of Odisha shall make all efforts to ensure exhausting all the iron and manganese ore resources in the existing working mines and from disturbed mining leases and zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept. of Steel and Mines, Govt. of Odisha.	
PPs Submission: Agreed to Comply Amalgamated Barsua-Taldih-Kalta Iron Mines will work according to the instructions given by the Department of Steel and Mines, Govt. of Odisha in this regard. Mining will be done as per the IBM approved mining plan.			Date: 30/11/2024
106	MINING PLAN	Mining Operations or Process Related: Project Proponent shall implement the following mitigation measures: (i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust - air pollution, noise, wastewater and solid waste, e.g. drills should either be operated with dust extractors or equipped with water injection system. (ii) After commencement of mining operation, a study should be conducted to assess and quantify emission load generation (in terms of air pollution, noise, waste water and solid waste) from each of the mining activity (including transportation) on annual basis. Efforts should be made to further eliminate - minimize generation of air pollution - dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders. (iii) Various machineries - equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel - power consumption, and their fuel - power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries - equipment - transport vehicles should be followed as per manufacturer's instructions - recommended time schedule and record should be maintained by the respective mine lease holders. (iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted or authenticated by ORSAC Bhubaneswar. Expenses towards the same shall be borne by the respective mine lease holders. Responsibility: Individual Mine Lease Holders.	
PPs Submission: Being Complied (i) Excavators of 7.5cum, 5.9cum and 4.5 cum are in use along with 100T, 60T and 50T dumpers for effective shovel-dumper combination. Regular water sprinkling is being done in the excavation areas, haul road, dump areas, loading and unloading areas. All the haulage roads are being maintained properly with grader for smooth movement of vehicles so as to minimize dust/air pollution. All the drills are operated with dust extractors and some of drills are equipped with water injection system. (ii) All efforts are being made to minimize generation of air pollution/dust, noise, waste water, solid waste generation in the mines through use of better technology. The quantification of emission load is being done annually from each of the mining activity. (iii) Inspection and maintenance of all the machineries/ equipment/ transport vehicles are being carried out as per manufacturer's instructions/ recommended time schedule and records are being maintained. (iv) Digital processing of the entire lease area using drone survey technique are being done every year for monitoring the land use pattern and the mining activity.			Date: 30/11/2024

107	Human Health Environment	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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
PPs Submission: Being Complied SAIL has well-developed townships at Tensa, Barsuan and Kalta with residential accommodation for employees and workers with all necessary infrastructure such as LPG gas connection through co-operative society for cooking, electricity, welfare amenities like toilets, drinking water and medical facilities etc. Whenever required, the construction labour are hired from the local villagers and only few are being hired from outside, for which housing facilities along with necessary infrastructure are being provided at the existing colony of the mines.		Date: 30/11/2024
108	MISCELLANEOUS	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MOEFCC).
PPs Submission: Agreed to Comply Agreed.		Date: 30/11/2024
109	Corporate Environmental Responsibility	Socio-Economic Related: Project Proponent shall implement the following mitigation measures: (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region. (ii) Land outees and land losers or affected people, if any, should be compensated and rehabilitated as per the national or state policy on Resettlement and Rehabilitation. (iii) The socio-economic development in the region should be focused and aligned with the guidelines or initiatives of Govt. of India or NITI Aayog around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for "Samagra Vikas" of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY), notified by Ministry of Mines, Govt. of India, vide letter no. 16.07.2017- MVI (Part), dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders.
PPs Submission: Being Complied (i) Social welfare activities to meet the requirements of the local communities are done through CSR department for the people residing near the Project. They interact regularly with the local communities to identify their needs and requirement and accordingly plan the yearly activities. Further, SAIL has well developed township at Tensa and Kalta with infrastructure facilities like school, hospital, RO plant for drinking water, training institute, etc. (ii) There is no case of displacement of people due to the project. (iii) SAIL is already supporting the State Government in facilitating the development of schools, conducting health camps, construction of medical facilities, provision of training and skill development programs, etc. and will continue to extend support in future too.		Date: 30/11/2024
110	AIR QUALITY MONITORING AND PRESERVATION	Road Transport Related: Project Proponent shall implement the following mitigation measures: (i) All the mine lease holders should follow the suggested ore transport mode (SOTM), based on its EC

		capacity within next 5 years. (ii) The mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the mine. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport. (iii) Transportation of ore should be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore or dust takes place. Further, air quality in terms of dust, PM10 should be monitored near the roads towards entry and exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Holders and Dept. of Steel and Mines.
PPs Submission: Being Complied (i) Presently the Iron Ore is being transported through closed conveyors from Barsua Iron Mines to Barsua Railway siding and through road from Taldih and Kalta Iron Mines to Barsua and Roxy Railway siding respectively. Under the proposed expansion of these mines to 16 MTPA ROM, the ore from Taldih and Kalta mines shall be processed and conveyed through closed Conveyor belts to the respective railway sidings in compliance to suggested SOTM. However, during the construction phase, Taldih Iron Mine shall continue to transport 2.0 MTPA of iron ore through existing transport road to Barsua Railway Siding and Kalta Iron Mines shall continue to transport 4.0 MTPA iron ore through existing transport road to Roxy Siding for which necessary NOC has been obtained from Govt. of Odisha. (ii) 300 m Concrete approach road from mine entrance and exit to the main road has been provided at Taldih Iron Mine, Barsua Railway Siding, Kalta Iron Mine and Roxy Railway Siding with proper drainage system. (iii) It is being ensured that all the vehicles exiting the mine gate are checked for use of tarpaulin cover and are not overloaded to avoid spillage of material during transportation. Also, wheel washing system has been provided at the exit points of the mines in order to control dust emission.		Date: 30/11/2024
111	Human Health Environment	Project Proponent shall make provision for the housing for workers-labors or shall construct labor camps within-outside (company owned land) with necessary basic infrastructure, facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
PPs Submission: Being Complied SAIL has well-developed townships at Tensa, Barsuan and Kalta with residential accommodation for employees and workers with all necessary infrastructure such as LPG gas connection through co-operative society for cooking, electricity, welfare amenities like toilets, drinking water and medical facilities etc. Whenever required, the construction labours are hired from the local villagers and only few are being hired from outside, for which housing facilities along with necessary infrastructure are being provided at the existing colony of the mines.		Date: 30/11/2024
112	Human Health Environment	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
PPs Submission: Being Complied Barsua-Taldih-Kalta Iron Mines is certified with ISO 14001:2015, ISO 9001: 2015 and ISO 45001:2018 and as a part of compliance Hazard identification and Risk Assessment (HIRA) of all the departments has been done and are being implemented.		Date: 30/11/2024
113	Human Health Environment	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

PPs Submission: Agreed to Comply Not Applicable. Barsua-Taldih-Kalta Iron Mines is situated at an altitude of about 850 mRL, which normally stay cooler than the surroundings even during hot summer.		Date: 30/11/2024
114	WASTE MANAGEMENT	R and D studies towards utilization of low-grade iron ore should be conducted through research-academic institutes like IMMT, Bhubaneswar, NML Jamshedpur, and concerned metallurgical departments in IITS, NITS etc., targeting full utilization of low-grade iron ore (Fe content upto 45 percent by 2020 and upto 40 percent by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental viability. R and D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such cosmetics, as pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept. of Steel and Mines, Individual Mine Lease Holders.
PPs Submission: Being Complied R and D study for utilisation of low-grade Iron Ore Fines / Tailings of Barusa Iron Mines has been conducted through IMMT, Bhubaneswar. As per the findings of the study, dispatch of tailing for pelletization has already been started.		Date: 01/12/2024
115	AIR QUALITY MONITORING AND PRESERVATION	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality fugitive emissions to Regional Office of MoEFCC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
PPs Submission: Being Complied The monthly summary report of air quality / fugitive emissions is enclosed as Annexure - III.		Date: 01/12/2024

Visit Remarks

Last Site Visit Report Date:	N/A
Additional Remarks:	

Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.

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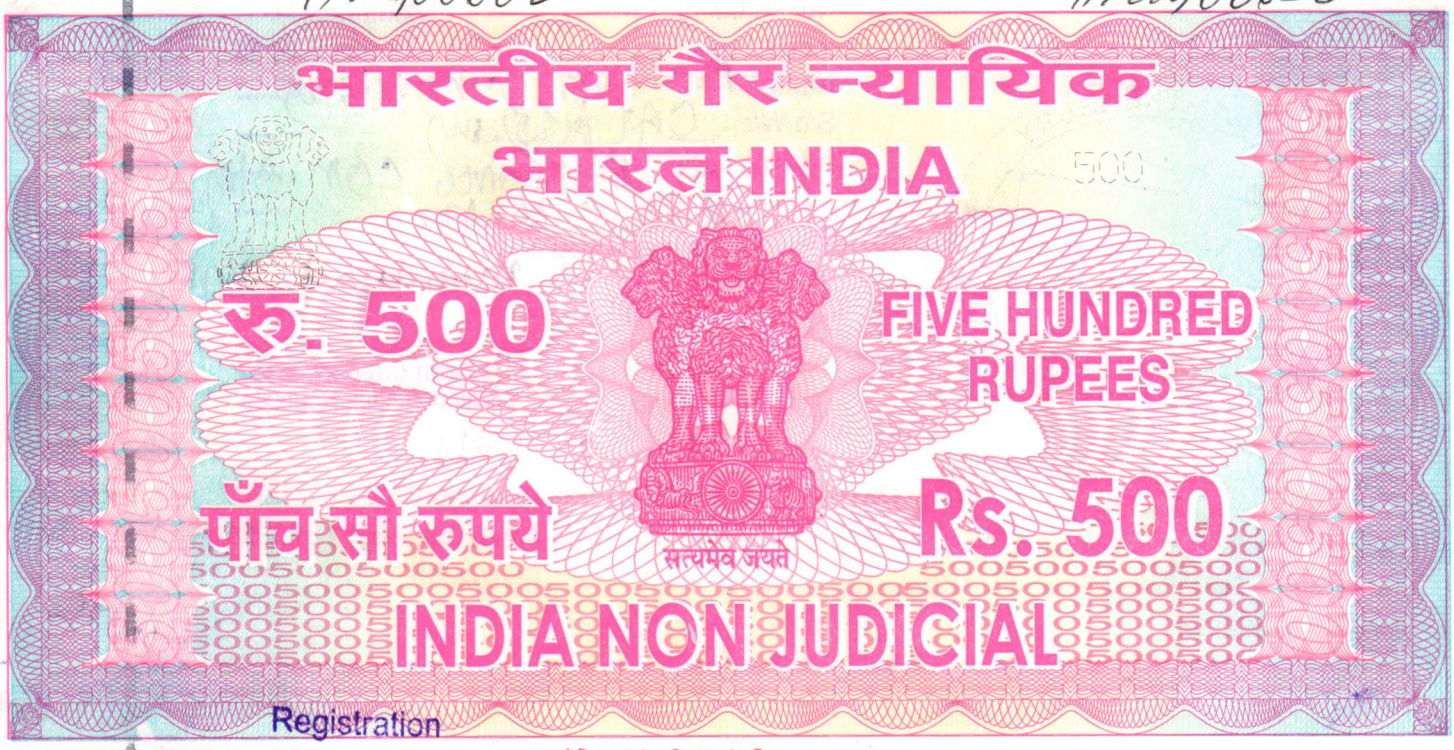
ORIGINAL
1722400658



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Registration
I.D. No. 1722400662
Document No. 1722400658
Book No. 1 Vol.No. 17
Dated 26th day of November 24

Fees Paid G 640696
A(I) 17,29,92,000.00
A(IA) 400.00
17,29,92,400.00

Registering Officer
Sadar

AMENDMENT LEASE DEED

This Indenture made this 14th day of November, 2024 between the **Governor of Odisha**, represented through Collector, Sundargarh; (hereinafter referred to as the `State Government' which expression shall where the context so admits be deemed to include the successors and assigns) of the one part and;

AND

BARSUA-TALDIH-KALTA IRON MINES OF M/S STEEL AUTHORITY OF INDIA LIMITED, (Name of the Company) a company registered under Indian Companies Act, 1956 (Act under which incorporated) and having its registered office at **Lodi Road, New Delhi**, (Hereinafter referred to as "the lessee" which expression shall where context so admits be deemed to include his/its/their successors and permitted assigns) of the other part, being represented through their Chief General Manager, "Sri Himanshu Mishra".

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

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6 NOV 2024
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Kailash Chandra Bisoi
Stamp Vendor, Rourkela
8-11-24

Endorsement of the certificate of admissibility

Admissible under rule 25: duly stamped under the Indian stamp (Orissa Amendment act 1 of 2008) Act 1899, Schedule 1-A No. 35© Fees Paid : A5(b) - 172992000, User Charges - 400, Total - 172992400.

Date:**26-Nov-2024**

Signature of Registering officer
Registering Officer
Bonai

Endorsement under section 52

Presented for registration in the office of the Sub-Registrar **Sub-Registrar BANEI** between the hours of 10:00 AM and 1:30 PM on the Date **26/11/2024** by **COLLECTOR SUNDARGARH(GOVT)** , son/daughter/wife of of **COLLECTOR SUNDARGARH**, by caste , profession and finger prints affixed.

Signature of Presenter / Date: 26-Nov-2024

THE SEAL OF THE SUB-REGISTRAR BONAI

Signature of Registering officer.
Registering Officer
Bonai

Endorsement under section 58

Execution is admitted by :

NAME	PHOTO	THUMB IMPRESSION	SIGNATURE	DATE OF ADMISSION OF EXECUTION
COLLECTOR SUNDARGARH(GOVT)	Execution By COLLECTOR SUNDARGARH(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by	Execution By COLLECTOR SUNDARGARH(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by	Execution By COLLECTOR SUNDARGARH(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by	--------

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

सत्यमेव जयते

पाँच सौ रुपये Rs. 500

INDIA NON JUDICIAL

ଓଡ଼ିଶା ओड़िशा ODISHA

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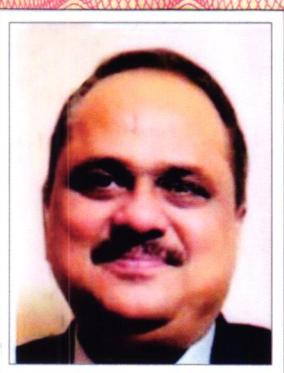


WHEREAS, the lessee/ lessees has/have executed of the renewal of mining lease deed on dtd.13.011.2014 in accordance with Mineral Concession Rules,1960 (hereinafter referred to as the said Rules) in respect the land described in part-1 of the schedule of the said lease for **Iron Ore** over an area of **2486.383 Hects** in village **Tantara, Bahamba and Toda RF** under Bonai Sub-Division of Sundargarh District which has been registered vide No.**1721400594(O)** and No.**1721400595(D)** of **2014** in the **Office of the Sub-Registrar, Bonai on dtd.13.11.2014.** The said lease valid upto 05.01.2030.

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Sl. No. 11105
Added to Sl No. 11108

Stamp Vendor
Sundargarh

D.K. Panigrahi
Stamp Vendor
Sundargarh

TREASURY OFFICE
13 AUG 2024
SUNDARGARH

THE SEAL OF THE SUB-REGISTRAR
BONAI

Registering Officer
Bonai

AND WHEREAS, the lessee/ lessees has/have executed a mining lease deed on dtd.18.01.1984 in accordance with Mineral Concession Rules, 1960 (hereinafter referred to as the said Rules) in respect of the land described in Part-1 of that in consideration of the rents and royalties of the schedule of the said lease of **Iron Ore over an area of 77.94 Hects in village Toda R.F. under Bonai Sub-Division of Sundargarh District which has been registered vide No.472(O) and 473(D) of 1984 in the Office of the District Sub-Registrar, Sundargarh on dated.20.03.1984 (hereinafter referred to as the said lease).** Said lease was valid upto 28.04.2020. Subsequently as per the order No.5583/SM, dtd.05.07.2016 of Department of Steel & Mines, Odisha, Bhubaneswar the validity period of said lease has been extended upto 28.04.2030 and the validity period of the said lease has been executed on **24.09.2016** and registered on **29.09.2016** vide Registered ID No.1721600543 of 2016 in the Office of the Sub-Register, Bonai, subject to all the conditions of the said lease deed and additional condition in the supplementary lease deed.

AND WHEREAS, the State Government in pursuance to the Power conferred under Rule-56 of the Minerals (Other than Atomic and Hydro Carbons Energy Mineral) Concession Rule, 2016 have been please to allow amalgamation of the said two Mining leases of M/s SAIL i.e. ML No.130 over an area of 2486.383 Hects in village Barsua, Taldih-Kalta under Boani Sub-Division of Sundargarh District and ML No.162 over an area of 77.94 Hects in village Toda R.F. under Bonai Sub-Division of Sundargarh District vide proceeding No.10418/SM, dtd.02.12.2020 of Govt. of Odisha, Deptt. of Steel & Mines. The supplementary lease deed for amalgamation area over 2564.323 Hects has been executed on 30.03.2021 and registered on 06.04.2021 vide registered No.1722100224 of 2021 in the Officer of the Sub-Registrar, Bonai.

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Registering Officer
Borivali

AND WHEREAS, the Government of Odisha, Deptt. of Steel & Mines vide proceeding No.10426/SM, dtd.16.10.2023 after careful consideration of the application submitted by Executive Director, Rourkela Steel Plant have been pleased to accept the surrender of part area of 5.742 Hects out of the amalgamated mining lease over an area of 2564.323 Hects of village Barsua-Taldih-Kalta Iron Mines of Steel Authority of India Limited (SAIL) located in Koira Tahasil of Sundargarh District, Odisha under Rule 21(1) of MCR 2016 and SAIL is allowed to retain the balance area under their possession till expiry of the validity of the lease.

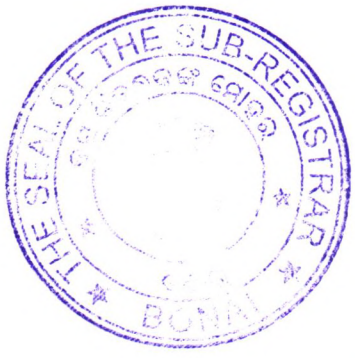
AND WHEREAS, the Director of Mines & Geology has indicated that there is no liabilities of pending dues against the lessee (in proceeding No.10426/SM, dtd.16.10.2023 of Department of Steel & Mines).

NOW THEREFORE, revised retain area of the lease is 2558.581 Hects of Barsua-Taldih-Kalta Iron Mines of M/s Steel Authority of India Limited.

The schedule above referred to-

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH



Registering Officer
Bonai

RETAIN AREA OF THIS LEASE:

Boundary Description of retain mining lease area of 2558.581 hects in village Barsua-Taldih-Kalta and Toda RF, Tahasil Koira under Bonai Sub-Division of Sundargarh District of M/s SAIL.

SL NO	POIT ID	LONGITUDE	LATITUDE	EASTING	NORTHING
1	ML-1	85°08'20.68502"	21°52'26.24177"	307720.310	2420039.402
2	ML-2	85°08'20.49597"	21°52'40.33121"	307720.129	2420472.823
3	ML-3	85°09'03.49652"	21°53'37.09593"	308975.594	2422203.856
4	ML-4	85°09'15.73262"	21°54'27.62660"	309345.507	2423753.820
5	ML-5	85°10'12.40209"	21°55'48.02427"	311001.509	2426207.155
6	ML-6	85°10'45.73388"	21°56'47.39598"	311979.720	2428021.874
7	ML-7	85°11'30.25777"	21°57'25.95840"	313271.270	2429192.814
8	ML-8	85°11'59.45614"	21°58'07.10842"	314123.889	2430448.597
9	ML-9	85°12'25.88638"	21°58'18.23599"	314886.153	2430781.950
10	ML-10	85°13'36.55914"	21°59'44.88291"	316944.512	2433423.311
11	ML-11	85°13'49.81516"	21°59'50.88559"	317326.874	2433603.529
12	ML-12	85°13'53.48120"	21°59'48.39704"	317431.141	2433525.773
13	ML-13	85°13'51.93276"	21°59'46.19860"	317385.945	2433458.670
14	ML-14	85°13'52.16505"	21°59'44.84602"	317392.126	2433416.992
15	ML-15	85°13'52.55623"	21°59'41.79877"	317402.263	2433323.139
16	ML-16	85°13'52.61917"	21°59'38.11705"	317402.759	2433209.881
17	ML-17	85°13'51.53384"	21°59'33.56960"	317370.010	2433070.376
18	ML-18	85°13'50.16643"	21°59'28.74492"	317329.070	2432922.439
19	ML-19	85°13'48.32474"	21°59'25.74463"	317275.176	2432830.771
20	ML-20	85°13'48.05520"	21°59'23.41746"	317266.616	2432759.284
21	ML-21	85°13'47.13524"	21°59'21.81520"	317239.657	2432710.309
22	ML-22	85°13'46.40995"	21°59'17.53069"	317217.327	2432578.773
23	ML-23	85°13'45.32480"	21°59'14.30317"	317185.051	2432479.865
24	ML-24	85°13'44.80108"	21°59'12.80531"	317169.495	2432433.970
25	ML-25	85°13'43.85892"	21°59'10.10701"	317141.508	2432351.292
26	ML-26	85°13'01.19713"	21°58'19.95745"	315899.774	2430823.066
27	ML-27	85°12'59.81329"	21°58'19.01451"	315859.736	2430794.526
28	ML-28	85°12'55.73024"	21°58'14.20018"	315740.875	2430647.818
29	ML-29	85°12'55.05423"	21°58'13.78503"	315721.332	2430635.275
30	ML-30	85°12'54.35823"	21°58'13.10921"	315701.123	2430614.722
31	ML-31	85°12'52.56377"	21°58'11.49929"	315649.065	2430565.806
32	ML-32	85°12'50.96171"	21°58'10.62703"	315602.791	2430539.514
33	ML-33	85°12'49.48041"	21°58'08.23600"	315559.437	2430466.470
34	ML-34	85°12'28.11759"	21°57'46.35503"	314938.685	2429800.641
35	ML-35	85°12'24.39806"	21°57'44.55425"	314831.323	2429746.504
36	ML-36	85°12'23.74647"	21°57'43.00820"	314812.072	2429699.171
37	ML-37	85°12'20.98361"	21°57'40.51180"	314731.905	2429623.318
38	ML-38	85°10'40.25371"	21°55'31.13008"	311794.596	2425678.021

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Registering Officer
Bonai

39	ML-39	85°10'38.93323"	21°55'29.45631"	311756.089	2425626.991
40	ML-40	85°10'37.24713"	21°55'27.30504"	311706.915	2425561.399
41	ML-41	85°10'19.65209"	21°54'39.22437"	311184.352	2424088.583
42	ML-42	85°10'01.45279"	21°53'49.49245"	310643.753	2422565.198
43	ML-43	85°09'59.13836"	21°53'33.93388"	310571.608	2422087.454
44	ML-44	85°09'57.62610"	21°53'20.13069"	310523.130	2421663.425
45	ML-45	85°09'56.75701"	21°53'14.53241"	310496.127	2421491.536
46	ML-46	85°09'54.71509"	21°53'08.72445"	310435.379	2421313.600
47	ML-47	85°09'43.69653"	21°52'29.62747"	310104.699	2420114.868
48	ML-48	85°09'43.50620"	21°52'26.03048"	310097.913	2420004.300
49	ML-49	85°09'26.95437"	21°52'26.16491"	309622.784	2420014.122
50	ML-50	85°09'22.11180"	21°52'07.02566"	309476.701	2419427.119
51	ML-51	85°08'49.11104"	21°50'51.59866"	308501.317	2417118.579
52	ML-52	85°08'13.60001"	21°49'51.39998"	307459.251	2415279.337
53	ML-53	85°07'55.94800"	21°49'25.43914"	306942.649	2414486.989
54	ML-54	85°07'43.75837"	21°49'25.85889"	306592.734	2414504.148
55	ML-55	85°08'03.88001"	21°50'17.25000"	307189.750	2416077.794
56	ML-55E	85°08'20.33442"	21°51'02.82058"	307679.200	2417473.706
57	ML-56	85°08'09.75248"	21°51'02.51401"	307375.242	2417467.953
58	ML-57	85°07'59.30803"	21°51'02.50106"	307075.341	2417471.191
59	ML-58	85°07'56.58856"	21°51'02.52078"	306997.263	2417472.745
60	ML-59	85°07'53.07505"	21°51'06.33406"	306897.802	2417591.256
61	ML-60	85°07'52.36177"	21°51'12.51622"	306879.631	2417781.652
62	ML-61	85°07'52.10977"	21°51'20.12234"	306875.237	2418015.685
63	ML-62	85°07'57.32460"	21°51'24.76229"	307026.700	2418156.580
64	ML-63	85°08'00.00472"	21°51'27.82793"	307104.796	2418249.938
65	ML-64	85°08'01.47834"	21°51'29.93951"	307147.894	2418314.371
66	ML-65	85°08'02.61384"	21°51'31.64976"	307181.135	2418366.578
67	ML-66	85°08'04.53794"	21°51'32.24184"	307236.600	2418384.119
68	ML-67	85°08'07.75442"	21°51'33.14786"	307329.289	2418410.867
69	ML-68	85°08'11.49393"	21°51'34.12463"	307437.021	2418439.609
70	ML-69	85°08'16.62755"	21°51'36.62614"	307585.347	2418514.764
71	ML-70	85°08'21.42120"	21°51'37.94739"	307723.471	2418553.737
72	ML-71	85°08'23.06279"	21°51'38.33191"	307770.747	2418564.993

Sd/-
Asst. Executive Engineer (Civil)
ORSAC, Bhubaneswar

Sd/-
Rev. Inspector
Jamdihi

Sd/-
Jr. Mining Officer
O/o DDM, Koira

Sd/-
Rev. Supervisor
Koira

Sd/-
Forest Range Officer
Barsuan Range

Sd/-
Tehsildar
Koira

Sd/-
Deputy Director of Mines
Koira

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Registering Officer
Bonai

SURRENDERED AREA OF THIS LEASE:

Boundary Description of surrendered area of 5.742 hects in village Tantara, Tahasil Koira under Bonai Sub-Division of Sundargarh District of M/s SAIL.

SL NO	POINT ID	LONGITUDE	LATITUDE	EASTING	NORTHING
1	1	85°09'56.17940"	21°54'23.16957"	310504.761	2423602.819
2	2	85°09'59.36624"	21°54'23.29553"	310596.276	2423605.601
3	3	85°10'12.96880"	21°54'22.90763"	310986.553	2423589.012
4	4	85°10'12.59787"	21°54'22.67762"	310975.822	2423582.064
5	5	85°10'12.47268"	21°54'22.35781"	310972.112	2423572.271
6	6	85°10'12.50516"	21°54'21.76891"	310972.828	2423554.147
7	7	85°10'08.46145"	21°54'21.74912"	310856.759	2423554.922
8	8	85°10'07.92693"	21°54'21.22145"	310841.223	2423538.875
9	9	85°10'07.58429"	21°54'21.01586"	310831.313	2423532.669
10	10	85°10'06.90586"	21°54'20.20038"	310811.542	2423507.819
11	11	85°10'06.74824"	21°54'19.84403"	310806.887	2423496.913
12	12	85°10'06.17945"	21°54'18.89833"	310790.215	2423468.021
13	13	85°10'05.58811"	21°54'18.14052"	310772.964	2423444.915
14	14	85°10'05.02789"	21°54'17.81159"	310756.764	2423434.990
15	15	85°10'04.41113"	21°54'17.37986"	310738.903	2423421.923
16	16	85°10'03.87111"	21°54'17.06399"	310723.287	2423412.392
17	17	85°10'03.60421"	21°54'16.96355"	310715.590	2423409.394
18	18	85°10'03.23416"	21°54'16.68600"	310704.866	2423400.985
19	19	85°10'02.59684"	21°54'16.46500"	310686.493	2423394.406
20	20	85°10'01.87445"	21°54'17.67242"	310666.202	2423431.790
21	21	85°10'01.15568"	21°54'18.58633"	310645.907	2423460.146
22	22	85°10'01.10086"	21°54'18.67542"	310644.366	2423462.904
23	23	85°09'58.77774"	21°54'19.37441"	310577.945	2423485.200
24	24	85°09'58.64754"	21°54'21.27265"	310574.905	2423543.629
25	25	85°09'58.37343"	21°54'22.87621"	310567.626	2423593.044
26	26	85°09'58.30490"	21°54'22.91048"	310565.672	2423594.121
27	27	85°09'56.14244"	21°54'22.97767"	310503.630	2423596.930
28	28	85°09'59.88001"	21°54'14.75470"	310607.885	2423342.733
29	29	85°10'00.22369"	21°54'14.92457"	310617.812	2423347.840
30	30	85°10'00.66485"	21°54'15.20725"	310630.578	2423356.383
31	31	85°10'01.26019"	21°54'15.52419"	310647.782	2423365.927
32	32	85°10'01.35982"	21°54'15.56824"	310650.658	2423367.248
33	33	85°10'03.62014"	21°54'13.77136"	310714.875	2423311.206
34	34	85°10'03.91138"	21°54'13.59147"	310723.168	2423305.574
35	35	85°10'04.18664"	21°54'13.04382"	310730.868	2423288.635
36	36	85°10'04.48817"	21°54'12.56755"	310739.348	2423273.883
37	37	85°10'04.95966"	21°54'11.99054"	310752.669	2423255.975
38	38	85°10'04.27915"	21°54'11.39896"	310732.919	2423238.012
39	39	85°10'04.01703"	21°54'11.01349"	310725.254	2423226.246
40	40	85°10'04.27401"	21°54'10.94667"	310732.606	2423224.103

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Registering Officer
Bonai

41	41	85°10'04.55155"	21°54'10.89528"	310740.553	2423222.427
42	42	85°10'04.54127"	21°54'10.82846"	310740.234	2423220.376
43	43	85°10'04.47446"	21°54'10.74109"	310738.284	2423217.711
44	44	85°10'04.38195"	21°54'09.80568"	310735.285	2423188.972
45	45	85°10'04.66805"	21°54'08.88328"	310743.159	2423160.504
46	46	85°10'04.66666"	21°54'08.66009"	310743.037	2423153.640
47	47	85°10'04.60156"	21°54'08.70201"	310741.184	2423154.951
48	48	85°10'03.34298"	21°54'09.07618"	310705.196	2423166.891
49	49	85°10'02.22019"	21°54'09.42584"	310673.098	2423178.030
50	50	85°10'01.11945"	21°54'09.92267"	310641.686	2423193.688
51	51	85°10'01.26079"	21°54'10.66364"	310646.015	2423216.430
52	52	85°10'01.53894"	21°54'10.67152"	310654.001	2423216.577
53	53	85°10'01.95868"	21°54'10.85569"	310666.116	2423222.098
54	54	85°10'01.76594"	21°54'11.66946"	310660.883	2423247.193
55	55	85°10'01.80449"	21°54'11.92645"	310662.084	2423255.084
56	56	85°10'02.07860"	21°54'12.05494"	310669.999	2423258.942
57	57	85°10'02.31417"	21°54'12.05494"	310676.760	2423258.861
58	58	85°10'03.11510"	21°54'12.37188"	310699.865	2423268.335
59	59	85°10'02.54545"	21°54'13.66107"	310683.988	2423308.182
60	60	85°10'02.40411"	21°54'13.89236"	310680.016	2423315.344
61	61	85°10'02.29275"	21°54'13.92234"	310676.831	2423316.305
62	62	85°10'01.79592"	21°54'13.76387"	310662.513	2423311.601
63	63	85°10'01.41045"	21°54'13.45977"	310651.337	2423302.380
64	64	85°10'00.83653"	21°54'13.88379"	310635.020	2423315.618

Sd/-
Asst. Executive Engineer (Civil)
ORSAC, Bhubaneswar

Sd/-
Rev. Inspector
Jamdihi

Sd/-
Jr. Mining Officer
O/o DDM, Koira

Sd/-
Rev. Supervisor
Koira

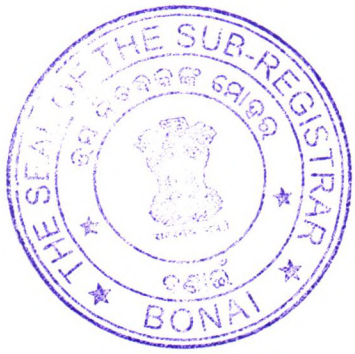
Sd/-
Forest Range Officer
Barsuan Range

Sd/-
Tehsildar
Koira

Sd/-
Deputy Director of Mines
Koira

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH



Registering Officer
Bonai

Land Schedule of retain mining lease area of 2558.581 hects in village Barsua-Taldih-Kalta and Toda RF, Tahasil Koira under Bonai Sub-Division of Sundargarh District of M/s SAIL.

VILLAGE TANTARA							
Khata No.	Name of the Tenant	Plot No.	Kissam	Area as per ROR	Area as per DGPS		Remarks
				in Acre	in Acre	in Ha.	
1	Ananda Naik, Budhu Naik, S/O- Kushan Naik	125	Goda I	1.100	0.923	0.374	Encroached by Madan Naik, S/o Milu Naik since 1965(ST)
1	Ananda Naik, Budhu Naik, S/O- Kushan Naik	129	Gharabari	0.090	0.071	0.029	Encroached by Madan Naik, S/o Milu Naik since 1965(ST)
2	Sk. Imam Box, S/O- Sayad Bux	195/256(P)	Gharabari	0.020	0.108	0.044	
3	Kandara Naik, S/O- Suna Naik	60	Goda II	0.900	0.808	0.327	
3	Kandara Naik, S/O- Suna Naik	90	Goda II	0.780	0.713	0.288	ST
4	Kandara Dehury, S/O-Tira Dehury	173	Goda II	1.000	0.822	0.333	ST
4	Kandara Dehury, S/O-Tira Dehury	174	Malasadharana	0.610	0.589	0.238	ST
4	Kandara Dehury, S/O-Tira Dehury	81/276(P)	Goda II	0.760	0.531	0.215	ST
4	Kandara Dehury, S/O-Tira Dehury	80/227(P)	Malasadharana	0.480	0.181	0.073	ST
4	Kandara Dehury, S/O-Tira Dehury	226	Goda II	0.540	0.529	0.214	ST
4	Kandara Dehury S/O-Tira Dehury	130	Gharabari	0.070	0.089	0.036	ST
4	Kandara Dehury, S/O-Tira Dehury	131	Gharabari	1.320	1.282	0.519	ST
5	Baneswar Naik, S/U Krushna Naik, Budhu Naik, S/o-Gamaha Naik	62	Goda II	1.370	1.295	0.524	ST
5	Baneswar Naik, S/U Krushna Naik, Budhu Naik, S/o-Gamaha Naik	132	Gharabari	0.690	0.562	0.228	ST
5	Baneswar Naik, S/U Krushna Naik, Budhu Naik, S/o-Gamaha Naik	133	Gharabari	0.080	0.062	0.025	ST
5	Baneswar Naik, S/U Krushna Naik, Budhu Naik, S/o-Gamaha Naik	134	Gharabari	0.090	0.079	0.032	ST
5	Baneswar Naik, S/U Krushna Naik, Budhu Naik, S/o-Gamaha Naik	172/266	Goda II	0.130	0.134	0.054	ST

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5	DO	172	Goda II	0.340	0.033	0.133	ST
6	Chihudu Naik, Maghu Naik, S/O- Damu Naik	152/267	Goda II	0.210	0.203	0.082	ST
7	Chandi Naik, Ghasiani Naik, D/O- Ramachandra Naik. Fagu Naik, S/O- Shukra Naik	149	Gharabari	0.190	0.184	0.074	ST
7	do	150	Gharabari	0.180	0.117	0.047	ST
8	Chema Naik, Banshi Naik S/O- Dasharu Naik. Encroached by Krushna Naik, Budhu Naik, S/O- Gamaha Naik since 1950	62/268	Goda II	1.580	1.508	0.610	ST
9	Turi Naik, Sunari Naik, Jadhani Naik D/O- Bania Naik. Banshi Naik W/O- Bania Naik. Raghu Naik S/O-Indra Naik. Jagannath Naik, Dhanu Naik, S/O- Jaya Naik, Sara Naik, W/O- Jagu Naik	87	Goda II	3.860	3.764	1.523	ST
10	Dasharu Naik, S/O- Fulashar Naik	96	Goda II	0.730	0.779	0.315	ST
11	Damu Munda, S/O- Tepa Munda	105	Gharabari	0.090	0.059	0.024	ST
11	DO	106	Gharahari	0.450	0.544	0.220	ST
12	Dharani Naik, Panu Naik, S/O- Mathura Naik	92	Goda II	0.350	0.324	0.131	ST
12	DO	91	Gada II	0.580	0.499	0.202	ST
12	DO	145	Gharabari	0.090	0.086	0.035	ST
12	DO	142	Gharabari	0.150	0.107	0.043	ST
12	DO	143	Gharabari	0.110	0.116	0.047	ST
12	DO	156	Gharabari	0.500	0.448	0.181	ST
13	Nandara Naik, S/O- Saheb Naik	43	Goda II	0.370	0.341	0.138	ST
13	DO	42	Gharabari	0.050	0.025	0.010	ST
13	DO	41	Goda II	3.440	3.792	1.535	ST
13	DO	39	Malasadharana	0.850	0.712	0.288	ST
13	DO	37	Berna Sadharana	0.470	0.394	0.160	ST
14	Panu Naik, S/O- Mangulu Naik. Sanu Naik & Others S/O- Sujan Naik. Jagabandhu Naik, S/O- Rudan Naik, Baidhar Naik, Dasaru Naik S/O- Bami Naik, Mani Naik, S/O- Jayadhar Naik.	63/274	Goda II	0.100	0.153	0.062	ST
14	DO	227	Goda II	0.780	0.570	0.231	ST

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14	DO	119	Goda I	1.050	1.1	0.445	ST
14	DO	117	Goda I	0.240	0.139	0.056	ST
14	DO	120	Goda I	1.580	1.614	0.653	ST
14	DO	121	Gharabari	0.230	0.062	0.025	ST
14	DO	122	Gharabari	0.080	0.044	0.018	ST
14	DO	123	Gharabari	0.670	0.641	0.259	ST
14	DO	124	Goda I	0.710	0.894	0.362	ST
14	DO	126	Gharabari	0.100	0.067	0.027	ST
14	DO	110	Goda I	0.260	0.233	0.094	ST
14	Panu Naik, S/O- Mangulu Naik. Sanu Naik & Others S/O- Sujan Naik. Jagabandhu Naik S/O- Rudan Naik, Baidhar Naik, Dasaru Naik S/O- Bami Naik, Mani Naik S/O- Jayadhar Naik.	112/P	Goda I	1.210	0.733	0.297	ST
14	DO	233/P	Goda II	0.040	0.010	0.004	ST
14	DO	127	Gharabari	0.120	0.085	0.034	ST
15	Panu Naik, Shukra Naik, S/O- Gada Naik, Kandara Naik, Laxman Naik S/O- Suna Naik, Ratna Naik, S/O- Mangulu Naik	161	Goda I	0.130	0.126	0.051	Occupied by Laxman Naik(ST)
15	DO	175	Malasadharana	0.390	0.290	0.117	Occupied by Laxman Naik(ST)
15	DO	165	Malasadharana	0.150	0.165	0.067	Occupied by Kandara Naik(ST)
15	DO	164	Malasadharana	0.250	0.267	0.108	Occupied by Panu Naik(ST)
15	Panu Naik, Shukra Naik S/O- Gada Naik, Kandara Naik, Laxman Naik S/O- Suna Naik, Ratna Naik, S/O- Mangulu Naik	94	Goda II	0.920	0.756	0.306	Occupied by Sukra Naik & Ratna Naik(ST)
15	DO	0.33	Goda II	0.170	0.165	0.067	Occupied by Panu Naik(ST)
15	DO	137	Gharabari	0.020	0.021	0.008	Occupied by Panu Naik(ST)
15	DO	138	Gharabari	0.020	0.021	0.008	Occupied by Sukra Naik & Others Mu. Plot No-94(ST)
15	DO	139	Gharabari	0.040	0.041	0.017	Occupied by Kandara Naik(ST)
15	DO	140	Gharabari	0.060	0.048	0.019	Occupied by Laxman Naik(ST)

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15	DO	141	Gharabari	0.130	0.130	0.052	Occupied by Laxman Naik(ST)
15	DO	144	Gharabari	0.130	0.107	0.043	Occupied by Kandara Naik(ST)
15	DO	153	Gharabari	0.300	0.258	0.105	Occupied by Laxman Naik(ST)
15		155	Gharabari	0.220	0.193	0.078	Occupied by Panu Naik(ST)
15	DO	158	Goda II	0.650	0.564	0.228	Occupied by Kandara Naik(ST)
15	DO	159	Gharabari	0.290	0.253	0.102	Occupied by Panu Naik(ST)
16	Panu Naik, S/O-Gada Naik	89	Goda II	0.500	0.531	0.215	ST
16	DO	57	Goda II	1.870	1.793	0.726	ST
16	DO	60/265	Goda II	1.000	0.933	0.378	ST
17	Panu Naik, S/O-Mangulu Naik	114	Goda II	0.370	0.297	0.120	ST
18	Bania Naik, Raghu Naik, Jaya Naik S/O-Indra Naik, Para Naik, W/O- Jagu Naik	95/271	Goda II	2.000	1.829	0.740	ST
18	DO	87/272	Goda II	0.340	0.370	0.150	ST
18	DO	98	Goda II	1.330	1.321	0.535	ST
18	DO	99	Gharabari	0.210	0.174	0.071	ST
19	Banamali Munda, S/O- Palau Munda	103	Gharabari	0.020	0.015	0.006	ST
19	DO	104	Gharabari	0.280	0.261	0.106	ST
20	Barju Naik, Dharmu Naik, Dukhu Naik S/O- Kuladhar Naik, Madhu Naik, Padu Naik, S/O- Dula Naik	171	Goda II	0.390	0.339	0.137	ST
20	DO	97	Gharabari	0.600	0.675	0.273	ST
20	DO	100	Gharabari	0.050	0.047	0.019	ST
20	DO	101	Gharabari	0.030	0.031	0.013	ST
20	DO	102	Gharabari	1.500	1.333	0.539	ST
22	Sana Baisakhu Naik S/O- Gunthu Naik, Encroached by Arjun Dehury, S/O- Pareshawar Dehury since 1945	146	Gharabari	0.060	0.058	0.023	ST
22	DO	151	Gharabari	0.290	0.248	0.100	ST
23	Mani Naik, S/O-Jayadhar Naik	225	Goda II	0.230	0.207	0.084	ST
24	Rania Naik, S/O-Bithhal Naik	147	Gharabari	0.070	0.059	0.024	ST
24	DO	148	Gharabari	0.170	0.188	0.076	ST
24	DO	154	Goda I	0.330	0.374	0.152	ST
25	Ratna Naik S/O-Mangulu Naik	160	Goda II	0.210	0.177	0.072	ST

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26	Laxman Naik, S/O- Suna Naik	88	Goda II	0.710	0.669	0.271	ST
26	DO	228	Goda II	0.710	0.551	0.223	ST
26	DO	59	Goda II	1.750	1.700	0.688	ST
27	Laxmiram Agrawala, S/O- Parshuram Agrawala	195/258	Gharabari	0.080	0.073	0.029	ST
28	Sanu Naik, Raya Naik, Kusha Naik, S/O- Sujan Naik	63	Goda II	2.720	2.538	1.027	ST
29	Sridhar Naik, Rama Naik S/O- Panika Naik, Encroached by Chihilu Naik, Maghu Naik, S/O- Dimu Naik Since 1963	152	Gharabari	0.380	0.376	0.152	ST
30	Sunia Munda, Sama Munda S/O- Tanti Munda, Sonu Munda S/O- Indra Munda, Jagat Munda, S/O- Turka Munda	108/283	Goda II	0.420	0.388	0.157	ST
31	Hari Naik, S/O- Bami Naik	64	Goda II	2.100	1.897	0.768	ST
31	DO	128	Gharabari	0.110	0.106	0.043	ST
32	Rakhit	30	Gramya Jungle	11.030	11.026	4.462	**SURRENDERED PLOT**
				1.690	0.526	0.213	Retained Area
32	Rakhit	193/305	Sadak	4.480	4.774	1.932	ST
32	Rakhit	178	Gochar	12.500	12.283	4.971	ST
32	Rakhit	238	Gochar	8.550	8.234	3.332	ST
32	Rakhit	93	Basti yogya	16.880	17.033	6.893	ST
32	Rakhit	95/284	Unnat yojana yogya	2.000	2.031	0.822	ST
32	Rakhit	111/P	Pani Nala	0.340	0.255	0.103	
32	Rakhit	195/261	Gharabari	0.190	0.194	0.079	Quarter of Forester & Forest Guard
32	Rakhit	115	Gharabari	0.410	0.364	0.147	Tantra L. P. School Buildings Managed by Koira Gram Panchayat since 1960
32	Rakhit	116	Bagicha	0.060	0.033	0.013	
32	Rakhit	118	Pani Nala	1.320	1.246	0.504	
32	Rakhit	136	Gharabari	0.060	0.046	0.019	
32	Rakhit	107	Sarba Sadharana	0.770	0.786	0.318	Reserved for Burning Ghat
32	Rakhit	240/P	Unnat Jojana Yogya	0.600	0.289	0.117	Reserved for school Building & Play Ground
32	Rakhit	234/P	Pani Nala	0.220	0.110	0.044	
33	Sarba sadharana	217	Gharabari	0.080	0.057	0.023	Girja Ghara
33	Sarba sadharana	109	Rasta	1.040	0.910	0.368	
33	Sarba sadharana	229/P	Rasta	0.900	1.025	0.415	

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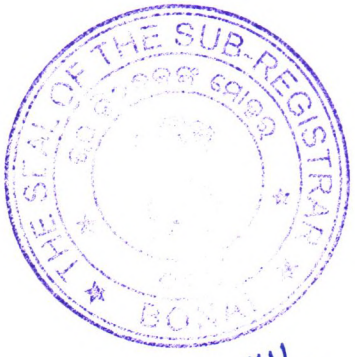

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33	Sarba sadharana	135	Rasta	0.190	1.192	0.483	
33	Sarba sadharana	176	Bijesthali	0.700	0.681	0.276	Bijesthali of Grama Devati
33	Sarba sadharana	23/P	Rasta	0.340	0.347	0.140	
33	Sarba sadharana	213	Rasta	0.450	0.424	0.172	
33	Sarba sadharana	221	Kabara Sthan	0.330	0.329	0.133	Graveyard
33	Sarba sadharana	222/282	Playground	0.280	0.290	0.117	
33	Sarba sadharana	113	Rasta	0.320	0.312	0.126	
34	Abad Jogya Anabadi	56	Jungle	3.160	3.165	1.281	**SURRENDERED PLOT**
34	Abad Jogya Anabadi	196	Gharabari	1.110	1.224	0.495	Encroached by Masidas Munda, Gamia Munda S/O-Suleman Munda
34	Abad Jogya Anabadi	197	Gharabari	0.720	1.134	0.459	Encroached by Masidas Munda & others mu. Plot no. 196
34	Abad Jogya Anabadi	198	Goda II	0.940	0.742	0.300	Encroached by Suleman Munda, Paulush Munda S/O-Johan Munda since 1958
34	Abad Jogya Anabadi	199	Goda II	0.700	0.723	0.292	Encroached by Masidas Munda & others mu. Plot no. 196
34	Abad Jogya Anabadi	24/P	Berna Sadharana	0.140	0.124	0.050	Encroached by Simon Munda
34	Abad Jogya Anabadi	29	Berna Sadharana	0.250	0.38	0.154	Encroached by Santosh Munda & others Mu. Plot no.19
34	Abad Jogya Anabadi	27	Goda II	0.180	0.128	0.052	Encroached by Anand Masi Munda
34	Abad Jogya Anabadi	28	Goda II	0.280	0.256	0.103	Encroached by Santosh Munda & others Mu. Plot no.19
34	Abad Jogya Anabadi	25/P	Goda II	0.240	0.226	0.091	Encroached by Simon Munda
34	Abad Jogya Anabadi	20	Gharabari	0.470	0.382	0.154	Encroached by Santosh Munda
34	Abad Jogya Anabadi	19	Gharabari	0.060	0.036	0.014	Encroached by Santosh Munda, Patras Munda, S/O-Alias Munda
34	Abad Jogya Anabadi	65	Patit	29.150	27.611	11.174	
34	Abad Jogya Anabadi	157	Patit	6.250	6.351	2.570	
34	Abad Jogya Anabadi	179	Patit	40.000	39.011	15.787	Reserved for jawans of Odisha

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34	Abad Jogya Anabadi	170	Patit	41.250	40.952	16.573	
34	Abad Jogya Anabadi	210	Gharabari	0.110	0.093	0.038	Encroached by Kusal Munda mu. Plot no.201
34	Abad Jogya Anabadi	211	Gharabari	0.150	0.127	0.051	Encroached by Masidas Munda & others mu. Plot no. 196
34	Abad Jogya Anabadi	212	Gharabari	0.150	0.103	0.041	Encroached by Masidas Munda & others mu. Plot no. 196
34	Abad Jogya Anabadi	177	Patit	40.450	39.291	15.900	
34	Abad Jogya Anabadi	95	Patit	7.950	6.542	2.648	
34	Abad Jogya Anabadi	205	Patit	1.440	1.621	0.656	
34	Abad Jogya Anabadi	222	Patit	28.520	29.301	11.858	
34	Abad Jogya Anabadi	55	Patit	0.400	0.361	0.146	
34	Abad Jogya Anabadi	54	Patit	3.320	3.178	1.286	
34	Abad Jogya Anabadi	53	Patit	0.830	0.752	0.304	
34	Abad Jogya Anabadi	52	Patit	1.100	0.982	0.397	Reserved for jawans of Odisha
34	Abad Jogya Anabadi	50	Patit	0.320	0.325	0.131	
34	Abad Jogya Anabadi	195/281	Gharabari	0.400	0.425	0.172	Encroached by Kandha Swami mu. Plot no.195/263
34	Abad Jogya Anabadi	202	Gharabari	0.580	0.637	0.258	Encroached by Kusal Munda mu. Plot no.201
34	Abad Jogya Anabadi	49	Gharabari	0.420	0.361	0.146	Encroached by Budhu Naik Mu. Plot no-44
34	Abad Jogya Anabadi	48	Patit	0.230	0.214	0.086	
34	Abad Jogya Anabadi	47	Patit	0.070	0.035	0.014	
34	Abad Jogya Anabadi	46	Gharabari	0.100	0.035	0.014	Encroached by Budhu Naik Mu. Plot no-44
34	Abad Jogya Anabadi	45	Gharabari	0.050	0.026	0.010	Encroached by Budhu Naik Mu. Plot no-44
34	Abad Jogya Anabadi	44	Gharabari	0.350	0.312	0.126	Encroached by Budhu Naik S/O-Kulu Naik Since 1960
34	Abad Jogya Anabadi	40	Patit	0.720	0.689	0.279	
34	Abad Jogya Anabadi	34/P	Patit	1.890	1.966	0.796	
34	Abad Jogya Anabadi	38	Patit	1.300	1.104	0.447	
34	Abad Jogya Anabadi	81/P	Patit	7.460	6.757	2.734	
34	Abad Jogya Anabadi	80/P	Patit	5.350	4.975	2.013	
34	Abad Jogya Anabadi	36	Goda II	4.120	3.795	1.536	Encroached by Simon Munda & others Mu. Plot no-13

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34	Abad Jogya Anabadi	15/P	Gharabari	0.180	0.128	0.052	Encroached by Simon Munda
34	Abad Jogya Anabadi	14/P	Gharabari	0.320	0.317	0.128	Encroached by Simon Munda
34	Abad Jogya Anabadi	13/P	Goda II	0.200	0.168	0.068	Encroached by Simon Munda, Paulus Munda, S/O- Nirmal Munda
34	Abad Jogya Anabadi	37/269	Patit	0.220	0.196	0.079	
34	Abad Jogya Anabadi	62/307	Goda II	0.130	0.098	0.040	Encroached by Krushna Naik, Budhu Naik, S/O- Gamha Naik Since 1960
34	Abad Jogya Anabadi	201	Goda II	0.310	0.290	0.117	Encroached by Kusal Munda, S/O- Lukash Munda since 1958
34	Abad Jogya Anabadi	108	Goda II	0.800	0.746	0.302	Encroached by Panu Naik, Mu. Plot no.114
34	Abad Jogya Anabadi	199/278	Goda II	0.160	0.178	0.072	Encroached by Suleman Munda
34	Abad Jogya Anabadi	61	Patit	8.350	7.906	3.200	Reserved for jawans of Odisha
34	Abad Jogya Anabadi	195/263	Gharabari	0.130	0.097	0.039	Encroached by Kandha Swami, S/O- Rama Swami since 1962
34	Abad Jogya Anabadi	195/264	Patit	0.130	0.120	0.049	
34	Abad Jogya Anabadi	195/260	Patit	0.080	0.078	0.032	
35	Abad Jogya Anabadi	35	Patharbani	0.230	0.237	0.096	
35	Abad Jogya Anabadi	33	Patharbani	0.100	0.057	0.023	
35	Abad Jogya Anabadi	51	Pahad	46.380	43.872	17.754	Samalai
35	Abad Jogya Anabadi	58/P	Pahad	8.770	9.635	3.899	Samalai
35	Abad Jogya Anabadi	66	Pahad	14.500	13.243	5.359	Samalai
35	Abad Jogya Anabadi	67	Pahad	14.200	13.045	5.279	Samalai
35	Abad Jogya Anabadi	68/P	Pahad	0.800	1.406	0.569	Bichakandi
35	Abad Jogya Anabadi	86/P	Pahad	10.300	9.300	3.763	Marakham
35	Abad Jogya Anabadi	162	Pahad	7.900	8.929	3.613	Gothapara
35	Abad Jogya Anabadi	163	Pahad	33.750	33.484	13.550	Gothapara
35	Abad Jogya Anabadi	167	Pahad	38.000	40.191	16.265	Samalai
35	Abad Jogya Anabadi	166	Pahad	39.780	41.028	16.603	Samalai
35	Abad Jogya Anabadi	168	Pahad	39.550	39.740	16.082	Samalai
35	Abad Jogya Anabadi	169	Pahad	38.520	38.009	15.382	Samalai
35	Abad Jogya Anabadi	180	Pahad	25.000	24.453	9.896	Bichakandi
35	Abad Jogya Anabadi	181	Pahad	40.000	39.314	15.910	Bichakandi
35	Abad Jogya Anabadi	182	Pahad	40.220	39.068	15.810	Bichakandi
35	Abad Jogya Anabadi	183	Pahad	35.500	34.917	14.130	Bichakandi

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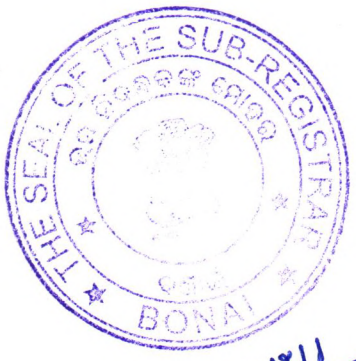
35	Abad Jogya Anabadi	184	Pahad	39.000	40.406	16.352	Bichakandi
35	Abad Jogya Anabadi	185	Pahad	39.550	38.309	15.503	Bichakandi
35	Abad Jogya Anabadi	186	Pahad	41.120	43.159	17.466	Bichakandi
35	Abad Jogya Anabadi	187	Pahad	30.320	31.541	12.764	Bichakandi
35	Abad Jogya Anabadi	188	Pahad	26.240	27.373	11.077	Bichakandi
35	Abad Jogya Anabadi	189	Pahad	43.560	43.404	17.565	Bichakandi
35	Abad Jogya Anabadi	190	Pahad	26.320	27.542	11.146	Bichakandi
35	Abad Jogya Anabadi	191	Pahad	51.300	54.502	22.056	Bichakandi
35	Abad Jogya Anabadi	192	Pahad	29.320	31.337	12.681	Bichakandi
35	Abad Jogya Anabadi	193	Pahad	37.840	39.385	15.938	Bichakandi
35	Abad Jogya Anabadi	194/P	Pahad	29.390	33.473	13.546	Bichakandi
35	Abad Jogya Anabadi	195/P	Pahad	12.400	13.234	5.355	Bichakandi
35	Abad Jogya Anabadi	223	Pahad	40.000	38.958	15.766	Bichakandi
35	Abad Jogya Anabadi	224/P	Pahad	55.718	60.648	24.543	Bichakandi
35	Abad Jogya Anabadi	255/P	Pahad	32.490	47.234	19.115	Bichakandi
35	Abad Jogya Anabadi	239	Pahad	15.000	14.561	5.893	Bichakandi
31/1	Rajbir Bahadur, Purna Bahadur, S/O- Bhaleswar Bahadur	195/262	Gharabari	0.350	0.3	0.122	
31/2	Udayanath Rath, S/O- Dinabandhu Rath	195/257	Gharabari	0.090	0.076	0.031	
31/3	Patras Munda, S/O- Simon Munda	214	Gharabari	0.430	0.437	0.177	ST
31/4	DO	207	Gharabari	1.720	1.648	0.667	ST
31/4	Patras Munda, Kushal Munda, S/O- Paulus Munda	204	Goda II	0.590	0.567	0.230	ST
31/4	Patras Munda, Kushal Munda, S/O- Paulus Munda	208	Gharabari	0.150	0.106	0.043	ST
31/5	Anand Masi Munda, S/O- Christ Munda	26	Berna Sadharana	0.350	0.345	0.140	ST
31/5	Anand Masi Munda, S/O- Christ Munda	18	Gharabari	0.490	0.456	0.184	ST
31/5	Anand Masi Munda, S/O- Christ Munda	17	Goda II	0.720	1.585	0.641	ST
31/5	Anand Masi Munda, S/O- Christ Munda	16	Gharabari	0.130	0.067	0.027	ST
31/5	Anand Masi Munda, S/O- Christ Munda	12/P	Goda II	0.210	0.247	0.100	ST
31/6	Paulus Munda, S/O- Gobarei Munda	200	Goda II	0.330	0.631	0.255	ST
31/6	Paulus Munda, S/O- Gobarei Munda	215	Gharabari	0.450	0.428	0.173	ST
31/6	DO	216	Gharabari	0.070	0.056	0.023	ST
31/7	Lukas Munda, S/O- Santosh Munda	206	Goda II	0.790	0.809	0.327	ST
31/7	Lukas Munda, S/O- Santosh Munda	203	Goda II	0.840	0.712	0.288	ST
31/7	DO	209	Gharabari	0.210	0.128	0.052	ST
31/8	Mohan Munda, S/O- Sama Munda	32	Goda II	1.710	1.579	0.639	ST
31/8	Mohan Munda, S/O- Sama Munda	31	Berna Sadharana	1.000	0.896	0.362	ST

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH



Registering Officer
Bonai

31/8	DO	22	Gharabari	0.090	0.060	0.024	ST
31/8	Mohan Munda, S/O-Sama Munda	21	Gharabari	0.470	0.445	0.180	ST
31/8	Mohan Munda, S/O-Sama Munda	34/275	Goda II	1.320	1.223	0.495	ST
31/9	Daud Munda, S/O-Matias Munda	218	Gharabari	0.090	0.066	0.027	ST
31/9	DO	219	Gharabari	0.410	0.398	0.161	ST
31/9	DO	220	Goda II	1.400	1.428	0.578	ST
31/10	Kamaudin Khan, S/O-Khudbox	195/259	Gharabari	0.080	0.074	0.030	
	TANTRA VILLAGE TOTAL			**1363.468**	**1383.739**	**559.979**	
	SURRENDERED AREA Plot No-56 & 30 (Part Plot)			**(-) 14.19**	**(-) 14.19**	**(-) 5.742**	
	RETAINED AREA OF TANTRA VILLAGE			**1349.278**	**1369.549**	**554.237**	

VILLAGE BAHAMBA

Khata No.	Name of the Tenant	Plot No.	Kissam	Area as per RoR	Area as per DGPS		Remarks
				in Acre	in Acre	in Ha	
25	Abad Jogya Anabadi	1	Pahad	38.75	39.236	15.879	Kuradhi Munda
25	Abad Jogya Anabadi	2/P	Pahad	29.19	26.578	10.756	do
25	Abad Jogya Anabadi	3/P	Pahad	22.43	31.791	12.865	do
25	Abad Jogya Anabadi	4/P	Pahad	20.38	35.607	14.410	do
25	Abad Jogya Anabadi	67/P	Pahad	4.24	14.031	5.678	do
25	Abad Jogya Anabadi	5/P	Pahad	0	0.711	0.288	do
	BAHAMBA VILLAGE TOTAL			**114.990**	**147.953**	**59.875**	

VILLAGE TODA

Khata No.	Name of the Tenant	Plot No.	Kissam	Area as per RoR	Area as per DGPS		Remarks
				in Acre	in Acre	in Ha	
83	Nala	710/P	Nayanjori		0.129	0.052	
83	Nala	712/P	Nayanjori		0.176	0.071	
83	Sadak	711/P	Sadak		0.502	0.203	
83	Rakhit	709/P	Patra Jungle		1.573	0.637	
83	Rakhit	835/P	Patra Jungle		1.610	0.652	
83	Rakhit	850/P	Patra Jungle		2.118	0.857	
83	Rakhit	851/P	Patra Jungle		15.622	6.322	
	TODA VILLAGE TOTAL				**21.729**	**8.794**	

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH

Registering Officer
Bonai

ABSTRACT OF LEASE AREA RETAINED

Sl No.	Village	Area as per RoR	Area as per DGPS Survey	
		in Acre	in Acre	in Ha.
1	Tantra	1349.278	1369.549	554.237
2	Bahamba	114.99	147.953	59.875
3	Toda		21.729	8.794
4	Toda RF	4858.162	4766.313	1928.858
G. TOTAL		**6322.430**	**6305.544**	**2551.764**
		Or 2558.581 Ha		

Sd/-
Asst. Executive Engineer (Civil)
ORSAC, Bhubaneswar

Sd/-
Rev. Inspector
Jamdihi

Sd/-
Jr. Mining Officer
O/o DDM, Koira

Sd/-
Rev. Supervisor
Koira

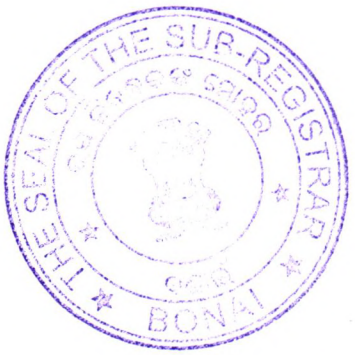
Sd/-
Forest Range Officer
Barsuan Range

Sd/-
Tehsildar
Koira

Sd/-
Deputy Director of Mines
Koira

HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

COLLECTOR
SUNDARGARH



Registering Officer
Bonai

IN WITNESS

WHEREOF these presents have been executed in the manner hereunder appearing the day and year first above written.

Signed by

COLLECTOR
SUNDARGARH
COLLECTOR, SUNDARGARH

For and on behalf of the Governor of Odisha

In the presence of witnesses:-

1. _____
2. Pradeep Kumar Sahangir
Collectorate, Sundargarh

Himanshu Mishra
CGM (BIM, KIM & TIM)
Rourkela Steel Plant.
(Lessee)
HIMANSHU MISHRA
Chief General Manager
BIM-TIM-KIM, SAIL-RSP

In the presence of witnesses:-

1. _____
ANUPAM NAIK
Asst. General Manager (Env.)
Barsua Iron Mine, RSP

2. _____
SOURAV MONDAL
Asst, Manager (Env)
SAIL, RSP, BIM

BARSUA TALDIHI KALTA IRON MINES THROUGH HIMANSHU MISHRA		 244939939		26-NOV-2024
Identified by **ANUPAM NAIK** Son/Wife of **GANESHRAM NAIK** of **ASST GENERAL MANAGER ENV BARSUA IRON MINES RSP SAIL SUNDARGARH** by profession				
ANUPAM NAIK		 43552105		26-NOV-2024

Date: 26-Nov-2024

Registering Officer
Bonai
Signature of Registering officer

Endorsement of certificate of registration under section 60

Registered and true copy filed in : Office of the Sub-Registrar , BANEI

Book Number : 1 || Volume Number : 16

Document Number : 11722400658

For the year : 2024

THE SEAL OF THE SUB-REGISTRAR BONAI

Seal :
Date : 27/11/2024

Registering Officer
Bonai
Signature of Registering officer

IMPOUND CASE NO- 2024

Certified that the deficit Stampduty of Rs. 43249900 -0-
and Penalty Rs.5/- Total Rs. 43249905 (Rupees forty three Crore forty four Thousand Seventy nine Hundred Five) only
has been realised from the concerned party vide this office misc Receipt No. 492 Dt. 26/11/24 Now the document is adjudicated with proper Stamped.

26.11.24
Sub-Registrar
Cum-Stamp Collector U/S 38 (2)
of the Indian Stamp Act.

Registering Officer Bonal

RECEIPT UNDER SECTION 52 CLAUSE (B) (Triplicate)

Registration Office : BANEI | Year : 2024 | Application Id : 1722400662 | Book No : 1

Executant Name
COLLECTOR SUNDARGARH(GOVT)

Presenter Name
COLLECTOR SUNDARGARH(GOVT)

Claimant Name
BARSUA TALDIHI KALTA IRON MINES THROUGH HIMANSHU MISHRA

Fee Details

Total Registration Fees Paid :	₹ 172992400
A5(b) :	₹ 172992000
User Charges :	₹400
Expected date of return of document	27-Nov-2024

Received the document mentioned in this receipt.

Date: 26-Nov-2024 | Date:

Signature of the Registering Officer | Signature of the Receiver

Registering Officer Bonal

Terms & Conditions :

The Presenter should deposit this receipt duly signed by him.

Documents other than WILL will be destroyed if not received within 2 years.

If the document refused for registration, the registration fee shall be returned.

MISCELLANEOUS RECEIPT

SERIAL NO. :	492/2024
DATE :	26-NOV-2024
NAME :	MS STEEL AUTHORITY OF INDIA LTD
REGISTRATION NO. :	1722400662
HEAD OF ITEM :	DEFICIT STAMP DUTY
AMOUNT(RS.) :	432479005

Registering Officer
Bonai

SIGNATURE AND STAMP OF REGISTERING OFFICER

DATE :26-11-2024

Registering Officer
Bonai

Annexure-D

By e-mail

DIRECTORATE OF MINES & GEOLOGY
STEEL AND MINES DEPARTMENT, GOVT. OF ODISHA,
BHUBANESWAR

Heads of Department Building, Unit-V, Pin-751001
Tel No.: 0674-2391537, Fax No.: 0674-2391684
Email ID: dirmines_odisha@rediffmail.com

No. DMO-MCIII-MACON-0039-2023-6370/DoMG, Dt. 06-05-2023

From

G. Rajesh, IFS
Director of Mines & Geology, Odisha
Bhubaneswar.

To

The Deputy Director of Mines, Koira.
District-Sundargarh.

Sub: - Issuance of NOC to SAIL for installation of Belt Conveyors for evacuation of Iron ore from Taldih and Kalta Iron Mines under the Mining Lease of Barsua-Taldih-Kalta Iron Mines in compliance to the recommended SOTM of CSIR- NEERI.

In inviting a reference to your letter No. 165/Mines dt. 17.01.2023 on the subject mentioned above, I am enclosing herewith the approval of State Govt. vide letter No. 4237/SM dt. 28.04.2023 for issue of NOC in favour of M/s SAIL for continuation of existing road transportation of iron ore from the Taldih Iron and Kalta Iron Mines as requested by the lessee company. You are therefore instructed to allow the lessee company, M/s SAIL continuation of existing road transportation of iron ore from the Taldih Iron Mine for 2 years and Kalta Iron Mine for 3 years to M/s SAIL's Private Railway Sidings at Barsua and Roxy respectively w.e.f. 01.04.2023 with the following conditions under intimation to the Collector, Sundargarh and DFO, Bonai and report compliance.

1. The lessee company shall follow the strict Environment Protection measures like watering the roadways at regular intervals.

2. The lessee company shall follow other preventive measures to minimize the Pollution as because of plying of trucks.

3. The lessee company shall undertake for compliance the condition of conveyor belt for transportation of minerals as per recommendation of CSIR, NEERI on Suggested Ore Transport Mode (SOTM).

Encl: - As above

DIRECTOR OF MINES & GEOLOGY (O)

Memo No. 6371 **/DoMG Dt.** 06-05-2023

Copy alongwith enclosures forwarded to the Collector, Sundargarh / D.F.O., Bonai for kind information and necessary action.

DIRECTOR OF MINES & GEOLOGY (O)

Memo No. 6372 **/DoMG Dt.** 06-05-2023

Copy alongwith enclosures forwarded to the Project Head, PMU Section for information and necessary action.

DIRECTOR OF MINES & GEOLOGY (O)

Memo No. 6373 **/DoMG Dt.** 06-05-2023

Copy forwarded to the P.S. to Additional Chief Secretary to Govt., Department of Steel & Mines, Odisha for kind information of Additional Chief Secretary to Govt. w.r.t. Govt. letter dt. 28.04.2023.

DIRECTOR OF MINES & GEOLOGY (O)

BARSUA-TALDIH-KALTA IRON MINES

Annexure - III

DETAIL ANALYSIS OF AIR QUALITY MONITORING

Location	APRIL 2024					'MAY 2024					'JUNE 2024					'JULY 2024					'AUGUST 2024					'SEPTEMBER 2024				
	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO	RSPM (PM_{10})	$PM_{2.5}$	SO_2	NO_x	CO
Unit	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**
A) Ambient Air Quality in Residential, rural & other areas.																														
Norm as per NAAQS	**100**	**60**	**80**	**80**	**4**	**100**	**60**	**80**	**80**	**4**	**100**	**60**	**80**	**80**	**4**	**100**	**60**	**80**	**80**	**4**	**100**	**60**	**80**	**80**	**4**	**100**	**60**	**80**	**80**	**4**
A 1	57.60	29.30	10.90	16.03	0.46	61.01	34.30	11.84	18.42	0.59	56.58	32.20	11.76	17.78	0.59	33.91	18.93	6.49	10.33	0.42	31.73	18.40	6.02	10.88	0.46	39.24	21.52	7.38	14.54	0.56
A 2	84.49	47.87	16.97	26.32	0.92	81.13	46.83	15.92	25.48	0.93	85.90	46.39	15.34	24.51	0.98	50.41	26.92	8.34	12.49	0.56	55.19	27.90	9.81	16.96	0.76	66.56	34.96	11.07	21.17	0.89
A 3	59.37	45.72	11.89	16.69	0.50	58.12	31.18	10.92	16.58	0.54	51.51	29.19	10.28	14.90	0.52	34.17	19.02	6.12	9.70	0.41	34.49	18.63	6.78	12.96	0.48	40.06	22.09	7.09	14.54	0.65
A 4	71.44	40.46	14.55	22.23	0.85	72.88	41.29	13.38	20.87	0.87	66.78	37.53	12.14	18.14	0.79	43.37	25.30	7.32	11.52	0.51	45.67	24.20	7.41	12.77	0.59	40.04	22.53	7.96	16.33	0.71
A5	85.21	48.19	17.16	27.20	0.95	87.48	49.03	16.71	26.34	1.05	86.49	46.50	15.30	23.95	0.89	63.84	31.02	8.97	14.04	0.62	57.38	30.47	9.43	16.83	0.72	66.81	35.99	11.45	21.13	0.88
A6	64.09	40.99	13.44	20.35	0.81	74.70	43.29	14.51	22.98	0.88	75.85	42.85	14.23	22.53	0.87	47.88	26.90	7.77	12.07	0.58	45.54	24.21	8.27	14.31	0.61	48.66	26.48	8.63	16.45	0.70

*** unit in µg/m^3**

Note : Ambient Air Quality Monitoring was conducted as per MoEF Notification No. GSR 826(E), dtd.16.11.2009.

B) Results of Fusitive Emission / Work Zone Quality.

	APRIL 2024		'MAY 2024		'JUNE 2024		'JULY 2024		'AUGUST 2024		'SEPTEMBER 2024	
Norm as per IBM	1200 µg/m3		1200 µg/m3		1200 µg/m3		1200 µg/m3		1200 µg/m3		1200 µg/m3	
Actual(PM)	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
F 1	608.4	823.7	527	711.3	287.3	725.3	143.2	612.3	87.9	613.8	95.6	611.3
F 2	539.8	813.2	512	724.5	287.3	824.9	145.3	643.6	118.5	515.4	108.9	669.4
F 3	443.1	683.5	463	655.8	309.4	724.9	84.6	682.8	84.3	501.4	84.3	567.4
F 4	639.4	812.3	531	746.3	239.3	761.2	146.5	692.5	87.5	618.5	125.6	641.7
F 5	581.2	832.9	571	754.3	275.6	715.8	92.6	588.9	96.4	618.5	96.3	672.1
F 6	438.2	617.5	469	627.3	281.7	682.7	84.2	579.7	89.6	613.3	87.6	521.4
F 7	749.3	927.3	767	913.4	508.2	892.4	143.1	819.2	121.3	808.7	187.3	815.6
F 8	684.7	831.5	659	826.5	431.6	805.7	108.6	682.4	90.5	713.4	96.2	702.3
F 9	529.6	821.5	564	681.5	240.8	781.5	110.5	628.5	96.4	512.6	132.8	611.7
F 10	431.5	617.8	428	646.5	148.6	623.5	89.5	574.6	82.7	507.1	89.6	510.3
F 11	689.5	923.6	714	913.7	40.7	908.6	182.6	803.4	110.5	821.9	183.4	813.5
F 12	568.4	827.5	564	809.3	309.4	822.7	87.3	624.3	90.2	673.4	117.8	682.3

*** unit in µg/m^3**

Note : Fusitive emission standards as per MoEF Notification No. GSR 809(E), dtd.4.10.2010 on iron ore mining and processing. Particulate matter (PM)-1200 µg/m^3 at a distance of 25±2m. In the pre dominant downward direction from the source of generation .

NB :

Locations :

A 1 : Tensa Hospital, Tensa
A 2 : Barsua Railway Siding
A 3 : Tantara Village
A 4 : Mine Site Office (KIM)
A 5 : Roxy Railway Siding
A 6 : Near ML-139/Kalta C Block

F1 : Ore Handling plant(BIM)
F2: Excavation & loading (BIM)
F3 : Haul Road(BIM)
F4 : Dump Area(BIM)
F5 : Stock pile & Loading(B/V, BIM)
F6 : Haul Road (TIM)
F7 : Mobile Screening Area (TIM)
F8 : Excavation Area(TIM)
F9: Drilling Area (KIM)
F10: Excavation (KIM)
F11: Haul Road Area (KIM)
F12: Mobile Crushing & Screening Area (KIM)

BARSUA-TALDIH-KALTA IRON MINE

WATER QUALITY OF STREAM SAMPLES/SURFACE WATER

Sl.No.	Parameters	'APRIL 2024						'MAY 2024						JUNE 2024					
		SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6
1	pH	7.11	7.23	7.18	7.29	6.88	6.96	7.04	7.09	7.74	7.01	7.1	6.98	8.23	7.18	7.43	7.5	7.05	6.97
2	Temperature	25°c	26°c	26°c	26°c	27°c	27°c	30°c	30°c	30°c	30°c	30°c	31°c	23°c	23°c	23°c	23°c	23°c	23°c
3	Turbidity(NTU)	3.8	3.9	4.2	2.9	3.2	3.5	<1.0	<1.0	2.7	<1.0	2.4	2.8	1.9	<1.0	1	<1.0	1.9	<1.0
4	Residual Free Chlorine mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	Alkalinity as CaCo3 mg/l	22	24	35	34	30	38	16	20	28	32	24	56	48	28	28	20	40	60
6	Chloride as Cl mg/l	4	4	4	4	4	4	4	8	4	4	4	8	8	8	4	8	4	8
7	Total Hardness as CaCo3 mg/l	24	24	32	28	30	52	40	40	28	32	28	52	52	28	36	28	28	60
8	Calcium as Ca mg/l	5	8	8	8	7	12	6	8	6	9	11	16	18	7	6	8	3	18
9	Magnesium as Mg mg/l	2.8	0.972	2.91	1.94	3.03	5.3	6	5	3	2	<0.243	3	1.8	2.9	5	2	5	4
10	Sulphate as So4 mg/l	1	2	4	6	2	8	4	3	<1.0	8	<1.0	4	2	<1.0	2	1	<1.0	<1.0
11	Nitrate as No3 mg/l	3.8	3.6	4	4.2	4.2	4.8	2.4	2.8	1.9	2.2	2.6	2.5	2	1.6	2.6	2.8	3.2	4
12	Fluoride as F mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Total dissolve Solids mg/l	25	28	42	40	28	68	21	25	30	34	24	64	46	27	23	46	23	22
14	Total Suspended Solids mg/l	6	8	10	12	5	8	2	3	2	3	2	4	2	3	2	4	5	10
15	D.O.	4.5	4.2	4	4.2	4.4	4.3	3.9	3.8	3.7	3.8	3.8	3.9	4.3	4.2	3.8	3.8	4.2	3.9
16	COD	16	20	18	24	12	20	17	22	16	20	14	22	16	20	18	23	17	22
17	Oil and Grease mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Iron as Fe mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	0.12	0.06	0.16	0.24	0.324	0.526	0.368	0.446	0.462	0.224
19	Copper as Cu mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Zinc as Zn mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Aluminium as Al mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
22	Boron as B mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
23	Manganese as Mn mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.03	<0.03	<0.3	<0.3	<0.3	<0.3
24	Lead as Pb mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.0	<0.01	<0.01
25	Cadmium as Cd mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Arsenic as As mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	0.02	0.6	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
27	Mercury as Hg mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Nickel as Ni mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
29	Chromium as Cr +6mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Phenolic compound mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
31	Cyanide as CN mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Sulphide as S mg/l	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T
33	Free Ammonia as N mg/l	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T
34	Kjeldahl Nitrogen as N mg/l	6	8	10	12	6	8	5.3	5.9	5.6	6.4	5.4	5.6	5.9	6.4	5.3	6.1	5.6	5.9
35	Ammonia as N mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

NB :
SW 1: Kuradih Nala US : BIM
SW 2: Kuradih Nala DS : BIM
SW 3: Samaj Nallah US : Near Tantra
SW 4: Samaj Nallah DS : Near Phuljhar
SW 5: Samaj Nallah US : KIM
SW 6 : Samaj Nallah DS: KIM
N.T: Not Tracble

Annexure-IV

BARSUA-TALDIH-KALTA IRON MINE

WATER QUALITY OF STREAM SAMPLES/SURFACE WATER

Sl.No.	Parameters	'JULY 2024						'AUGUST 2024						'SEPTEMBER 2024					
		SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6
1	pH	7.15	6.83	7.1	7.04	7.1	7.04	7	7	7	7	7	7	7.34	7.41	7.18	6.77	7.24	7.75
2	Temperature	23^{O}C	23^{O}C	23^{O}C	23^{O}C	23^{O}C	23^{O}C	23°c	23°c	23°c	23°c	23°c	23°c	25°c	25°c	25°c	25°c	25°c	25°c
3	Turbidity(NTU)	1.3	<1.0	<1.0	1	<1.0	1	27	26	1.4	1.2	1.2	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4	Residual Free Chlorine mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	Alkalinity as CaCo3 mg/l	20	24	28	28	28	28	32	32	32	32	40	32	16	20	14	6	22	40
6	Chloride as Cl mg/l	8	8	8	8	8	8	12	4	8	8	4	4	2	2	6	4	4	10
7	Total Hardness as CaCo3 mg/l	16	24	32	28	32	28	20	24	20	20	24	20	24	24	32	28	28	48
8	Calcium as Ca mg/l	6	3	8	8	8	8	3.2	12.8	6.4	6.4	4.8	6.4	6	5	4.8	4.8	4.8	9.6
9	Magnesium as Mg mg/l	<0.243	4	3	2	3	2	2.9	<0.243	0.27		2.9	0.972	1.9	2.9	4.86	3.8	3.8	5.832
10	Sulphate as So4 mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.082	4	5.044	11.275	<1.0	2
11	Nitrate as No3 mg/l	2.2	2.8	2.5	2.6	2.5	2.6	5.3	6	6.5	6	1.5	3.8	1.5	2.6	2.9	2.9	3.2	2.5
12	Fluoride as F mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	30	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
13	Total dissolve Solids mg/l	15	17	13	23	13	23	20	21	13	29	21	20	20	21	21	26	22	50
14	Total Suspended Solids mg/l	2	3	2	3	2	3	6	7	2	3	2	3	5	7	6	11	3	5
15	D.O.	4	4.1	4.2	4.1	4.2	4.1	3.8	3.7	3.6	3.8	3.7	3.6	3.9	3.8	3.8	3.8	3.7	3.8
16	COD	12	17	16	22	16	22	11	15	14	20	16	18	16	8	12	8	12	8
17	Oil and Grease mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0
18	Iron as Fe mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.262	0.235	0.116	0.05	0.09	0.116	0.767	0.305	0.136	0.063	0.113	0.297
19	Copper as Cu mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Zinc as Zn mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Aluminium as Al mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.397	0.341	0.155	0.141	0.047	0.333
22	Boron as B mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
23	Manganese as Mn mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.116	0.05	0.08	0.05	0.123	0.05	<0.05	<0.05	<0.05	0.153	<0.05	<0.05
24	Lead as Pb mg/l	<0.01	<0.01	<0.01	<0.0	<0.01	<0.0	<0.01	<0.01	<0.01	<0.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Cadmium as Cd mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Arsenic as As mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
27	Mercury as Hg mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Nickel as Ni mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
29	Chromium as Cr +6mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Phenolic compound mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
31	Cyanide as CN mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Sulphide as S mg/l	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T
33	Free Ammonia as N mg/l	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T
34	Kjeldahl Nitrogen as N mg/l	5.3	5.6	5.04	5.6	5.04	5.6	5.04	5.3	5.04	5.6	5.3	5.6	6.7	7.8	5.9	7	5.04	5.6
35	Ammonia as N mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

NB :
SW 1: Kuradih Nala US : BIM
SW 2: Kuradih Nala DS : BIM
SW 3: Samaj Nallah US : Near Tantra
SW 4: Samaj Nallah DS : Near Phuljhar
SW 5: Samaj Nallah US : KIM
SW 6 : Samaj Nallah DS: KIM
N.T: Not Tracble

Annexure-V

BARSUA-TALDIH-KALTA IRON MINE

FLOW RATE OF PERENNIAL NALLAH			
Month	Locations		
	Kuradih Nallah (in m^3/Sec)	Samaj Nallah, Taldih (in m^3/Sec)	Samaj Nallah, Kalta (in m^3/Sec)
APRIL' 2024	2.717	0.314	0.558
MAY' 2024	2.049	0.281	0.420
JUNE' 2024	1.712	0.234	0.347
JULY' 2024	2.853	0.381	0.462
AUGUST' 2024	10.873	1.033	1.262
SEPTEMBER' 2024	15.503	1.743	2.074

Annexure – VI

BARSUA-TALDIH-KALTA IRON MINE

GROUND WATER LEVEL MEASUREMENTS			
Month	Water level below the Ground Surface (in meters)		
	Locations		
	Barsua Valley	Zero Pount, Tensa	Kalta Basti, Kalta
APRIL' 2024	1.04	1.95	1.91
MAY' 2024	1.08	2.03	1.98
JUNE' 2024	1.15	2.14	2.11
JULY' 2024	0.97	1.94	2.00
AUGUST' 2024	0.53	1.58	1.69
SEPTEMBER' 2024	0.44	1.45	1.54

BARSUA-TALDIH-KALTA IRON MINE

WATER QUALITY OF GROUND WATER

Sl.No.	Parameters	'APRIL 2024			MAY 2024			'JUNE 2024			'JULY 2024			'AUGUST 2024			'SEPTEMBER 2024		
		GW1	GW 2	GW3	GW1	GW2	GW3	GW1	GW2	GW3	GW1	GW2	GW3	GW1	GW2	GW3	GW1	GW2	GW3
1	pH	6.02	6.65	6.38	5.09	6.79	6.05	6.21	6.8	6.55	5.92	6.79	8.5	7	7	7.5	7.56	7.96	7.74
2	Colour(Hazen unit)	<1.0	<1.0	<1.0	<1.0	4	<1.0	<1.0	4	<1.0	<1.0	4	<1.0	<1.0	4	<1.0	<1.0	1.5	<1.0
3	Turbidity (NTU)	1.2	2.1	2.3	<1.0	2.1	<1.0	<1.0	2.1	<1.0	<1.0	1.1	1.2	<1.0	<1.0	<1.0	<1.0	2.3	<1.0
4	Temperature ^{0}C	27°c	26°c	27°c	28°c	28°c	28°c	23°c	23°c	24°c	22°C	22°c	22°c	24°c	24°c	24°c	24°c	24°c	24°c
5	Total Hardness as $CaCO_3$,mg/l	48	148	72	24	152	64	32	116	96	24	136	40	24	136	116	28	144	52
6	Alkalinity as $CaCO_3$,mg/l	40	130	65	28	112	40	28	116	88	24	116	32	48	188	120	28	72	36
7	Chlorides as Cl , mg/l	4	10	6	8	12	4	4	4	8	4	8	4	8	52	4	4	36	12
8	Calcium as Ca, mg/l	13	38	15	6	43	11	13	42	18	6	35	10	8	33.6	20	8	32	18
9	Magnesium as Mg, mg/l	3.6	12.8	8.3	1.9	11	8.7	<0.243	3	13	2	12	4	0.972	12.636	16	1.9	16	1.9
10	Residual Free Chlorine, mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
11	Sulphate as SO_4,mg/l	<1.0	<1.0	8	<1.0	2	3	<1.0	2	7	<1.0	18	<1.0	<1.0	<1.0	<1.0	1.137	12.6	0.697
12	Nitrate as NO_3, mg/l	0.96	1	0.88	1	0.9	0.8	4	3	2.8	1.2	1.6	1.4	1.02	1.12	1.05	0.62	26.83	0.137
13	Iron as Fe,mg/l	0.211	0.206	0.206	<0.02	0.06	<0.05	0.08	0.09	0.124	0.09	0.08	0.05	<0.05	<0.05	<0.05	<0.3	<0.3	<0.3
14	Copper as Cu,mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Manganese as Mn,mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.3	<0.3	<0.3	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05	<0.3	0.33	<0.3
16	Phenolic Compounds C_6H_5OH, mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005
17	Zinc as Zn, mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01
18	Cadmium as Cd, mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
19	Arsenic as As, mg/l	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Cyanide as CN, mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Lead as pb	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01
22	Total Chromium as Cr^{+6}, mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Mineral oil ,mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5
24	Fluoride as F, mg/l	0.216	0.205	0.226	0.106	0.106	<0.1	<0.1	0.167	<0.1	0.262	0.189	0.224	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2
25	Selenium as Se, mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
26	Total Dissolved solids (mg/l)	38	165	68	259	26	66	29	148	101	16	88	21	25	178	100	24	26	85
27	Aluminium as Al mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.02	<0.02	<0.02	<0.2	<0.2	<0.2
28	Boron as B mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
29	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
30	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
31	Mercury as Hg, mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
32	Anionic detergent	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

NB :

GW 1 : Hand pump at Zero point : (BIM)

GW 2 : Hand pump at Banka Bazar B/Valley

GW 3 : Hand Pump at Kalta Village (KIM)

Annexure-VIII

BARSUA-TALDIH-KALTA IRON MINES

WATER QUALITY OF EFFLUENT WATER

Sl.No.	Parameters	APRIL 2024		MAY 2024		JUNE 2024		JULY 2024		AUGUST 2024		SEPTEMBER 2024	
		EW 1	EW 2	EW 1	EW 2	EW 1	EW 2	EW 1	EW 2	EW 1	EW 2	EW 1	EW 2
1	pH	6.86	6.98	6.94	7.55	5.4	7.13	5.42	7.16	6.5	6.6	7.48	7.4
2	Temperature	25°c	26°c	30°c	30°c	24°c	24°c	22°C	22°C	22°c	22°c	25°c	25°c
3	Selenium as Se, mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4	Total Residual Chloride mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
5	Alkalinity as CaCo3 mg/l	45	60	32	24	16	60	16	68	28	28	24	16
6	Chloride as Cl mg/l	12	10	4	8	4	8	8	8	8	8	4	2
7	Total Hardness as CaCo3 mg/l	158	78	32	36	44	48	24	56	16	28	48	20
8	Calcium as Ca mg/l	22	18	8	5	6	11	5	16	6.4	6.4	6	6
9	Magnesium as Mg mg/l	26	8	3	6	6.8	4.8	3	4	<0.243	2.9	7.8	0.972
10	Sulphide as S mg/l	NT	NT	NT	NT	NT	NT	NT	NT	<0.05	<0.05	N.T	N.T
11	Nitrate as No3 mg/l	3.3	3	4.5	4.2	4.5	4.5	2.5	3.8	4.5	7.5	2.4	2.6
12	Fluoride as F mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
13	Total dissolve Solids mg/l	68	98	30	26	15	53	17	40	27	30	31	22
14	Suspended Solids mg/l	15	8	20	3	66	7	60	6	45	30	29	4
15	B.O.D (3 days at 27 ^{O}C) mg/l	12.8	10.6	19	12	<3.0	<3.0	14.8	<3.0	10	5	4.8	5
16	C.O.D	72	56	104	64	96	64	82	57	72	56	32	16
17	Oil and Grease mg/l	0.62	<0,1	8	2	7	2	4	2	3	2	4	2
18	Total Chromium as Cr mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	32	16
19	Copper as Cu mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Zinc as Zn mg/l	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
21	Boron as B mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
22	Odour	Obnoxious	Obnoxious	Agreeable	Agreeable	Agreeable	Agreeable	Odorous	Odorous	Odorous	Odorous	Unpleasent	Unpleasent
23	Colour	18	10	400	13	<1.0	<1.0	960	20	400	380	1.5	<1.0
24	Lead as Pb mg/l	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.1	<0.1
25	Cadmium as Cd mg/l	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01
26	Arsenic as As mg/l	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.2	<0.2
27	Mercury as Hg mg/l	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Nickel as Ni mg/l	<0.02	<0.02	<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02
29	Hexavalent Chromium as Cr^{+6} mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Phenolic compound As C_6H_5OH mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
31	Cyanide as CN mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
32	Dissolved Phosphate as P mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
33	Ammonical Nitrogen as N mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
34	Total Kjeldahl Nitrogen as N mg/l	14	10	10.6	7.3	11.2	7.8	9.2	7	7.3	6.2	14	8.1
35	Free Ammonia as NH_3 mg/l	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T	N.T
36	Iron as Fe mg/l	0.556	0.486	0.923	0.556	0.926	0.462	0.026	0.562	0.562	0.315	1.262	0.622

NB :

EW 1: Tailing Dam (Before) Discharge

EW 2: Tailing Dam (After) Discharge

N.T: Not Tracble

Annexure-IX

BARSUA-TALDIH-KALTA IRON MINE

DETAIL MONITORING OF NOISE QUALITY

Sl. No.	LOCATION	APRIL 2024		MAY 2024		JUNE 2024		JULY 2024		AUGUST 2024		SEPTEMBER 2024	
		Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)
1	Tensa Hospital	38	29.2	40.5	27.4	38.2	28.1	36.4	26.2	34.1	25.4	33.5	27.1
2	VTC Tensa	54.4	43.1	55.1	40.3	54.4	42.2	52.5	40.3	54.7	38.4	52.3	36.2
3	Barsua Valley Township	43.3	30.4	40.6	31.5	42.3	33.1	45.1	31.6	47.3	34.2	49.2	35.4
4	Tantra Village (TIM)	42.5	32.1	40.2	31.4	38.5	28.1	36.2	25.4	35.3	27.1	36.2	29.4
5	Mine Site Office Kalta	66.2	52.5	65.5	54.3	70.3	62.1	68.5	60.3	70.2	61.4	70.6	62.3
6	Roxy Railway Siding	70.5	62.4	69.2	60.1	68.7	58.2	70.2	58.4	68.3	57.5	66.2	55.1
7	Near ML-139/Kalta C Block	45.4	37.2	47.6	39.4	49.2	38.1	46.3	37.2	42.1	35.1	44.4	36.3

Annexure-X

BARSUA-TALDIH-KALTA IRON MINE

DETAIL MONITORING OF NOISE QUALITY

Sl. No.	LOCATION	APRIL 2024		MAY 2024		JUNE 2024		JULY 2024		'AUGUST 2024		'SEPTEMBER 2024	
		Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)	Day time Leq. dB (A)	Night time Leq. dB (A)
1	Excavation Area, BIM	68.2-71.5	59.3-60.5	69.4-70.2	60.2-61.6	68.3-69.4	60.1-61.3	66.3-69.5	58.2-60.6	68.3-70.6	58.1-60.5	66.3-69.4	57.3-59.4
2	Haul Road, BIM	70.1-72.1	59.4-61.1	67.7-71.3	58.1-60.4	68.2-71.5	59.2-60.4	69.4-70.5	59.1-60.1	68.2-70.4	58.1-60.5	67.0-68.4	55.4-58.4
3	Primary Crusher, BIM	66.2-68.5	54.1-59.4	67.3-69.5	55.2-59.50	67.5-70.2	57.2-60.1	69.3-71.2	58.1-61.3	68.5-70.4	58.2-60.1	67.1-70.5	56.3-60.1
4	Secondary Crusher (BIM)	70.2-73.0	60.1-61.3	68.2-72.4	59.4-62.3	69.4-72.1	59.2-61.5	71.3-72.4	59.6-60.4	68.0-71.2	57.8-61.5	69.4-71.3	59.1-60.6
5	Dump Area, BIM	65.2-69.4	52.3-60.5	64.0-70.3	50.6-60.0	64.3-70.4	52.5-60.5	65.4-69.2	53.2-59.7	62.2-66.5	52.1-58.4	61.3-63.2	50.2-53.4
6	Stock Pile & Loading, Barsua Valley	68.5-71.2	56.5-60.2	67.2-70.3	55.2-59.1	66.1-69.3	54.1-59.6	66.1-68.6	53.3-59.4	65.1-66.5	52.5-58.2	61.3-64.5	51.3-56.0
7	Excavation Area (TIM)	70.0-74.1	59.4-63.2	69.3-70.4	59.1-62.1	68.2-70.4	58.4-62.1	67.0-70.2	57.2-60.1	67.2-69.3	56.1-60.0	68.3-69.6	57.6-59.4
8	Haul Road, TIM	71.1-71.6	58.4-60.6	70.1-71.4	57.3-65.3	70.1-71.2	58.1-60.2	68.4-71.4	57.5-59.5	68.3-71.3	56.1-58.3	68.2-71.4	56.1-58.5
9	Mobile Crushing & Screening, TIM	72.3-73.3	60.2-62.3	71.1-73.7	60.1-62.4	71.5-72.5	60.1-60.3	70.7-71.7	59.3-60.6	68.5-71.5	58.2-61.3	70.1-71.4	58.6-60.2
10	Ore Storage & Loading, TIM	65.2-70.3	57.2-62.2	67.5-70.4	58.3-62.6	66.1-70.3	57.1-60.5	65.3-68.2	57.4-59.4	64.1-67.1	55.0-59.5	65.0-67.5	56.5-59.4
11	Excavation Area, KIM	70.4-71.0	59.5-61.1	68.2-71.3	58.3-61.3	68.1-70.4	58.4-60.5	66.3-68.4	57.1-60.1	65.1-68.1	58.4-59.2	64.3-69.1	56.1-58.3
12	Haul Road, KIM	70.5-71.7	58.3-61.3	59.4-70.4	58.5-60.5	69.7-71.3	58.2-60.7	69.1-70.5	57.1-70.2	68.4-70.4	56.4-59.2	68.2-69.4	56.4-59.4
13	Mobile Crushing & Screening, KIM	72.1-73.3	61.4-62.5	71.7-73.5	61.1-62.4	72.2-73.1	60.4-62.4	70.3-72.0	60.2-61.2	70.6-71.7	57.4-60.6	70.2-71.2	59.4-61.3
14	Ore Storage & Loading, KIM	68.2-70.5	59.2-61.4	65.7-70.6	57.5-60.1	64.0-69.4	56.2-60.5	63.5-67.1	55.6-59.5	62.2-67.0	53.4-58.2	63.5-65.0	55.2-57.4

Annexure - XI

BARSUA-TALDIH-KALTA IRON MINES

RESULTS OF VEHICULAR EMMISSION

SL. NO	Vehicle Registration No. / I.D. No.	Model No.	RESULTS Smoke Density (Light Absorption coefficient unit 1/meter) 1st Qtr. 2024-25	Permissible Emission Limit As per National Register of Motor Vehicles
1	OR 14S 3752	HPD-103	0.54	1.62
2	OD 14E 8392	WS-100	0.97	2.45
3	OD 14M 4886	HPD-101	0.54	1.62
4	OD 14M 4885	HPD-102	0.57	1.62
5	OR 14T 4191	HPD-90	0.57	2.45
6	OR 14W 9579	HPD-98	1.00	2.45
7	OR 14Y 3496	Maintenance Van	0.56	2.45
8	OR 14X 3345	HL 770 7A	0.58	2.45
9	OD 14Y 8824	F-150	0.59	2.45
10	OR 14W 9578	HPD-97	1.00	2.45
11	Dumper (50 T)	HPD-104	1.12	2.45
12	Dumper (50 T)	HPD-105	1.09	2.45
13	Motor Grader (BG-825-25135)	MG-07	2.45	1.62
14	Tyre Holder (BEML)	BL-14TH	1.14	2.45
15	Shovel (BE-1000)	EX-22	1.16	2.45
16	OD 09X 3328	DPV-433	0.53	0.7
17	OD 33G 2856	DPV-87	0.54	2.45
18	OD 09L 0639	DPV-139	0.52	1.62
19	OD 09L 2849	DPV-150	0.53	1.62
20	OD 33AD 8175	DPV-336	0.54	0.7
21	OD 33T 3089	DPV-171	0.55	1.62
22	OD 09L 2869	DPV-146	0.54	1.62
23	OD 09X 3388	DPV-434	0.55	0.7
24	OD 09L 2769	DPV-153	0.55	1.62
25	OD 33AD 8194	DPV-335	0.54	0.7
26	OD 09N 8549	DPV-222	0.56	1.62
27	OD 09N 8529	DPV-218	0.55	1.62
28	OD 33Z 1579	WL-50	0.57	2.45
29	OR 09N 8479	DPV-223	0.55	1.62
30	OD 09N 8499	DPV-220	0.6	1.62

Annexure - XI

BARSUA-TALDIH-KALTA IRON MINES

RESULTS OF VEHICULAR EMMISSION

SL. NO	Vehicle Registration No. / I.D. No.	Model No.	RESULTS Smoke Density (Light Absorption coefficient unit 1/meter) 2nd Qtr. 2024-25	Permissible Emission Limit As per National Register of Motor Vehicles
1	OR 14S 3752	HPD-103	0.39	1.62
2	OD 14E 8392	WS-100	0.39	2.45
3	OD 14M 4886	HPD-101	0.39	1.62
4	OD 14M 4885	HPD-102	0.3	1.62
5	OR 14T 4191	HPD-90	0.39	2.45
6	OR 14W 9579	HPD-98	0.98	2.45
7	OR 14Y 3496	Maintenance Van	0.39	2.45
8	OR 14X 3345	HL 770 7A	0.65	2.45
9	OD 14Y 8824	F-150 ACE	0.39	2.45
10	OR 14W 9578	HPD-97	1.02	2.45
11	Dumper (50T)	HPD-104	1.05	2.45
12	Dumper (50T)	HPD-105	1.02	2.45
13	Motor Grader BG-825-25135	MG-07	0.98	2.45
14	Tyre Holder (BEML)	BL-14TH	1.08	2.45
15	SHOVEL (BE-1000)	EX-22	1.1	2.45
16	OD02CF 9775 (Loader)	WL-82	0.39	1.62
17	OD02CE 4517 (Maintennanc van)	S.VAN - 19	0.39	0.7
18	OD33G 2854 (Dumper)	DPV - 84	0.39	2.45
19	OD33T 3009 (Dumper)	DPV - 166	0.39	1.62
20	OD09X 3385 (Dumper)	DPV - 436	0.39	0.7
21	OD09X 3384	DPV - 432	0.39	0.7
22	OD33T 3029 (Dumper)	DPV - 172	0.39	1.62
23	OD33AD 8049	DPV - 334	0.39	0.7
24	OD33AC 4170 **(Dumper)**	DPV - 321	0.39	0.7
25	ODO9X 3326 **(Dumper)**	DPV -435	0.39	0.7
26	OD 09N8489 (Dumper)	DPV-224	0.39	1.62
27	OD 33AA5129	Maintenance van	0.39	1.62
28	OD 14X2447 (Dumper)	DPV-329	0.39	0.7
29	OD 33G4289 (Dumper)	DPV - 94	0.39	2.45

30	OD 33L 3929 (Dumper)	DPV - 132	0.39	2.45
31	OD 14X2705 (Dumper)	DPV - 328	0.39	0.7
32	OD 33F 5039 (Dumper)	DPV-68	0.39	2.45
33	OD 33L 3899	DPV- 134	0.39	2.45
34	OD 14X2425 (Dumper)	DPV- 326	0.39	0.7
35	OD 33L 1109 (Dumper)	DPV- 115	0.39	2.45
36	OD 14X2404 (Dumper)	DPV- 330	0.39	0.7
37	OD 33AC 4146 (Dumper)	DPV- 323	0.39	0.7
38	OD 33L 3909 (Dumper)	DPV- 131	0.39	2.45
39	OD 33F5029 (Dumper)	DPV- 66	0.39	2.45
40	OD 33Z 6439	TATA HYVA	0.39	1.62

BARSUA-TALDIH-KALTA IRON MINE

DETAILS OF PLANTATION

YEAR	INSIDE MINING LEASE			OUTSIDE MINING LEASE		
	No. of trees	Area in Ha.	Rate of survival in %	No. of trees	Area in Ha.	Rate of survival in %
2011-12	19000	8.00	70.00	6000	2.50	65.00
2012-13	50000	20.00	85.00	0	0.00	
2013-14	0	0.00		0	0.00	
2014-15	0	0.00		0	0.00	
2015-16	3300	11.00	50.00	16800	10.00	60.00
2016-17	8000	5.00	85.00	10000	4.00	60.00
2017-18	0	0.00		18000	9.00	45.00
2018-19	0	0.00		10000	4.00	60.00
2019-20	0	0.00		20000	10.00	60.00
2020-21	0	0.00		13000	5.20	60.00
2021-22	0	0.00		7000	2.80	77.00
2022-23	1500	1.00	100.00	0	0.00	
2023-24	10000	4.00	95.00	0	0.00	
2024-25	5181	Gap Plantation	95.00	0	0.00	
TOTAL	**96981**	**49.000**	**77.59**	**100800**	**47.500**	**58.80**

Apart from above, the following plantation has been done through State Forest Department

1. Safety Zone Plantation of 32073 saplings over an area of 93.679 Ha
2. 1.5 times safety zone plantation of 28104 saplings over an area of 140.519 Ha
3. Compensatory Afforestation of 1237179 saplings over an area of 6122.269 Ha

Annexure - XIII

Sl. No.	Name & Address	Point Represented
54	Shri Pabitra Mohan Behera, Tensa	Supported the expansion project
55	Shri Samir Kr. Padhi, Tensa	Supported the expansion project and requested for development of a fruit orchard in the region
56	Shri Kamal Singh, Barsuan	Objected the project stating that the public hearing is illegal and unconstitutional. He stated that for peace and empowerment of scheduled area, PESA Act was passed by the Government in 1996 but unfortunately this act has not been implemented for public
57	Shri Rajesh Behera, Barsuan	Stated about importance of SAIL for the development of region. He also thanked local Authorities, SAIL Management, politicians and trade unions for recruiting in SAIL through local exchange. He supported expansion of project in the public hearing.

Table 7.49: Action Plan to Address the Major Issues Raised during Public Hearing of Barsua-Taldih-Kalta Iron Mines and the budget for the same with a timeline of 3 years from the date of start of mining operation

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
1 Environment:							
1.1	Control of water pollution, waste management for dump stabilisation and check dam for siltation control.	Retaining walls with garland drains & settling pits have been constructed around OB dumps. Similar structures will be constructed around mineral dumps & quarry areas as stated in the Environment Management Plan. Further improvements to the system would be taken as per direction of State Pollution Control Board	Length of Retaining Wall (m)	1235	500	800	160.00
			Length of Garland Drain (m)	1250	520	850	
			No of Settling Pits	5	2	3	
			Location	Fines dump at Taldih & along mine quarry at Barsua	Along mine quarry at Barsua	Along mine quarry at Taldih and Mineral rejects dump at Kalta	
			Budget (in Rs Lakhs)	70.00	30.00	60.00	
		Construction of Check dams for siltation control as proposed in EMP.	Length of Check Dam (m)	20	40	40	35.00
			Location	Tantra	Kalta	Barsuan	
			Budget (in Rs Lakhs)	5.00	15	15	
1.2	Control of air pollution and noise pollution on the roads due to truck transportation.	Water sprinkling on mining roads to be carried out by existing fixed & mobile and addl. mobile & fixed water sprinklers. Dust suppression system at crushers, screens and	Additional Mobile Water Sprinkler (Nos) at Taldih & Kalta	1 x 20 KL	1 x 28 KL	2 x 28 KL	880.00
			Addl. Fixed water sprinklers at Taldih and		2000	2000	

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
		other mineral handling areas to be continued. Plantation will be carried out for control of Noise pollution as proposed in EMP.	Kalta (m)				
			Location	Kalta	Kalta & Taldih	Kalta & Taldih	
			Budget (in Rs Lakhs)	40.00	320.00	520.00	
		Dust suppression through vehicle mounted mist cannons in the mineral handling areas	Vehicle Mounted Mist Cannons (Nos)		1	1	80.00
			Location		Barsua Railway siding	Roxy Railway siding	
			Budget (in Rs Lakhs)		40.00	40.00	
1.3	Tree Plantation to check pollution and plantation of trees in vacant places, both Sides of roads and Nalas.	Plantation is being done in the vacant places within the lease and township area and will continue to do. For Road side and nala side plantation, steps to be taken in consultation with state forest department as proposed in EMP.	No of Saplings	3000	5000	5000	52.00
			Location	Dump - 8, Barsua	Tantra village & Dump - 8, Barsua	Barsuan, Roxy siding	
			Budget (in Rs Lakhs)	12.00	20.00	20.00	
1.4	De-silting of Nalas and Check dams	The check dams and sedimentation pits are de-silted before onset of monsoon every year and shall continue to do so.	All check dams and sedimentation pits will be de-silted before onset of monsoon every year (Cost of De-siltation)	5.00	5.00	5.00	15.00
1.5	Protection of agricultural land during expansion period.	During expansion period proper care will be taken for protection of agricultural land in the nearby areas.	Financial Assistance for improvement in productivity of agricultural land in Kalta & Jhirpani.	15.00	15.00	15.00	45.00
2.0 Employment:							
2.1	Employment of local people in the company on priority basis and employment to	Employment to be given through MDO as per the skill and qualification. Local public will be given priority for employment.	Employment to be given through MDO		613 Nos.	520 Nos.	Will be deployed through MDO

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
	local educated youth as per their qualifications.						
2.2	Manual Mining of part of Taldih Block	Mining shall be done as per the approved mining plan.	--	--	--	--	--
2.3	Loss of livelihood of workers working in Roxy Railway Siding and mines due to mechanization and installation of conveyor belt.	No workers will lose employment due to mechanisation of siding and mines.	--	--	--	--	--
3.0 Peripheral Development:							
3.1	**Education & Training:**						
3.1.1	Development of Anganwadi of the region.	For development of Anganwadi, the matter will be taken up with Govt. authority.	Infrastructure & Material assistance will be provided as per the requirement.	1.00	1.00	1.00	3.00
3.1.2	Uniform school fee for regular and contractual employees in SAIL Managed schools	Uniform fee structure shall be implemented in the SAIL Managed schools for regular and SAIL's Contractors employees.	Subsidy provided towards school fees of in the SAIL Managed schools for SAIL's Contractors employees.	70.00	70.00	70.00	210.00
3.1.3	School bus from peripheral villages for attending school	Under periphery development activity Bus facility for the students to be increased.	Operation of existing buses from Barsuan & Kalta will be extended to nearby villages.	30.00	30.00	30.00	90.00
3.1.4	Providing teachers in the schools of peripheral villages.	Para teachers have already been provided in the peripheral schools and shall be increased as per	Existing Para Teachers (No)	38	38	38	109.50
			Additional Para Teachers	4	2	2	

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
		requirement.	(No)				
			Budget (in Rs Lakhs)	35.00	36.50	38.00	
3.1.5	Establishment of English medium school, re-opening of ITI	For English medium school and re-opening of ITI, the matter will be taken up with Govt. authority.	One english medium school in collaboration with DAV is already in function at Tensa. Affiliation with NCBT is under process for running of existing ITI.	45.00	16.00	16.00	77.00
3.1.6	Emphasize on skilled development trainings.	Skilled development trainings are being conducted in the peripheral villages and shall be continued.	Engagement of stitching teachers and training on Mushroom cultivation	1.00	1.50	1.00	3.50
3.1.7	Empowerment for Self-help groups (SHGs) in nearby region.	Continue support for the nearby SHGs are there and necessary assistance will be continued for their livelihood generation.	Providing Stitching Machine, Spice making machine, Financial assistance for Mushroom cultivation	2.00	2.00	2.00	6.00
3.1.8	Sports promotion and opening of hockey academy and providing coaching.	As per the request of village committee, assistance for the cultural activity & sports activities would be taken. For opening of hockey academy, the matter will be taken up with Govt. authority.	One Football & one Hockey team will be adopted from peripheral villages and provided training for their development. Organising Sports meets and providing sports material.	10.00	10.00	10.00	30.00
3.2	Transportation of minerals by trucks of local transporters instead of Conveyor belt.	Preference will be given to the local transporters for mineral transporting works. Further, implementation of system improvements to be taken care of in accordance with the notifications of State and Central	--	--	--	--	--

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
		Government.					
3.3	Health and medical facility.	A full fledge hospitals with ambulance facility is already in place at Tensa and Kalta with free treatment and free medicine facility for the villagers. The medical testing facility will be increased as per requirement. Health camp for the nearby village area to be carried out regularly.	Providing free medical facility in the SAIL Hospital at Tensa & Kalta for nearby villagers. Providing Health Camp and free Ambulance services in the nearby villages namely Taldih, Tantra, Bahamba, Sasyakala, Kalta, Roxy, Gundichanali etc. Engagement of Health Workers in peripheral PHC as per requirement.	15.00	15.00	15.00	45.00
3.4	Drinking water facility.	Company will provide drinking water facilities through bore well with Syntax tank as per requirement in co-ordination with village committees.	No of Drinking water facility to be installed at Jhirpani, Toda, Tantra & Taldih	4	2	2	60.00
			Maintenance of existing drinking water facility at Sasyakala, Taldih, Tantra, Kalta	30	30	30	
			Budget (in Rs Lakhs)	30.00	15.00	15.00	
3.5	Road widening and its repair	As per the request of village committee and Road construction authorities, support to be given for road repair and widening activity.	Providing infrastructure support to the Road construction agency.	--	--	--	--
3.6	Elephant menace control & improving lighting.	Steps to be taken as per the approved site specific wildlife management plan and guidance	Engagement of Protection Watchers	40.00	40.00	40.00	120.00

Sl. No	Issues Raised by Public	Action Plan for addressing the Issues					
		Action Plan	Brief Description	Fund Allocation (Budget)			
				First Year (Mar' 2023)	Second Year (Mar' 2024)	Third Year (Mar' 2025)	Total Cost
				Recurring Cost	Recurring Cost	Recurring Cost	
		from Forest department.					
3.7	Improvement in Urinal and toilet facility at Siding & Mines.	The matter has already been taken up and work order has been placed for construction of urinal and toilet facility at Siding and Mines.	No of Urinal & Sanitary Toilets	10	5	5	32.00
			Location	Roxy	Tantra	Tantra	
			Budget (in Rs Lakhs)	16.00	8.00	8.00	
3.8	Group insurance for contractual workers	The matter has already been taken up for group insurance of contractual workers.	Group insurance will be provided to Contractual Workers	4.00	4.00	4.00	12.00
3.9	Community centre at Toda, Jhirpani and Roxy Siding	Construction of community centre at Taldih, Jhirpani, Roxy and other peripheral villages will be taken in a phased manner.	No of Community Centre	1	1	1	110.00
			Village	Roxy	Taldih	Jhirpani	
			Budget (in Rs Lakhs)	30.00	50.00	30.00	
3.10	Blasting impact for kacchha houses	Controlled blasting shall be continued to minimize the vibration due to blasting. Relevant safety guidelines / Rules of DGMS shall be strictly adhered to.	--	--	--	--	--
3.11	Development of fruit Orchard:	A fruit orchard has already been developed at Tantra village and same will be expanded in future.	Extension of existing fruit orchard at Tantra and Maintenance	7.00	3.00	3.00	13.00
						Grant Total (in Rs. Lakhs)	**2188**

Annexure - XIV

LAND USE AND LAND COVER MAP OF BARSUA-TALDIH-KALTA (ML-130) & ML-139 MINING LEASES AREA OF BARSUA & KALTA IRON MINES, ODISHA

Sponsored by

Steel Authority of India Limited

Raw Materials Division

Consultant-in-Charge

Dr. Vasanta Govind Kumar Villuri

Assistant Professor

Department of Mining Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad

July 2021

Introduction

Land Use Land Cover Land studies are carried out to reveal how much of a region is covered by forests, wetlands, impervious surfaces, agriculture, and other land and water types. The water types include wetlands or open water. The Land Use information describes how people use the landscape. Such uses include developmental use, conservation related use, or mixed uses.

Land use and land cover map of Barsua Iron Mines, Odisha have been developed from Linear Imaging Self scanning Sensor (LISS) data obtained from Indian Remote Sensing satellite- Resource sat-2, LISS-IV (2021) sensor and Cartosat (2021) sensor. The satellite images so obtained were processed applying supervised classification method have using the Erdas Imagine software. The Land Use Land Cover has been classified into six classes, which are built-up land, open forest, dense forest, agricultural land, wasted land and water body. The areas under each of these classes were estimated on the basis of the pixel grid cell process in Erdas Imagine software following the rules of NRSC/ISRO Land Use and Cover Monitoring. The theme of Barsua Iron Mines, Odisha LULC is given in the following **Table 1**.

Table-1. Descriptions of land use and land cover classes (Source- NRSC/ISRO)

Sl.	Description-1	Description-2	Remark
1.	Built-up Land	Urban	Residential, Mixed built up, Public / Semi Public, Communication, Public utilities /facility, Commercial, Transportation, Reclaimed land, Vegetated Area, Recreational, Industrial, Industrial / Mine dump, Ash/ Cooling pond.
		Rural	Rural.
		Mining	Mine / Quarry, Abandoned Mine Pit, Land fill area.
2.	Agriculture Land	Crop land	Kharif, Rabi, Zaid, Two cropped, More than two cropped.
		Plantation	Plantation-Agricultural, Horticultural, Agro Horticultural.

		Fallow	Current and Long Fallow.
		Current Shifting cultivation	Current Shifting cultivation.
3.	Forest Land	Evergreen/Semi evergreen	Dense / Closed and Open category of Evergreen / Semi evergreen.
		Deciduous	Dense / Closed and Open category of Deciduous and Tree Clad Area.
		Forest Plantation	Forest Plantation.
		Scrub Forest	Scrub Forest, Forest Blank, Current &Abandoned Shifting Cultivation.
		Swamp/ Mangroves	Dense / Closed & Open Mangrove.
4.	Barren/ uncultivable/ Wastelands	Salt Affected Land	Slight, Moderate & Strong Salt Affected Land.
		Gullied/ Ravinous Land	Gullied, Shallow ravine & Deep ravine area.
		Scrub land	Dense / Closed and Open category of scrub land.
		Sandy area	Desertic, Coastal, Riverine sandy area.
		Barren rocky	Barren rocky.
		Rann	Rann.
5.	Wetlands/Water Bodies	Inland Wetland	Inland Natural and Inland Manmade wetland
		Coastal Wetland	Coastal Natural and Coastal Manmade wetland
		River / Stream / canals	Perennial & Dry River/stream and line & unlined canal/drain
		Water bodies	Perennial, Dry, Kharif, Rabi &Zaid extent of lake/pond and reservoir and tanks

Built-up land: It is an area of human habitation developed due to non-agricultural use and that has a cover of buildings, transport and communication, utilities in association with water, vegetation and vacant land. LULC map consists of 3 classes under built-up viz., urban, rural and mining. In this region, ore mining town have emerged Barsua Iron Mines.

Forest: The term forest is used to refer to land with a tree canopy cover of more than 10 percent and area of more than 0.5 ha. Forests are determined by both the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 m. The two categories i.e. open forest and dense forest is predominant in Barsua Iron Mines.

Wasted land or Wet land: Wasted lands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophyte vegetation usually is established, although alluvial and tidal flats may be no vegetated. Wastelands frequently are associated and topographic lows, even in mountainous regions.

Water body: This category comprises areas with surface water in the form of ponds, river, lakes, tanks and reservoirs. Rivers/streams are natural course of water flowing on the land surface along a definite channel/slope regularly or intermittently towards a sea in most cases or in to a lake or an inland basin in desert areas or a marsh or another river. Canals are artificial watercourse constructed for irrigation, navigation or to drain out excess water from agricultural lands.

Agricultural land: These are the lands primarily used for farming and for production of food, fiber, and other commercial and horticultural crops. Agricultural Land may be defined broadly as land used primarily for production of food and fiber. These are the areas with standing crop as on the date of Satellite overpass. Cropped areas appear in bright red to red in color with varying shape and size in a contiguous to noncontiguous pattern. They are widely distributed indifferent terrains; prominently appear in the irrigated are as irrespective of the source of irrigation. It includes Kharif, Rabi and Zaid croplands along with areas under double or triple crops.

1. Barsua- Taldih- Kalta area land use and land cover (ML-130):

The Barsua- Taldih- Kalta mining area (2472.561 ha) was classified for land use and land cover by using supervised classification technique. Seven classes are identified over the study area namely dense forest (1493.722 ha), open forest (272.976 ha), water bodies (2.704 ha), agricultural land and plantation (10.350 ha), barren land/waste land (272.976 ha), mining land (303.441 ha) and built-up (50.684 ha) shown in Figure-1.

Figure: 1. Land use Land cover map of Barsua-Taldih- Kalta Mine Lease (ML-130)

Accuracy assessment was carried out using 100 points, from field data, existing maps and land cover map of (Bhuvan ISRO). Then location of the 100 points was chosen using random stratified method to represent different land cover classes of the area. The land cover mapping of the images, ancillary data and the result of visual interpretation was integrated with the classification result using GIS in order to improve the classification accuracy of the classified image.

The summary of the land use land cover classifications is shown in the Table 2. The classification distributions are shown in the Figure 2.

Table 2: Land use land cover classifications of ML-130 Lease

LU/LC classes	ML-130 Mining Lease (ha)
Built-up Land	50.684
Agriculture Land	10.350
Dense forest	1493.722
Open Forest	338.684
Water body	2.704
Waste land	272.976
Mining	303.441
Total Area (ha)	2472.561

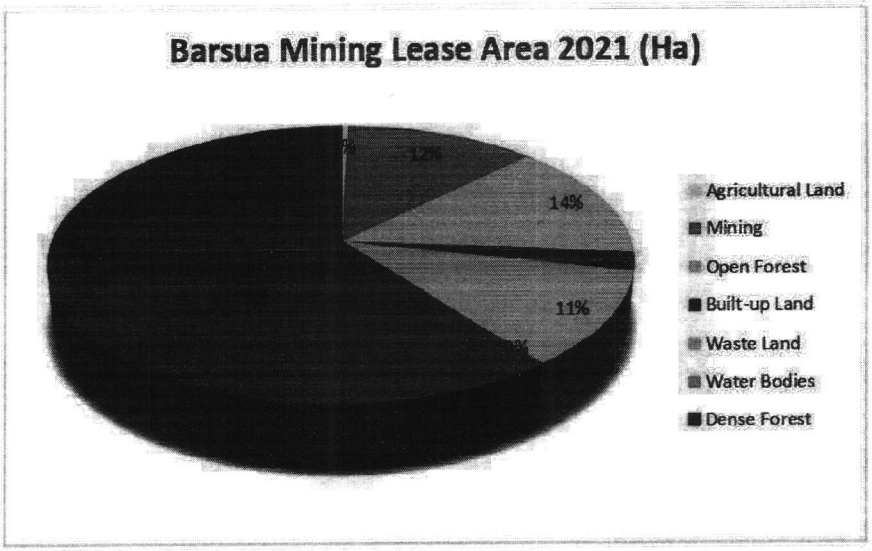


Figure 2: Land use distribution of Barsua-Taldih-Kalta (ML-130) Iron Mines

सेल SAIL

BARSUA & TALDIH IRON MINES

POLICY

INTEGRATED MANAGEMENT SYSTEM

(ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 & SA 8000:2014)

We at Barsua & Taldih Iron Mine, Rourkela Steel Plant, M/s SAIL are committed to provide Quality Products & Services and Safe & Healthy Environment to our stakeholders.

As part of Integrated Management System (IMS) Policy, we shall continually strive and are committed to:

- Enhance Internal and External Customer Satisfaction by providing reliable and dependable products and services.
- Integrate sound environmental management practices in all our activities by conducting our operations in environmentally responsible manner to minimize environmental pollution.
- Conserve energy and other natural resources, minimize waste generation, eco-friendly waste disposal management and promote recovery, recycle and reuse.
- Prevent injury and ill health by minimizing hazards and risks associated with our activities.
- Consultation and participation of workers and their representatives in IMS activities.
- Provide socially accountable work culture to all its stakeholders.
- Comply with all applicable legal and other requirements.
- Review IMS for continual improvement of Quality, Occupational Health & Safety and Environmental performances.

Revision No. 1

Date of Revision: 08-02-2023

Tilak Patnaik

General Manager In-charge

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

Corporate Environmental Policy

Steel Authority of India Limited, one of the leading steel producers of India, in its endeavour to strengthen environment management and maintain clean and sustainable environment in and around its plants, mines & other units is committed to:

i. Protect the environment by integrating sound environmental practices for control and prevention of pollution from all its activities.

ii. Comply with legal and other requirements pertaining to the environment, forests and wildlife and to go beyond.

iii. Systematic approach of environment management by accreditation with Environment Management System.

iv. Contribute towards mitigation of climate change through adoption of measures to reduce emission of greenhouse gases, enhancing green coverage, adopting energy efficient technologies, enhancing use of green energy.

v. Promoting innovative environment-friendly processes and products.

vi. Ecological restoration of degraded mined out landscapes.

vii. Integrate principle of "reduce, recover, recycle and reuse" in its operations for conservation of natural resources, including water, to ensure sustainable future.

viii. Continual improvement of environmental performance by setting challenging targets, transparent reporting system and robust review mechanism.

ix. Continuously monitor emissions, discharges and ambient air quality and uplink with SPCB and CPCB portals for self-regulation of environmental deviations, if any.

x. Communicate environmental performance to all stakeholders through annual report, Board report, Corporate Sustainability Report and all such means from time-to-time.

xi. Engaging employee for commitment and responsibility towards environment protection through capacity building.

xii. Promoting environmentally responsible behaviour amongst all stakeholders.

Date: 4th August 2021

Soma Mondal
Chairman, SAIL

Annexure- XVI

BARSUA-TALDIH-KALTA IRON MINE

TOTAL EXPENDITURE INCURRED FOR ENVIRONMENTAL PROTECTION MEASURES DURING THE YEAR 2024-25.

Sl. No.	Environmental Protection Measures	Amount (in Lakhs)
1	Maintenance of Gardens	12.51
2	Plantation and Maintenance	10.84
3	Maintenance of Safezy Zone	10.78
4	Environmental Monitoring	7.52
5	Maintenance of CAAQMS	0.66
6	Modification of Zero Discharge System	113.72
7	Disposal of Hazardous Waste	4.92
8	Water Spraying	14.23
9	Payment for Protection Watchers	10.66
10	Operational cost of Motor Grader	6.54
11	Construction of Check Dam	19.78
12	Monitoring of Protection measures	3.85
13	Purchase of Mechanised Road Sweeping Machine	43.75
14	Purchase of Truck Mounted Mist Cannon	41.75
15	Purchase of Display Board for Environmental Parameters	5.20
16	Expenditure towards Environmental Management Cell	28.32
17	Disposal of Tailings	65.21
Total		**400.22**