



स्टील ऑथोरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो स्टील प्लांट
BOKARO STEEL PLANT
गुआ अयस्क खान
GUA ORE MINES

Ref. No. : GUA/E&L/Duarg.-EC Compl./2024-25/142

Date: 29.11.2024

To,
The Addl. PCCF (C)
Ministry of Environment, Forest and Climate Change
Regional Office (ECZ)
Bungalow No. A - 2, Shyamali Colony
Doranda, Ranchi - 834 002

Sub: Compliance Report of Environmental Clearance accorded by MoEF&CC to the project: Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation Project of SAIL, located in Ghatkuri Reserve Forest, Tehsil Gua, West Singhbhum Dist., Jharkhand

Ref.: 1. Ministry's Environment Clearance Letter No. J-11015/453/2008-IA. II(M) dated 25.03.2013
2. EC amendment vide Letter No. J-11015/453/2008-IA.II(M) dated 02.02.2015
3. EC amendment vide Letter No. J-11015/453/2008-IA.II(M) dated 06.11.2020

Sir,

As per the provisions of the General Condition no. (x) of above stated Environmental Clearance order granted to the Integrated Duarguiburu Iron Ore Mining Project, the six monthly compliance report on the conditions stipulated in the Environmental Clearance for the period from **April, 2024 to September, 2024** is enclosed herewith for kind perusal please.

Thanking you.

For & on behalf of
SAIL-BSL, Gua Ore Mines


General Manager (Mines) and E&L
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Encl: As stated above

Copy to:

1. Director, IA, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. Member Secretary, JSPCB, HEC, Dhurwa, Ranchi - 834 004.
3. In-charge, Eastern Zone, CPCB, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.)
4. The Regional Office, JSPCB, Jamshedpur



Compliances for conditions of Environmental Clearance and its amendments (vide order no. J-11015/453/2008-IA.II (M), dated 25.03.2013, No. J-11015/453/2008-IA.II (M), dt.02.02.2015 & F. No. J-11015/453/2008-IA.II (M) dated 06.11.2020) of Duarguiburu Iron Ore Mining Lease of Gua Ore Mines, Bokaro Steel Plant, Steel Authority of India Ltd. (Period: April, 2024 – September, 2024)

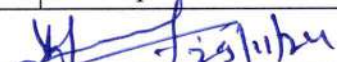
S.No.	CONDITION	COMPLIANCES
<u>Specific Conditions:</u>		
(i)	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	<p>Being complied with.</p> <ul style="list-style-type: none"> Total Lease area of Duarguiburu Mining Lease is 1443.756 ha. However, mining operations are being carried out in the existing broken area of 274.691 ha, for which Stage-II Forest Clearance (Final Approval) obtained from MOEFCC vide Letter No. F. No. 8-251/1986-FC (Pt) dated 22.08.2014. Further, MoEF&CC accorded Stage-II FC for diversion of additional area of 361.295 ha vide Letter No. F. No. 8-251/1986FC dated 07.12.2020 and land was released by the State Government vide letter no. Vanbhumi-62/2008-261 dated 01.02.02022 and subsequently by the Forest Department vide letter no. MIN/Gua/Topailore-/10/2020/467 dated 18.02.2022. Mining operation in diverted 361.295 Ha forest land will be started after obtaining all valid statutory clearances. Phase-wise tree felling job in diverted 361.295 ha area is being undertaken under supervision of State Forest Department after obtaining the necessary clearances. Presently the mining operations are confined within the approved diverted forest area of 274.691 ha only for which all other valid statutory clearances exists

General Manager (Mines) & E&I
 SAIL-BSL, Gua Ore Mines



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(ii)	<p>The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide their letter F No. 11-362/2012-FC, failing which the mining lease area will be deduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.</p>	<ul style="list-style-type: none"> MoEF&CC vide F.No.11-599/2014-FC dated 01.04.2015 has issued revised guidelines by suppression of the guideline issued vide F. No. 11-362/2012-FC dated 01.02.2013. As per these revised guidelines, in case of existing mining leases in part or in full, where approval under Section 2 of FC Act for a part of the forest land has only been obtained, Central Government accorded general approval under Section 2(iii) of the FC Act for the remaining area of the forest land falling within such mining leases and directed State Governments to realize NPV from the user agency within a period of one year from the date of issue of this letter for entire forest land falling in the mining lease, in case NPV of such forest land has not already been realized. Subsequently, MoEF&CC vide guidelines dated 31.03.2016, extended the deadline for payment of NPV up to 30.09.2016. Durgaburu mining lease covers an area of 1443.756 ha forest area out of which NPV has been paid for 635.986 ha. However, NPV was not paid for the balance forest area i.e. 807.77 ha as this forest area is not diverted under Section 2 (ii) of FC Act, 1980. Subsequent to the demand of NPV for 807.77 ha forest area, SAIL filed a writ petition before Hon'ble High Court of Jharkhand. The Hon'ble Court vide interim order dated 29.09.2016 & subsequent order dated 28.04.2017 has directed that no coercive steps be taken against petitioner i.e. SAIL. Further, NPV amount of Rs. 84,25,04,110/- was deposited on 24.09.2019 through RTGS by UTR no. SBINR52019092400014277 in Jharkhand CAMPA fund for the balance forest area 807.77 ha under protest without prejudice to its right and contentions in Writ Petition WP(C) No. 5695 of 2016. There is no change in lease area as per the existing mining lease deed executed on 24.09.2019 with validity of lease period upto 21.02.2029 over an area of 1443.756 ha.



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(iii)	<p>Need to submit a proposal for faster utilization of entire dumps of fines within a period of one year.</p> <p>The new condition is stated as:</p> <p>"The Project Proponent informed the Committee that the Plan envisages faster utilization of the fines from the fines dump by increasing operating hours of the fines beneficiation unit gradually from 5000 hrs. to 6200 hrs. per annum within a span of 3 years, which will increase the rate of reclamation of fines from the fine dump from 2.50 MTPA to 3.1 MTPA and by reducing the mined out beneficiated ore feed to the beneficiation plant in order to increase reclaimed & beneficiated fines from the fines dump to the tune of 0.5 MTPA from 4th year onwards. The complete consumption of fines from the fine dump shall take about 9 years' time instead of 13 years envisaged earlier. The Committee accepted the Plan and recommended for utilization of fines as proposed by M/s SAIL within 9 years instead of 13-14 years. During this period, all pollution mitigation measures at the dump site shall be implemented and augmented with additional measures on the basis of any Specific Studies conducted through Reputed Institutions to prevent/ minimize environmental impacts from the Fines Dumps. Detailed Action Plans in regard to Faster Reclamation of fines after Beneficiation and Pellet are commissioned and stabilized and Revised Proposal for faster liquidation of the fines (as is proposed now) may be submitted to the Regional Office of the Ministry, as also periodic Progress Reports."</p>	<ul style="list-style-type: none"> Request was made to MoEF&CC on 24.03.2014 that the proposal for faster utilization of the fines from the fines dump shall be submitted later once the Beneficiation & Pellet Plant is commissioned. The matter was discussed at the 25th EAC meeting held on 13.11.2014 and the EAC directed to submit the plan for faster utilization of the fines. Accordingly, the proposal for faster utilization of fines from the fines dump at Gua Ore Mines was submitted to the MoEF&CC on 14th November, 2014. On the basis of submission of information and data by SAIL, Ministry amended the condition vide its letter No. J-11015/453/2008-IA.II (M), dt.02.02.2015. In order to maintain the availability of iron ore in the open market after 31.03.2020, the Central Government, Ministry of Mines, GoI, in exercise of the power conferred under Section 20A of MMDR Act, 1957 (Amended in 2015), vide order dated 16.09.2019 allowed SAIL to sell low grade/sub-grade iron ore fines lying at the mine pit heads of captive mines of SAIL in open market. This provides opportunity to Gua Ore Mines to dispose dumped fines, so that environmental hazards can be removed, space is created and other users can suitably utilize the ore. Accordingly, amendment of EC was obtained from MoEF&CC vide its letter no. F.No.J-11015/453/2008-IA.II (M) dated 06.11.2020, for change in excavation and dispatch pattern increasing the excavation and dispatch of 3.1 MTPA iron ore fines keeping the total production from the mines within the approved EC capacity of 12.5 MTPA. Presently, the dump fines is being dispatched to SAIL Steel Plants for captive use.
General Conditions: <div style="text-align: right;">  General Manager (Mines) & E&L SAIL-BSL, Gua Ore Mines </div>		



S.No.	CONDITION	COMPLIANCES
(i)	The project proponent shall obtain Consent to Establish and Consent to operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	<ul style="list-style-type: none"> Consent to Establish (CTE) was obtained from Jharkhand State Pollution Control Board (JSPCB), Ranchi vide letter No. G- 1299, dated 06.04.2013. CTE was for Iron Ore (ROM) capacity of 10 MTPA, Iron Ore fines from the fines dump (2.5 MTPA), Beneficiation Plant for 12.5 Million TPA & Pellet Plant of 4 Million TPA. Thereafter, regular Consent to Operate (CTO) (Air & Water) is being obtained/renewed from JSPCB. The existing CTO has been renewed by JSPCB for the period from 17.12.2021 to 31.12.2026 vide ref. no. JSPCB/HO/RNC/CTO-10884468/2021/1533, dated 17.12.2021. All the conditions stipulated in the CTE & CTO (Air & Water) are being effectively implemented & complied and compliance report submitted to Jharkhand State Pollution Control Board.
(ii)	Environmental clearance is subject to final order of the Hon'ble Supreme Court of India In the matter of Goa Foundation Vs. Union of India in Writ petition (Civil) No. 460 of 2004, as may be applicable to this project.	Noted.
(iii)	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project	<ul style="list-style-type: none"> The condition is not applicable as there is no designated wildlife protected area/wildlife sanctuary within 10 km radius to the project site. The entire mining lease area is located in Ghatkuri Reserve Forest and do not fall under the purview of Wildlife Protected Area. All precautions are undertaken to not disturb the flora and fauna in and around the mining lease area. Necessary facilities are being extended to local forest department for their inspection and monitoring of forest area.
(iv)	Coordinated efforts shall be made along with other operating mines in the area and action plan drawn for control of pollution load in the area. The action plan so prepared shall be effectively implemented. The air	<ul style="list-style-type: none"> Coordinated efforts are ensured in preparation of Catchment Area Treatment (CAT) Plan covering entire Saranda Forest Division to control surface runoff from the mines as well as protection of Koina and Karo River system.

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 SAIL-BSL, Gua Ore Mines



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	and water quality shall be monitored by involving the State Pollution Control Board and results submitted within 6 months.	<ul style="list-style-type: none"> For preparation of a Comprehensive Catchment Area Treatment (CAT) Plan, SAIL had taken initiatives with IIT Kharagpur, a world renowned premier mining institute of the country, for preparation of the CAT Plan. IIT Kharagpur, by using GIS Frame work and Remote Sensing Technology, as well as field survey, has prepared the CAT Plan. The CAT Plan covers an approx. area of 11,500 Km² bounded by the west bank of river Koina in the west up to the east bank of river Karo in the east. The Plan has focused on the Catchment scenario of the region, river system, source of water pollution and their prevention, terrain description, soil conservation and its integration with CSR activities, mining activities in the area etc. CAT Plan was approved by the State Forest Department vide office order no. 06 dated 01.02.2022. Implementation of provisions made in CAT Plan will support to reduce pollution load on water bodies of Saranda Forest Area. Summary activities along with amount details of CAT plan w.r.t Gua Ore Mines is as under: <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Activities</th><th>Amount (Rs. in Crore)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Bio-Conservation</td><td>2.66</td></tr> <tr> <td>2</td><td>Eco-Restoration</td><td>5.66</td></tr> <tr> <td>3</td><td>Infrastructures</td><td>0.88</td></tr> <tr> <td colspan="2">Sub Total</td><td>9.20</td></tr> <tr> <td>4</td><td>CAT Structures</td><td>2.04</td></tr> <tr> <td>5</td><td>Bio-Restoration Measures</td><td>1.00</td></tr> <tr> <td>6</td><td>PIMU</td><td>0.37</td></tr> <tr> <td colspan="2">Sub Total</td><td>3.41</td></tr> <tr> <td colspan="2">Total</td><td>12.61</td></tr> </tbody> </table>	Sl. No.	Activities	Amount (Rs. in Crore)	1	Bio-Conservation	2.66	2	Eco-Restoration	5.66	3	Infrastructures	0.88	Sub Total		9.20	4	CAT Structures	2.04	5	Bio-Restoration Measures	1.00	6	PIMU	0.37	Sub Total		3.41	Total		12.61
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		<ul style="list-style-type: none"> To comply with the conditions of the approved CAT plan w.r.t. Gua Ore Mines, SAIL has deposited amount of Rs. 920.265 lakhs to Jharkhand State CAMPA account vide RTGS UTR No. SBINR12022033075452206 dated 30.03.2022 towards implementation of recommendations related to Bio-Conservation, Eco-restoration and Infrastructures. Further, Gua Ore Mines is in the process for construction of CAT structures proposed in the approved CAT plan. Gua Ore Mines has already constructed check-dams, gabion boulder retaining wall and has taken other measures like construction of roof top rainwater harvesting through recharge pit cum shaft at DB and DB Annexe buildings of Gua Ore Mines. Construction of new concrete check dam across DB nallah as per approved CAT plan is completed. Also, based on study commissioned by taking the services of IIT KGP, measures have also been implemented at the mines for effective environmental management in the area. Some of these include: <ul style="list-style-type: none"> ➤ Series of 05 no. of earthen dams at the foothill of the Fines Heap followed by series of 04 no. trap pits have been provided for arresting eroded soil by providing enough retention time for the soil to settle down during monsoons. Regular de-siltation of earthen dams and pits prior to onset of monsoons is carried out every year. ➤ Further, the slope of the Zero Point Nalla has been planted with vetiver grass to provide stability to the slope. ➤ Boulder retention wall has been constructed at the foot of both active waste dumps i.e. OT Hill and Ranichua waste dumps. ○ Construction of additional gabion boulder wall at the foot of Ranichua Waste Dump was completed. Two nos. of earthen dams with gabion boulder wall in between the earthen dams

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		<p>have also been constructed at the downstream side of the already constructed gabion boulder wall.</p> <ul style="list-style-type: none"> ○ Work order dated 17.10.2024 for construction of new gabion boulder wall at OT Hill & additional gabion boulder wall at Ranichua Waste Dump has been issued and the job is in progress (Copy enclosed as Annexure-1). ○ Also, as an additional pre-cautionary measures, construction of Mechanically Stabilized Earth Wall (MSEW) at foot of Ranichua Waste Dump has been proposed and tender for same has been issued and techno-commercial evaluation for received bids completed. <p>➤ The construction of additional concrete check dam near Zero Point Nalla was completed. Further, new concrete check dam constructed across DB nallah.</p> <p>➤ Bunds along the haul roads and outer periphery of the pits are maintained to ensure that no sediment laden storm water get discharged from the mined out area.</p> <p>➤ Garland drains have been provided around the mine pits, haul roads and diverted surface runoff from the mining and other areas into sedimentation cum rainwater harvesting pits constructed at various areas viz. Bai Hill, OT Hill and IInd Level etc., where water is allowed to settle and percolate into the ground water.</p> <ul style="list-style-type: none"> • Catch drains with sedimentation pit has been constructed and maintained around the OB dump areas to arrest the flow of fines during monsoon. • To control the fugitive dust emissions from the crusher, screening & loading areas, dust suppression system such as dust extractor, fogging system, water sprinklers, and fixed points for manual water sprinkling have been installed which are working effectively.



S.No.	CONDITION	COMPLIANCES
		<ul style="list-style-type: none"> Regular water sprinkling is being done by fixed water sprinklers and by mobile water tankers at the mines as well as railway siding area & township for dust suppression. <p>Further, new mobile water sprinkler of capacity 28 kL has been procured for mines. This has increased the water sprinkling frequency at mines.</p> <ul style="list-style-type: none"> Latest environmental quality report generated by NABL accredited lab through JSPCB is placed in Annexure- 1A.
(v)	The Forest Right Act shall be implemented.	<ul style="list-style-type: none"> The Clearance required under Forest Rights Act, 2006 has already been obtained and necessary certificate has been issued by the Collector, Singhbhum (West) vide order no. 1277 A/88, dt.23.05.2011. Copy of necessary certificate issued by the Collector, Singhbhum (West) has already been submitted with previous compliance report.
(vi)	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forest and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.	<ul style="list-style-type: none"> The Ground Water Table in the lease area is from 394 - 400 m AMSL whereas the present working depth and ultimate pit depth at the mines are 660m AMSL and 550m AMSL respectively. So there will be no intersecting of ground water table during mining operations at the mine. However, in case of working below the ground water table, prior approval of the Ministry of Environment and Forest and the Central Ground Water Authority will be obtained, for which a detailed hydrogeological study will be carried out.
(vii)	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.	<ul style="list-style-type: none"> There is no significant natural water course originating / present in the Duarguiburu mining lease. In case any natural flow during rainy season, Gua Ore Mines will take due precautions to ensure that no natural watercourse / water resources obstructed due to any mining operations. We have been regularly inspecting nearby areas/ water bodies ensuring the protection.

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(viii)	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	<ul style="list-style-type: none"> The mining operation was started since early 30's at Gua Ore Mines over 274.691 ha. The generated valuable top soil are utilized for different soil conservation practices like nursery development & OB dump stabilization work. At present, no top soil is encountered as we are operating the mine within the existing broken area (274.691ha) since the beginning of mining operations in the lease area of 1443.756 ha. However, whenever top soil is encountered in future while working in virgin areas, the top soil will be removed & stacked separately as per the IBM guidelines and will be used for reclamation and rehabilitation purpose as declared in Approved Mining Plan & PMCP. We will strictly adhere to the instructions of CPCB & SPCB, MoEF&CC and IBM guidelines for top soil management as envisaged in mining plan/scheme and EIA/EMP Report.
(ix)	The over burden generated during the mining operation shall be stacked at ear marked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. There shall be four external overburden dumps. Proper terracing of the OB dumps shall be carried out so that the overall slope of the dump shall be maintained to 28°. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining.	<ul style="list-style-type: none"> There are two active dumps, one at Ranichua turning and another at northern sides of OT Hill area, which are being maintained by appropriate grading and benching/top terracing maintaining less than 28° slope. Both dumps at OT Hill & Ranichua are active. However, concurrent vegetation & plantation being done, in the stabilised portion of the dumps to prevent erosion and surface run off. The details of the plantation carried out during F.Y. 2024-25 is given at General Condition No. (xxii). Photographs of plantation are enclosed in Annexure-3. Other old dumps are scientifically reclaimed and native species are planted to stabilize the dump as per suggestion of local forest department. The photographs are enclosed as Annexure-4.
(x)	Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	<ul style="list-style-type: none"> Six monthly compliance status of EC conditions are being submitted regularly to the Ministry of Environment, Forest & Climate Change and Regional Office of MoEF&CC located at Ranchi.

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 SAIL-BSL, Gua Ore Mines



S.No.	CONDITION	COMPLIANCES
(xi)	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, mineral and over burden dumps to prevent run off of water and flow of sediment directly into the Karo River, the Koina River, the Sarako River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rain fall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<ul style="list-style-type: none"> Based on a study conducted through IIT Kharagpur for identifying places vulnerable to erosion and by checking surface runoff, mitigative measures recommended have been undertaken such as provision of garland drains, settling pits, boulder retaining walls and check dams of appropriate size have been constructed. The compliance of the same has also been given at General Condition no. (iv). Garland drains, catch drains and siltation ponds of appropriate size has been constructed around the working mines and over burden dumps to prevent run off of water and flow of sediments directly into the water bodies. Water harvested through water storage pits constructed in mines is utilized for green belt development. The settling pits / sedimentation pits and check dams are de-silted periodically prior to onset of monsoons and post monsoons to provide enough retention capacity. The photographs are enclosed as Annexure-5.
(xii)	<p>Dimension of the retaining wall at the toe of the over burden dumps and the OB benches within the mine to check run-off and siltation shall be based on the rain fall data.</p>	<ul style="list-style-type: none"> As per study carried out through IIT KGP, mitigative measures recommended are based on rainfall data of past 50 years. While designing the retaining walls for OB Dumps, maximum rainfall measured at the site as well as erosion potential of dumped material are taken into consideration. Boulder retention wall has been constructed at the foot of both active waste dumps i.e. OT Hill and Ranichua waste dumps. Construction of gabion boulder wall at the foot of Ranichua Waste Dump is completed. Two nos. of gabion boulder walls in between both earthen dams have also been constructed at the downstream side of the already constructed gabion boulder wall. Also, construction of one new gabion boulder wall near existing gabion boulder wall at foot of Ranichua Waste Dump is in progress.



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		<ul style="list-style-type: none"> Construction of new gabion boulder wall at OT Hill Waste Dump is in progress. Work order dated 17.10.2024 for construction of new gabion boulder wall at OT Hill & additional gabion boulder wall at Ranichua Waste Dump has been issued and the job is in progress (Copy enclosed as Annexure-1). Also, as an additional pre-cautionary measures, construction of Mechanically Stabilized Earth Wall (MSEW) at foot of Ranichua Waste Dump has been proposed and tender for same has been issued and techno-commercial evaluation for received bids completed. The construction of additional concrete check dam near Zero Point Nalla was completed. Construction of new concrete check dam across DB nallah as per approved CAT plan was completed. The photographs are enclosed as Annexure-5.
(xiii)	The water recovery & spill way system shall be so designed that the natural water resources are not affected & that no spill water goes into the nearby Karo River, Koina River, Sarako River & other bodies.	<ul style="list-style-type: none"> At present, Gua Ore Mines is being operating the plants for dry operations as there is no facility of washing/ beneficiation, hence no industrial effluent is generated and discharged. However, measures have been taken to prevent surface runoff thereby preventing water pollution of Karo River flowing across the township. Also, based on study commissioned by taking the services of IIT KGP, measures have also been implemented at the mines for effective environmental management in the area. The compliance of the same is given at General condition no. (iv)
(xiv)	The project proponent shall carry out conditioning of the ore with the water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing & handling areas.	<ul style="list-style-type: none"> To minimize fugitive dust emissions water spraying on haul roads, loading and unloading and at transfer points are being done regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points are properly maintained. Provision of water mist spraying at hopper and screening areas at the Ore Crushing Plant has been provided for dust suppression and to prevent



S.No.	CONDITION	COMPLIANCES
		<p>fugitive dust emission in the downstream ore processing and handling areas.</p> <ul style="list-style-type: none"> Permanent water sprinkling arrangement has been provided at Railway siding area. The photographs are enclosed as Annexure-6. Further, procurement of 2 nos. of mist cannons for dust suppression at railway siding area is in advance stage and the same are likely to be commissioned by January, 2025.
(xv)	The effluent from the ore beneficiation plant & pelletization plant shall be treated to conform to the prescribed standards & tailings slurry shall be transported through a closed pipeline to the tailing dam.	<ul style="list-style-type: none"> At present, there is no additional beneficiation plant & pelletization plant in operation as proposed in EC. Necessary provisions in respect of the same have been made in the proposed expansion project comprising of ore beneficiation plant & pelletization plant at Gua Ore Mines.
(xvi)	The tailing dam shall be lined on all the sides as well as in the bottom with thick HDPE lining.	<ul style="list-style-type: none"> At present, no Tailing Dam exist at Gua Ore Mines because only dry operation is continuing through crushing & screening. No washing circuit exists for up-gradation of mineral through beneficiation process. Provision of tailing dams has been envisaged in the proposed expansion project comprising of ore beneficiation plant & pelletization plant. All the stipulated conditions related to the Tailing Ponds shall be complied with the upcoming expansion project.
(xvii)	The project proponent shall take necessary safeguard measures to ensure that there is no leaching from the tailing pond.	
(xviii)	The decanted water from the tailing pond shall be re-circulated & there should be zero discharge from tailing ponds.	
(xix)	Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge & to increase the life of the tailing dam.	
(xx)	The project proponent shall constitute on emergency management team under the control of project in charge to deal with the emergency situation pertaining to the tailing dam for the timely & effective control of emergency situation. It shall be ensured that training programme & mock drill shall be organized for the employees.	
(xxi)	Plantation shall be raised in an area of 469.838 ha including a 7.5 m wide green belt in the safety zone around the mining lease, over burden dumps, around beneficiation plant, mine benches, around tailing ponds.	<ul style="list-style-type: none"> The total lease area of Duargaburu Mining Lease is 1443.756 Ha. MoEF&CC, New Delhi, has granted Stage-II FC for existing broken area of 274.691 ha on 22.08.2014 and further granted Stage-II FC for additional



S.No.	CONDITION	COMPLIANCES
	<p>pelletization plant, roads etc. by planting the native species in consultation with local DFO/ Agriculture Department. The density of the trees should be around 2500 trees per ha.</p>	<p>area of 361.295 ha vide letter dated 07.12.2020. However, presently mining operations are being carried out at the existing broken area of 274.691 ha. The process for starting phase-wise mining operations at the 361.295 ha area is under progress and same will be started after obtaining required statutory clearances. The remaining area of 807.77 Ha is a dense virgin forest. Also, out of the safety zone area of 19.61 ha all along the 7.5 m strip, about 92 % of the safety zone is virgin dense forest.</p> <ul style="list-style-type: none"> • For remaining area within 274.691 Ha, Gua Ore Mines continuously carries out plantation activities over OB dumps, mine benches, berms of the haul roads, barren slopes. Also, the remaining 8% of the safety zone area has been regenerated with the original & existing forest species as per suggestion of local Forest Department. • During 2023-24, 2100 nos. of saplings of native species like Mango, Jamun, Bamboo, Kathal, Neem, Karanj, Imli, Sal, Sagwan, Gamar, Amvla etc. have been planted in mines and townships area. Besides this approximate 1200 kg hedges and local grasses have also been planted in the mines slopes, waste dump slopes and slopes of dams. • During 2024-25, 2480 nos. of saplings of native species like Mango, Jamun, Gulmohar, Karanj, Mahua, Karam, Sheesham, Neem, Sal, Amvla, Imli, Gamar, Pipal, Guava, Bamboo, etc. have been planted in mines and townships area. Besides this approximate 2200 kg hedges and local grasses have also been planted in the mines slopes, waste dump slopes and slopes of dams. • In addition to above, plantation activity is always carried out during events such as MEMC Week, Wildlife Week, Safety Week, Earth Day and World Environment Day etc. for increasing awareness among the employees and locals. • The photographs of plantation activity carried out are given as Annexure-3.



S.No.	CONDITION	COMPLIANCES																								
(xxii)	The green belt shall be developed all around the mine lease within the initial 3 years from issue of clearance.	<ul style="list-style-type: none"> The green belt has already been developed all around the mine lease area. However, efforts are being made to cover all the remaining patches with native saplings. Details of plantation carried out during F.Y 2024-25 are as following: <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Location</th><th>Afforestation during F.Y. 2024-25</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Ranichua Waste Dump</td><td> <ul style="list-style-type: none"> Approximately 550 kg hedges and local grass planted on the slope of Ranichua Waste Dump to minimize soil erosion during the monsoons. Plantation of 600 saplings </td></tr> <tr> <td>2.</td><td>OT Hill Waste Dump & OT Hill Slope</td><td> <ul style="list-style-type: none"> Approximately 935 kg hedges and local grass planted on the bottom slope of OT Hill Waste Dump to minimize soil erosion during the monsoons. Plantation of 750 saplings </td></tr> <tr> <td>3.</td><td>Bai Hill (Slopes & Earthen Dams)</td><td> <ul style="list-style-type: none"> Approximately 560 kg of hedges and local grass planted at Bai Hill slope & dam area. Plantation of 260 saplings </td></tr> <tr> <td>4.</td><td>HD Buru</td><td> <ul style="list-style-type: none"> Approximately 155 kg of hedges and local grass planted at HD Buru road side. Plantation of 260 saplings </td></tr> <tr> <td>5.</td><td>Jhillingburu Lease</td><td> <ul style="list-style-type: none"> Plantation of 300 saplings for gap filling </td></tr> <tr> <td>6.</td><td>Gua Township</td><td> <ul style="list-style-type: none"> Plantation of 310 saplings </td></tr> <tr> <td colspan="2">Summary of plantation of local</td><td> <ul style="list-style-type: none"> Plantation of Hedge and local grasses- approx. 2200 kg </td></tr> </tbody> </table>	Sl. No.	Location	Afforestation during F.Y. 2024-25	1.	Ranichua Waste Dump	<ul style="list-style-type: none"> Approximately 550 kg hedges and local grass planted on the slope of Ranichua Waste Dump to minimize soil erosion during the monsoons. Plantation of 600 saplings 	2.	OT Hill Waste Dump & OT Hill Slope	<ul style="list-style-type: none"> Approximately 935 kg hedges and local grass planted on the bottom slope of OT Hill Waste Dump to minimize soil erosion during the monsoons. Plantation of 750 saplings 	3.	Bai Hill (Slopes & Earthen Dams)	<ul style="list-style-type: none"> Approximately 560 kg of hedges and local grass planted at Bai Hill slope & dam area. Plantation of 260 saplings 	4.	HD Buru	<ul style="list-style-type: none"> Approximately 155 kg of hedges and local grass planted at HD Buru road side. Plantation of 260 saplings 	5.	Jhillingburu Lease	<ul style="list-style-type: none"> Plantation of 300 saplings for gap filling 	6.	Gua Township	<ul style="list-style-type: none"> Plantation of 310 saplings 	Summary of plantation of local		<ul style="list-style-type: none"> Plantation of Hedge and local grasses- approx. 2200 kg
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S.No.	CONDITION	COMPLIANCES	
		grasses, hedge and saplings for F.Y. 2024-25	• Plantation of saplings – 2480 nos.
(xxiii)	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution & having high levels of particulate matter such as around crushing & screening Plant, loading, and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control board in this regard.	<ul style="list-style-type: none"> • High pressure mobile water sprinklers (28 KL) have been deployed for regular water sprinkling on Haul Roads and other dust prone areas. Further, new mobile water sprinkler of capacity 28 kL has been procured for mines. • In addition to this, permanent water pipeline sprinklers (1.75 km) have been installed along the main approach haul roads near crushing plant to OT Hill area and other critical areas. • Spray nozzles have also been provided at the hopper as well as screening & transfer points at Ore Processing Plant. • All the Drilling Machines in the mines are equipped with the dust extractors / wet drilling facility to control dust from the drilling operations. • Fogging (mist) system has been installed at critical locations. Dust extraction system has been provided covering primary crushing & screening areas. • Fixed water sprinkling system has been provided at the railway siding area for dust suppression. • As per the monitoring and analysis of Ambient Air quality, PM₁₀ ranges from 31.8-98.81 µg/m³, PM_{2.5} ranges from 14.6-46.4 µg/m³, SO₂ ranges from 6.8-33.44 µg/m³ and NO_x ranges from 6.6-41.35 µg/m³, the detailed report is enclosed as Annexure-1A & Annexure-2. • The photographs of air pollution control measures are enclosed as Annexure-6. 	
(xxiv)	Regular monitoring of the flow rate of the springs & perennial nallahs flowing in and around the mine lease shall be carried out & records maintained.	<ul style="list-style-type: none"> • There are no perennial nallahs and springs in the vicinity or passing through the mining lease area. Only seasonal nallahs flow during the rainy season and since Gua Ore Mines operates on dry process, there is no interruption or addition of effluent in these seasonal natural flows. 	

[Signature]
29/11/24

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



S.No.	CONDITION	COMPLIANCES
		<ul style="list-style-type: none"> • However, flow rate of Karo river is being measured every quarter and records are being maintained. The monitoring report of flow rate of Karo river is enclosed as Annexure-6A
(xxv)	<p>The project authority should implement suitable conservation measures to augment the ground water resource in the area in consultation with Regional Director, Central Ground Water Board.</p>	<ul style="list-style-type: none"> • A comprehensive Remote Sensing & GIS based survey has been carried for Environment Management at Gua Ore Mines through the expertise services of IIT Kharagpur who has prepared a Digital Elevation Model (DEM) and drainage pattern & slope information from satellite imagery. Hydrologically, area shows dendritic drainage pattern that looks like a branch of tree with dense connectivity of first and second order drainages. Study area follows first to sixth ordered streams in Gua mines region. As per drainage pattern of the mining lease area and watershed, the rain water from the mining lease drains towards western side into catchment of Koina River and accordingly to arrest flow of sediments during rainy season and to maintain zero discharge from working mines, settling pits have been developed at OT Hill Area, 2nd Level Area, Bai Hill and HD Buru Area. Storm Water is directed towards these pits by developing bunds and garland drains. The retention capacity of the pits and the nature of soil allow the water to percolate and thus help in augmenting the ground water resource. Thus, these measures help in conserving water at Gua Ore Mines. The photographs of the rain water conservation pits are enclosed as Annexure-5. • Additionally, rooftop rainwater harvesting system is also implemented in Gua Township. The construction of rooftop rainwater harvesting system for groundwater recharge through recharge pit cum shaft at Director Bungalow and Guest House building of Gua Township is completed. The photograph is enclosed as Annexure-7. Also, details of the rainwater harvesting measures adopted at Gua Ore Mines, M/s SAIL has been submitted to CGWB, Ranchi, vide letter ref. no. GUA/E&L/Duarg-CGWB/2023-24/167 dated 12.08.2023 (Copy enclosed as Annexure-7A).


 General Manager (Mines) & E&L
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S.No.	CONDITION	COMPLIANCES
(xxvi)	Regular monitoring of ground water level & quality shall be carried out in & around the project area (Mine lease, beneficiation plant, pelletization plant & tailing ponds) by establishing a network of existing wells & installing new piezometers during the operation. The periodic monitoring [(At least 4 times in a year-pre monsoon (April-May), monsoon (August), post monsoon (November) & Winter (January), once in each season)] shall be carried out in consultation with State Ground Water Board/ Central Ground Water Authority & data thus collected may be sent regularly to the Ministry of Environment & Forest and its regional office, Bhubaneswar, The Central Ground Water Authority & the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to Mining activity, necessary corrective measures shall be carried out.	<ul style="list-style-type: none"> Ground Water Study is being carried out through in-house study for each quarter. Four open wells have been selected all around the Gua Ore Mines viz, (i) Guasai – Forest Bungalow, (ii) Ghatkuri Village, (iii) ChhotaNagra/ Baihatu Village & (iv) Baraiburu Near Pool, for regular monitoring of ground water levels & quality. Further, three nos. of real time ground water level monitoring system (Piezometer) have been installed and commissioned, one at Forest Bungalow, Gua, and other two at DB and DB annexe buildings of Gua Ore Mines and data of the same is being maintained. The test report of groundwater quality for the above mentioned locations for the period from April, 2024 to September, 2024 are given in the Annexure – 8.
(xxvii)	The ground water & surface water in & around the Mines including the tailing ponds shall be regularly monitored at strategic location for heavy metals. The monitoring station shall be established in consultation with The Regional director, Central Ground Water Board & the State Pollution control board.	<ul style="list-style-type: none"> Analysis of required water quality parameters including analysis of heavy metals is being carried out through JSPCB recognized lab. Water quality analysis reports are enclosed in Annexure-1A and Annexure-2. An application for setting up of monitoring stations was submitted to Regional Officer, JSPCB, Jamshedpur vide letter dated 30.03.2013 (Copy enclosed as Annexure-9). Consequently, the monitoring stations were established in consultation with official of Jharkhand State Pollution Control Board during their visit to Gua Ore Mines Further, an application with latitude and longitudes of the monitoring stations has been submitted to CGWB, Ranchi and to Regional Officer, JSPCB, Jamshedpur vide letter dated 12.08.2023 to review the established monitoring stations (Copy enclosed as Annexure-9A).
(xxviii)	Appropriate mitigative measures shall be taken to prevent pollution of the Karo River, Koina River & the Sarako River in consultation with the State Pollution Control Board.	<ul style="list-style-type: none"> Detailed study has been conducted through IIT Kharagpur for identifying places vulnerable to erosion and suggesting mitigative measures to minimize soil erosion and control surface runoff from the mines. Most of the recommendations made by IIT KGP in the report like provision of silt



S.No.	CONDITION	COMPLIANCES
		<p>traps, check dams, settling pits / sedimentation ponds, plantation on the slopes have been made at various strategic locations and the same are under continuous implementation at other sites as and when required.</p> <ul style="list-style-type: none"> CAT Plan for Saranda Forest Area feed by Karo & Koina River System has been approved by the State Forest Department vide letter dated 01.02.2022. Implementation of provisions of CAT Plan has been detailed in General Condition No. (iv). Protective measures taken to prevent pollution of water bodies has also been given in detail in General Condition no. (iv), (xii) and (xiii). Further, details of pollution control measures adopted by Gua Ore Mines as and when sought by JSPCB are being submitted to State pollution Control Board. Also, officials from JSPCB visits mines to monitors and inspect at regular intervals. Recently, RO, JSPCB along with team visited Gua Ore Mines on 27 & 28 November 2024 for inspection purpose.
(xxix)	Vehicular emission shall be kept under control & regularly monitored. Measures shall be taken for maintenance of vehicle used in mining operation & in transportation of Minerals. The vehicle shall be covered with a tarpaulin & shall not be overloaded.	<ul style="list-style-type: none"> Transport of iron ore is being carried out through dumpers from mine face to ore crushing plant using haul roads inside leasehold area. All these vehicles are being maintained in good condition to control vehicular emissions. However, after crushing & processing, the ore is brought down by covered conveyors and dispatched by railway to steel plants.
(xxx)	No Blasting shall be carried out after the sunset. Blasting operation shall, be carried out during the day time. Control Blasting shall be practiced. The mitigative measures for control of ground vibration & to arrest fly rocks & boulders should be implemented.	<ul style="list-style-type: none"> Blasting operation is carried out during the day time only between 1 pm to 3 pm. To control ground vibration, Non Electric Detonator with suitable delays is being used. Controlled blasting by using slurry explosives & NONEL technology is being followed.
(xxxii)	Drills shall either be operated with dust extractors or equipped with water injection system.	<ul style="list-style-type: none"> All the Drilling Machines at the mines are equipped with the dust extractors / wet drilling facility to control dust from the drilling operations.
(xxxii)	Digital processing of entire lease area using remote sensing technique should be done regularly once in three year for monitoring land use	<ul style="list-style-type: none"> Digital processing of entire lease area using remote sensing technique is being done at regular interval for monitoring land use pattern. Report is



S.No.	CONDITION	COMPLIANCES
	pattern & report shall be submitted to the Ministry of Environment & Forest and its Regional Office located at Bhubaneswar.	<p>also being submitted to the Ministry of Environment & Forest and its Regional Office.</p> <ul style="list-style-type: none"> LULC (Land Use Land Cover Classification) study has been carried out through IIT (ISM), Dhanbad. The copy of the report is enclosed as Annexure-10. Further, as per Rule 34A of Mineral Conservation & Development (Amendment) Rules, 2021 (in short MCDR, 2021, every lessee having (a) an annual production excavation plan of one million tonne or more in a particular year or (b) leased area of fifty hectare or more, shall carry out a drone survey of the leased area and upto hundred metres outside the lease boundary. <ul style="list-style-type: none"> ➤ In compliance to Rule 34 A of MCDR, 2021, Drone Survey of Duarguiburu lease area and upto 100 m outside the lease boundary was carried out and the Orthomosaic image of lease area including 100 m buffer zone obtained through Drone survey as per SOP of IBM has been submitted to IBM portal under Drone Data Management System (DDMS). ➤ As per compliance of Rule 34A of MCDR'2021, Drone survey of Duarguiburu lease area will be carried out every year and report will be submitted to statutory authority within due time.
(xxxiii)	Mineral handling area shall be provided with adequate no of high efficiency Dust Extractor System. Loading & unloading areas including all the transfer points should also have efficient dust control arrangements. This should be properly maintained & operated.	<ul style="list-style-type: none"> Dust Extractor system has been installed at Ore Processing Plant. Water sprinklers are used for dust suppression at transfer points and loading areas. Fogging System is in place at ore unloading area of Ore Processing Plant. All these units are being maintained and operated on regular basis. The photographs of these facilities are enclosed as Annexure-6.
(xxxiv)	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the generated during mining operation.	<ul style="list-style-type: none"> Septic tanks followed by soaking pits have been provided for the quarters in cluster for entire Gua Township which are being cleaned periodically through mechanical mode. Also, major domestic drains of Gua Township



S.No.	CONDITION	COMPLIANCES
		<p>and Market area have been streamlined and converged into a single drain followed by 02 nos. of settling pits to provide enough retention time for the domestic effluent to settle down and oxidize the water. Photographs enclosed as Annexure-11.</p> <ul style="list-style-type: none"> • There are mainly two sources of effluent generation i.e. from HEMM and Hospital. For HEMM, Installation of oil and grease trap along with vehicle washing ramp, maintenance bay and covered storage yard for proper handling of hazardous waste for the workshop effluents has been provided which is operated and maintained on regular basis. Whereas, for Gua Hospital, an ETP of 10 KLD capacity has been installed and same is in operation since 08.11.2024. Photograph is enclosed as Annexure-12 • However, to comply with the conditions, Gua Ore Mines has engaged IIT Kharagpur for preparation of conceptual plan for setting up Sewerage Treatment facilities at Gua Ore Mines Township. <ul style="list-style-type: none"> ➤ The conceptual plan for setting up of Sewerage Treatment Facilities has been prepared in consultation with IIT Kharagpur. ➤ Total 04 STP [MBBR technology] with total capacity of 4.1 MLD has been proposed. ➤ Based on conceptual plan submitted by IIT KGP, Centre for Engineering and Technology (CET), SAIL, Ranchi, has already prepared Scheme for Tender Specification (TS) and Cost Estimate (CE). Total cost estimate for construction of STP is estimated to be Rs. 48 Cr including sewerage network. ➤ Presently, finalization of contract and subsequently process for tendering for award of work to the expert agency for construction of STP at Gua township is in advance stage.
(xxxv)	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records	<ul style="list-style-type: none"> • Pre-placement medical examination and periodical medical examination of the workers engaged in the project are carried out and records are



S.No.	CONDITION	COMPLIANCES
	maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	maintained. Schedule of health examination of the workers is also drawn and followed accordingly.
(xxxvi)	<p>The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Plan civet, Panther, Mouse deer etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the regional office of the Ministry Of Environment and Forests, Bhubaneswar.</p>	<ul style="list-style-type: none"> Integrated Wildlife Management Plan for West Singhbhum District was prepared by an Expert Committee constituted by the Govt. of Jharkhand vide notification dated 27.08.2011. As per the notification constituting the committee, SAIL was assigned responsibility for institutionalizing and funding the study. The said Plan is completed in all respects and is ready for implementation by the Jharkhand State Forest Dept. In this regard, SAIL has already submitted an undertaking to abide by the guidelines and contribute fund for implementation of Integrated Wildlife Management Plan in entire lease hold area, on pro rata basis. However, conservation plans prepared as part of EIA / EMP reports for the leases is being implemented on regular basis. SAIL will submit the approved IWLMP report to the Office of IRO, MoEFCC, Ranchi when received from Govt. of Jharkhand. Further, Gua Ore Mines has engaged M/s Ecos Offset Pvt. Ltd., Madhubani, Bihar, for preparation of Site Specific Wildlife and Bio-diversity Conservation Plan (SSWBCP) for mining leases of Gua Ore Mines. The draft report of SSWBCP for all mining leases of Gua Ore Mines was prepared in consultation with M/s Ecos Offset Pvt. Ltd., and submitted to the office of Divisional Forest Officer (DFO), Saranda Forest Division, vide letter no. Gua/E&L/SSWBCP/Report/04M.L./2023-24/107 dated 20.06.2023 for approval of the same by the State Forest Department. However, DFO, Saranda, has raised observations in the submitted draft report and instructed for modifications in the report. Revised draft Site Specific Wildlife Conservation & Management Plan (SSWCMP) for all mining leases of Gua Ore Mines prepared by the consultant has been submitted to the office of the DFO, Saranda and after



S.No.	CONDITION	COMPLIANCES
		<p>approval of the same by State Forest Department, all the measures as suggested in SSWBCP will be implemented. Gua Ore Mines undertake for active implementation of all the measures as suggested in SSWCMP after approval of the same by the State Forest Department.</p> <ul style="list-style-type: none"> • Latest meeting with DFO, Saranda, w.r.t preparation of SSWCMP was held on 20.10.2024 for finalization of the proposed recommendations & estimate. • Also, necessary support for conservation and protection of wildlife and forest fire management is being extended by the SAIL to the State Forest Department as and when sought by the State Forest Department. Some of them includes: <ul style="list-style-type: none"> ➤ Engaged 12 nos. of fire watchers every year for 6 months for ensuring fire protection in and around the lease area of Gua Ore Mines. ➤ Three nos. of petrol operated Leaf Blower Machines were procured and provided to Range Forest Office, Gua for fire prevention in the forest area. Petrol has been provided to the Range Forest Office for the operation of the leaf blower machine. ➤ One no. of GIS expert and one no. of computer operator has been deployed at Saranda Forest Division on contract basis since December 2020, to monitor, compile and analyze data. ➤ Awareness programmes are organised every year through display of banners, knowledge sessions among the villagers and employees. Awareness programme was also done through public addressing system in nearby villages. ➤ Nukkad Natak for creating awareness regarding forest fire and conservation and protection of wildlife in the nearby villages has been organized by State Forest Department through third party with financial and other support from Gua Ore Mines.



S.No.	CONDITION	COMPLIANCES
		<ul style="list-style-type: none"> ➤ A dedicated vehicle has been provided to Gua Range Forest for effective management along with driver. HSD for the same is also being provided by the company as per requirement. ➤ Public Address System along with announcer in rented vehicle has been provided by Gua Ore Mines to State Forest Department in year 2024. ➤ Payment of Rs. 14,19,716/- has been made by SAIL as per demand raised by State Forest Department towards purchasing of drone, outdoor LED Panel, video card, projector, projector screen, speakers along with other ancillaries, 02 nos. of two wheeler bikes and 02 nos. of computers for conservation and protection of wildlife and also preventing forest fire. ➤ Other than above, financial assistance along with other miscellaneous items is being provided to Gua Forest Range for forest fire management and wildlife conservation & management.
(xxxvii)	The entire mining lease area to be fenced by erecting solar powered electric fencing all around it. The fencing so erected shall be maintained properly and the cost towards erection and maintenance of all solar powered electric fencing shall be borne by the project proponent out of the project cost.	<ul style="list-style-type: none"> • As directed by the State Forest Department, once the Integrated Wildlife Management Plan is approved, we will take up the job as per the recommendation of the IWMP. • Also, in this regard, issue related to obstruction of movement of wildlife animals by erecting solar powered electric fencing was discussed in some forums and accordingly necessary direction regarding the same was sought from DFO, Saranda vide letter dated 16.12.2023. DFO, Saranda, has advised verbally, not to erect solar powered electric fencing as the same may disturb movement of wild animals.
(xxviii)	No road transportation of ore outside the mine lease area shall be carried out after the sunset.	<ul style="list-style-type: none"> • Entire iron ore from the mine is being dispatched through rail to SAIL's Steel Plants. Hence, no road transportation of ore outside the mine lease area is carried at Gua Ore Mines at this juncture.
(xxxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for	<ul style="list-style-type: none"> • Most of the construction labour is hired from the local villages. Labours when hired from outside the vicinity of the mines are provided full-fledged



S.No.	CONDITION	COMPLIANCES
	cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	accommodation in the company along with necessary infrastructure at the existing colony of the mines.
(xl)	The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e. PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored {(TOS, DO, PH and Total Suspended Solids (TSS)}. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The Circular No.- J-20012 /1 / 2006 - IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	<ul style="list-style-type: none"> Environmental Quality Monitoring covering air, water and noise quality at Gua Ore Mines is monitored regularly through JSPCB, Environment Management Division of SAIL and through in-house facilities. The data is digitally displayed in public domain near the main gate of the administrative office. Gua Ore Mines has installed a Continuous Ambient Air Quality Monitoring System (CAAQMS) for real time monitoring of Ambient Air Quality within the leasehold area. The data is digitally displayed in public domain at the Gua club site within the township. As per the monitoring and analysis of Ambient Air quality, PM₁₀ ranges from 31.8-98.81 µg/m³, PM_{2.5} ranges from 14.6-46.4 µg/m³, SO₂ ranges from 6.8-33.44 µg/m³ and NOx ranges from 6.6-41.35 µg/m³, the detailed report is enclosed as Annexure-1 & Annexure-2. Similarly, water and treated waste water parameters are in the range, pH ranges from 6.63-8.37, BOD ranges from 0.6-19 mg/l, COD ranges from 8-146 mg/l. The noise levels ranges from 42.1-74.2 dB (A). The detailed report is enclosed as Annexure-1 and Annexure-2.
(xli)	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	<ul style="list-style-type: none"> Noted for compliance. Gua Ore Mines will submit a Final Mine Closure Plan along with details of Corpus Fund to the Ministry of Environment, Forests & Climate Change 5 years in advance of final mine closure for approval.
(xlii)	Steps to control flow of fines in to the river stream shall be taken.	<ul style="list-style-type: none"> Steps to control flow of fines in to the river stream has already been given discussed in the compliance of General Condition no. (iv). <p>Additionally, following structures have been provided for preventing water pollution at the fines dump area:</p>

General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines



S.No.	CONDITION	COMPLIANCES
		<p>a) A trench of length 150 m, depth 3 m and width 4.5 m has been created in front of the Dam no 1 at a distance of 5m.</p> <p>b) Four trenches of following dimensions have been created in front of the Dam No. 2 with a gap of 5 m between the trenches:</p> <p>i). Length 30 m of depth 3 m and width 25 m, distance from the dam 5m.</p> <p>ii). Length 36 m of depth 3.5 m and width 18 m, distance from the dam 5m.</p> <p>iii). Length 29 m of depth 3.5 m and width 18 m, distance from the dam 5m.</p> <p>iv). Length 14 m of depth 4 m and width 7 m, distance from the dam 5m.</p> <p>c) 5 trenches have been created between dam no 2 and dam no 3 with the following dimensions:</p> <p>i). Length 45 m of depth 3 m and width 5 m, distance from the dam 5m.</p> <p>ii). Length 26 m of depth 3 m and width 10 m, distance from the dam 5m</p> <p>iii). Length 100 m of depth 3 m and width 23 m, distance from the dam 5m.</p> <p>iv). Length 40 m of depth 4.5 m and width 34 m, distance from the dam 5m.</p> <p>v). Length 39 m of depth 4.5 m and width 22 m, distance from the dam 5m.</p> <p>d) 3 trenches have been created near dam no 3 with the following dimensions</p>



S.No.	CONDITION	COMPLIANCES
		<p>i). Length 22 m of depth 3 m and width 18 m, distance from the dam 5m</p> <p>ii). Length 101 m of depth 6 m and width 30 m, distance from the dam 5m</p> <p>iii). Length 29 m of depth 2.5 m and width 14 m, distance from the dam 5m</p> <p>e) De-siltation pit (200 m x100 m x6 m) has been created in front of the Dam no. 4 by removing 120000 m³ of fines. Major part of the excavated silts was placed near dam no.5 for embankment to protect flash flood from the zero point nallah and partly dispatched to steel plant after blending with fresh blue dust from mines.</p> <ul style="list-style-type: none"> The photographs are enclosed as Annexure-14.
(xliii)	A time bound action plan for consumption of accumulated fines as per approved Mine Plan/ EIA /EMP report shall be executed in the beneficiation and Pelletization Plant.	<ul style="list-style-type: none"> A proposal for faster utilization of fines from the fines dump at Gua Ore Mines was submitted to the MoEF&CC and EAC on 14th Nov, 2014. As per submitted plan dump fines will be consumed after commencement / operation of Beneficiation and Pelletisation Plant at Gua Ore Mines. To meet the enhanced requirement of iron ore fines, SAIL has drawn an action plan to utilize part of the stocks of dump fines for captive use through blending with high grade ore and part through beneficiation and Pelletisation for captive use. Presently, the dump fine is being dispatched to SAIL Steel Plants for captive use.
(xliv)	In order to strengthen the management system staggered trenches shall be provided in all the earthen dams to accommodate maximum silt flow to reduce any pressure in the downstream.	<ul style="list-style-type: none"> The following fourteen nos. of trenches have been provided in the earthen dams to accommodate maximum silt as well as to reduce the pressure on the dams. a) A trench of length 150 m, depth 3 m and width 4.5 m has been created in front of the Dam no 1 at a distance of 5m.

General Manager (Mines) & E&L
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S.No.	CONDITION	COMPLIANCES
		<p>b) Four trenches of following dimensions have been created in front of the Dam No. 2 with a gap of 5 m between the trenches:</p> <ul style="list-style-type: none"> i). Length 30 m of depth 3 m and width 25 m, distance from the dam 5m. ii). Length 36 m of depth 3.5 m and width 18 m, distance from the dam 5m. iii). Length 29 m of depth 3.5 m and width 18 m, distance from the dam 5m. iv). Length 14 m of depth 4 m and width 7 m, distance from the dam 5m. <p>c) 5 trenches have been created between dam no 2 and dam no 3 with the following dimensions:</p> <ul style="list-style-type: none"> i). Length 45 m of depth 3 m and width 5 m, distance from the dam 5m. ii). Length 26 m of depth 3 m and width 10 m, distance from the dam 5m iii). Length 100 m of depth 3 m and width 23 m, distance from the dam 5m. iv). Length 40 m of depth 4.5 m and width 34 m, distance from the dam 5m v). Length 39 m of depth 4.5 m and width 22 m, distance from the dam 5m. <p>d) 3 trenches have been created near dam no 3 with the following dimensions</p> <ul style="list-style-type: none"> i). Length 22 m of depth 3 m and width 18 m, distance from the dam 5m ii). Length 101 m of depth 6 m and width 30 m, distance from the dam 5m



S.No.	CONDITION	COMPLIANCES
		<p>iii). Length 29 m of depth 2.5 m and width 14 m, distance from the dam 5m</p> <p>e) De-siltation pit (200 m x100 m x6 m) has been created in front of the Dam no. 4 by removing 120000 m³ of fines. Major part of the excavated silts was placed near dam no.5 for embankment to protect flash flood from the zero point nallah and partly dispatched to steel plant after blending with fresh blue dust from mines.</p>
(xlv)	The silt collected along the nallas should be removed completely before the onset of next monsoon and should be a regular practice of the mine.	<ul style="list-style-type: none"> Regular de-silting of all the check dams/ nallas is being carried out prior to onset and post monsoon every year. All the 5 earthen dams and 4 nos. settling pits at the foot of Fines Dump and all the sedimentation cum rainwater harvesting pits at working mines are de-silted to increase their retention capacity. Work Order for the job contract for desiltation of all check dams & sedimentation pits was issued on 20.11.2024. Desiltation will be completed before next monsoon (Copy enclosed as Annexure-13).
(xlvi)	The slopes of the Earthen Dams should be provided with vegetative cover suitably with native species, thorny bushes and vetiver grasses as a part of biological measures of dump management.	<ul style="list-style-type: none"> The slopes of earthen dams have been stabilized through plantation of vetiver and local grasses. Earlier, about 10,000 sq. m area of earthen dam/ silt traps slopes (Dam No 1, Dam No 3, Dam No 4 and at traps no. 1,2,3,4) has been covered through plantation of vetiver and local grasses. Further, in F.Y. 2024-25, local grasses and hedges are being planted at the earthen dams. The location wise details of plantation done during F.Y. 2024-25 is provided at compliance of General Condition no. (xxii). The photographs are enclosed as Annexure-15.
(xlvii)	Monitoring of all water quality parameters as per the discharge standards shall be ensure by the project management.	<ul style="list-style-type: none"> Water quality is being monitored regularly and reports are being submitted to Jharkhand State Pollution Control Board, Jamshedpur. Water and treated waste water parameters are in the range, pH ranges from 6.63-8.37, BOD ranges from 0.6-19 mg/l, COD ranges from 80-146 mg/l. The detailed report is enclosed as Annexure-1 and Annexure-2.

[Signature]
 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines



S.No.	CONDITION	COMPLIANCES
(xlviii)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest.	<ul style="list-style-type: none"> Noted for compliance.
(xlix)	No further expansion or modifications in the beneficiation and pelletization plants shall be carried out without prior approval of the Ministry of Environment and Forest.	<ul style="list-style-type: none"> Noted for compliance. No further expansion or modifications in the beneficiation and pelletization plants will be carried out without prior approval of the MoEF&CC.
(l)	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	<ul style="list-style-type: none"> There will be no change in the calendar plan including excavation, quantum of mineral iron ore and waste. ROM production at Duargaburu Iron Ore Mine is maintained within permitted capacity as per the approved EC and Mining Plan.
(li)	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10µm i.e. PM10 and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	<ul style="list-style-type: none"> Four ambient air quality-monitoring stations are established in the core zone as well as in the buffer zone for RSPM in consultation with JSPCB. Ambient Air quality monitoring at four locations is being carried out regularly through accredited agency (JSPCB) and also through in house facility. The reports are being submitted to Jharkhand State Pollution Control Board periodically. Additionally, Gua Ore Mines has installed a Continuous Ambient Air Quality Monitoring System (CAAQMS) for real time monitoring of Ambient Air Quality within the leasehold area.
(lii)	Data on ambient air quality RSPM (Particulate matter with size less than 10µm i.e. PM10) & NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Bhubaneswar and the State Pollution Control Board/ Central Pollution Control Board once in six months.	<ul style="list-style-type: none"> Ambient air quality monitoring data is being submitted to MoEF&CC, New Delhi and Regional Office, Ranchi along with the compliance reports. As per the monitoring and analysis of Ambient Air quality, PM₁₀ ranges from 31.8-98.81 µg/m³, PM_{2.5} ranges from 14.6-46.4 µg/m³, SO₂ ranges from 6.8-33.44 µg/m³ and NOx ranges from 6.6-41.35 µg/m³. Detailed Air Quality report for the period April, 2024 to September, 2024 is placed as Annexure – 1 and Annexure-2. Air quality data is also being submitted to Jharkhand State Pollution Control Board and Central Pollution Control Board.



S.No.	CONDITION	COMPLIANCES
(lii)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement of haul roads, loading and unloading and at transfer points should be provided and properly maintained.	<ul style="list-style-type: none"> Dust Extractor System & Dust Suppression System has been installed at ore processing areas including loading and unloading areas to control the fugitive dusts. High pressure Water Sprinklers (28 KL) have been deployed for regular water sprinkling of Haul Roads and dust prone areas. In addition to this, permanent sprinklers along the main approach haul roads at crushing plant, railway siding area and other crucial areas have been installed. All these units are being maintained and operated.
(liv)	Measures should be taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operations of HEMM, etc should be provided with ear plugs / muffs.	<ul style="list-style-type: none"> Measures for control of noise levels are being taken regularly to maintain the noise levels below 85 dB (A). Workers engaged in operations of HEMM, Ore Crushing & Screening areas, are provided with ear plugs / muffs and are motivated from time to time to use the safety equipments for the whole period of their engagement in work.
(lv)	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge or workshop effluents.	<ul style="list-style-type: none"> Necessary provisions for treatment & recycling of effluents from the proposed beneficiation plant will be taken during the commissioning of Beneficiation Plant. Oil and grease trap along with vehicle washing ramp, maintenance bay and covered storage yard for proper handling of hazardous waste for the workshop effluents has already been installed and the same is in operation. A similar facility has been provided in the Motor Garage Department to check the flow of hazardous waste in the drain.
(lvi)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	<ul style="list-style-type: none"> Personal Protective Equipment (PPE) i.e. Dust masks, Helmet, Fluorescent Jacket, Safety Shoes, Goggles etc. are provided to all the workers engaged in the dust prone areas i.e. excavation & loading areas, ore handling plants, stacking & loading areas etc. Suitable training on safety and health aspects and Occupational health surveillance program are conducted regularly.



S.No.	CONDITION	COMPLIANCES
		<ul style="list-style-type: none"> A refresher training programme (MVT) fulfilling the same is carried out on monthly basis for any contractions due to exposure to dust and corrective measures are undertaken accordingly.
(lvii)	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	<ul style="list-style-type: none"> Environmental Management Cell including laboratory has already been established at the mines. The qualified personnel have taken up the job of strengthening the Environmental Management Cell. <p>Hierarchy of Environment & Lease Department of Gua Ore Mines</p> <pre> graph TD A[Chief General Manager (Mines)] --> B[General Manager (Mines) and in-charge Environment & Lease Deptt.] B --> C[Dy. General Manager (Geo.) and Environment & Lease] C --> D[Sr. Manager (Forest & Environment)] C --> E[Asst. Manager (Environment)] C --> F[MTT (Environment)] </pre>
(lviii)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.	<ul style="list-style-type: none"> Funds earmarked for environmental protection measures at the mine are booked separately and not being diverted for other purpose.
(lix)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	<ul style="list-style-type: none"> Noted for compliance. <p>The Duarguiburu Iron Ore Mine under Gua Ore Mines is working mine operating since 1958. Installation of various facilities under the 12.5 MTPA expansions will be informed in due time after installation of the facilities.</p>



S.No.	CONDITION	COMPLIANCES
(Ix)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	<ul style="list-style-type: none"> Full co-operation is being extended to the officers of the Regional Office, MoEF&CC, Ranchi, by furnishing the requisite data/ information / monitoring reports.
(Ixi)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.	<ul style="list-style-type: none"> Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office – MoEF&CC, Ranchi, Central Pollution Control Board and State Pollution Control Board. Copy of the compliance report including environmental quality data is uploaded to the SAIL web site i.e. www.sail.co.in.
(Ixii)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	<ul style="list-style-type: none"> Copies of the Environmental Clearance were sent to local Member of Panchayat & Zila Parishad at the time of Grant of EC. Copy of the same was already submitted. The clearance letter is displayed on the Company website i.e. www.sail.co.in.
(Ixiii)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/Tehsildar's Office for 30days.	<ul style="list-style-type: none"> Copies of the Environmental Clearance were sent to JSPCB and its regional office at Jamshedpur at the time of Grant of EC.
(Ixiv)	The environmental statement for each financial year ending 31s March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall	<ul style="list-style-type: none"> Environmental Statement for each financial year ending 31st March in Form V is submitted annually. Environment Statement for the financial year 2023-24 was submitted to the Jharkhand State Pollution Control Board (JSPCB) vide letter no. GUA/E&L/ES/2024-25/113 dated 26.09.2024.



S.No.	CONDITION	COMPLIANCES
	also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	
(lxv)	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	<ul style="list-style-type: none"> Advertisement was published in two daily newspapers on 30.03.2013. (Dainik Bhaskar Daily, Jamshedpur edition on 30.03.2013 and Dainik Jagran Daily edition on 30.03.2013). Also Local Zila Parishad Members, Gram Panchayat Members, Manky & Mundas, etc. were intimated about the issuance of environment clearance. Copy of the same was already submitted.
Compliance of additional specific conditions for amendment in EC vide order no. J-11015/453/2008-IA.II(M) dated 06.11.2020. :		
17 (I)	Fines from the fines dump shall not be excavated during the monsoon period as well as heavy rain days.	<ul style="list-style-type: none"> Noted for compliance. The fines from the fines dump will not be excavated during the monsoon period as well as heavy rain days.
17 (II)	Recommendations of IIT, Kharagpur for safe excavation of fines from the fines dump, slope condition assessment, runoff management, etc., shall be implemented and same to be intimated to Regional Office, MoEF&CC along with six monthly EC compliance reports. The project proponent shall also obtain other statutory permissions required for dump mining and adhered to.	<ul style="list-style-type: none"> The recommendations of IIT, Kharagpur will be implemented for safe excavation of fines from the fines dump, slope condition assessment, runoff management, etc. Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office – MoEF&CC. All the statutory permission required for dump mining will be obtained and adhered to.
17 (III)	Mitigative measures proposed for excavation and transportation of mineral shall be complied with including moist and covered.	<ul style="list-style-type: none"> All the mitigative measures proposed for excavation and transportation of mineral will be implemented



S.No.	CONDITION	COMPLIANCES
17 (IV)	The project proponent shall monitor the dust levels along the transportation route to Barajamda and shall deploy adequate mobile road water sprinklers to control dust emissions along the ore transport routes.	<ul style="list-style-type: none">Noted for compliance.


+ GENERAL MANAGER (MINES) AND E&L
GUA ORE MINES
STEEL AUTHORITY OF INDIA LIMITED (SAIL)
BOKARO STEEL PLANT

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



STEEL AUTHORITY OF INDIA LTD.
[A Govt. of India Enterprises]
Regd. Office: Ispat Bhawan
Lodhi Road
New Delhi

JHARKHAND GROUP OF MINES, BSL
CONTRACT CELL
P.O: Gua, Dist: West Singhbhum
Jharkhand, 833213
E-Mail: contractcellgua1@gmail.com
GST No: 20AAACS7062FAZI

Ref No: GOM/CC/24-25/WO/097

Date: 17/10/2024

WORK ORDER

To,
M/s Ashirbad Enterprises
At/ P.O Gua
Dist: West Singhbhum, Jharkhand: 833213
Bank Account No: 33196792133, SBI, Gua Mines
GST No: 20AAMFA6142P1ZC

Name of Work: Construction of Boulder Retaining Wall with Wire Mesh(gabion wall) at the bottom slope of OT Hill Waste Dump and Ranichua Waste Dump area of Duarguiburu Mining Lease of Gua Ore Mines.

Ref No:
i) NIT No: GOM/CC/24-25/LTE/050 Date 01/08/2024
ii) Offer received and opened on dtd: 26/08/2024
iii) LOA No: GOM/CC/24-25/LOA/494 Date: 04/09/2024

Dear Sir,

With reference to our aforesaid LOA the Initial Security Deposit (ISD) of Rs. 67,662/- deposited vide Account transfer (voucher no R2800371 dt 16/10/2024). The company is pleased to accept your aforesaid tender for the above work and award the WO (Work Order) on same terms and conditions and rate of the tender document and scope of work cum price schedule annexed herewith as Annexure-I subject the following:

1. **Work Order Value (Excl. GST)** Rs, 22,55,408.00/- (Rupees Twenty Two Lakhs Fifty Five Thousand Four Hundred Eight Only)
2. **Period of Contract** 05 (five) months
3. **Date of Commencement** Within 10(ten) days from the date of issue of Work Order or actual date of commencement whichever is earlier
4. **Paying Authority** Head of Finance, Gua Ore Mines
5. **Inspecting Authority** Dr. T C Ananda, DGM (Geo) & E&L, Gua Ore Mines
6. **Executing Authority** Sri. R K Nandkeolyer, AGM (Mining), Gua Ore Mines
7. You are requested to acknowledge the receipt of the work order within 07 (seven) days of issued order duly signed in its duplicate copy as a token of your acceptance and you shall mobilize your resources to start the work on receipt of the W.O.
8. The SAIL- BSL, Gua Ore Mines reserve the right to withdraw the work order and terminate the contract at or without giving any reason what-so-ever.
9. You shall have to furnish GST registration no and has to clearly show the amount of GST separately in the Tax Invoice raised by you.
10. All other Terms & Conditions as laid down in our above referred NIT will remain the same and accepted copy of SCC is enclosed herewith.

Thanking You,

With Regards
For SAIL-BSL, Gua Ore Mines

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines
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GM(CC) 18/10/24



सेल SAIL

Annexure-I

SCOPE OF WORK CUM PRICE SCHEDULE

NAME OF WORK: Construction of Boulder Retaining Wall with Wire Mesh (gabion wall) at the bottom slope of OT Hill Waste Dump and Ranichua Waste Dump area of Duarguiburu Mining Lease of Gua Ore Mines.

Job Consist of

Dry boulder retaining wall with wire mesh (Gabion boulder wall) at OT Hill & Ranichua waste dump area is to be constructed with following dimensions;

Boulder Wall Dimensions				
Location	Length (m)	Av. Width (m)	Height (m)	Tot. Volume (m ³)
OT Hill	50	5	5	1250
Ranichua	40	5	5	1000

- Preparation of Trench for Foundation:** Earth work in excavation by mechanised means/manual means for trenching with dimensions of Length=50mts, width=5mts and depth =0.5mts, for foundation. The foundation shall be constructed by the contractor and resource required for the same including manpower shall be provided by the contractor.
- Transportation of Boulders:** Transportation of boulders from stacking location to the construction site, average distance of 600mtr . The resource required for the same shall be provided by the contractor including machinery/ manpower or both machinery and manpower.
- In case of engagement of machinery, HSD/fuel/oil and lubricant shall be the provided by the party at his own cost.
- Procurement wire mesh (Chain link fabric fencing mesh of size 50x50 mm made of G.I. wire of dia 4 mm), its transportation to the construction site is to be carried out by the contractor.Total surface area of wire mesh to enclose boulder wall is 940m² and 1161 m².
- The boulder wall shall be enclosed inside a wire mesh and cutting & shaping of the wire mesh for enclosure of the boulder wall shall be done by the contractor.
- The resources such as manpower, machinery etc., required for the above mentioned job at item 1,2,3,4,5 are to be provided by the contractor.
- The tools and tackles required for cutting of the wire mesh and other related jobs shall be provided by the contractor.
- The Contractor shall make his own arrangement to provide all materials and services and all tools, tackles, plant, storage and transport as per the scope of the work under contractor head necessary for the proper execution and completion of the work to the satisfaction of the executing and inspecting authority.
- All work shall be executed according to instructions/figured dimensions provided by Executing/Inspecting authority. Measurements shall be taken on the actual work done; in any case, it shall not exceed the authorized quantities as per the drawings/ instructions/figured dimensions provided by the Executing/Inspecting authority
- All the materials supplied by the contractor for the work will be as per ISI/BIS specifications/code and /or "Specifications of Civil Engineering Works".

1. PERIOD OF WORK

The contract shall be period of 05(five) months. The date of commencement of the work shall be reckoned within 10(ten) days from the date of issue of WO or actual date of commencement of work, which ever is earlier.

Page 2 of 3
 General Manager (Mines)
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सेल SAIL

2. **INSURANCE**

The successful contractor should submit a copy of valid Insurance certificate to the executing/Inspecting Authority for all engaged persons for the whole contract period and should be submitted from the date of commencement of the job.

3. **MATERIALS, TOOLS & TACKLES**

All materials, labour, tools & tackles required for the work shall be arranged and provided by the contractor at his own cost and risk.

4. **PAYMENT TERMS**

- There is provision for payment of monthly Running Account (R/A) Bills against Completed Quantities. Monthly RA Bills will be made as per actual measurement. Payment against R.A. Bill shall be made to the contractor on submission of R.A. bill with requisite documents within 30 days.
- 100% payment against bill shall be made to the contractor on submission of Final bills along with requisite documents within 60 days on certification of the Inspecting/Executing Authority.
- The contractor shall disburse statutory payments including PF to his workmen and should obtain Contract Labour Clearance certificate from Personnel dep't for release of payments against bill.
- 3 % amount shall be released after maintenance/Defect liability period duly certify by Inspecting/Executing Authority.

5. Please contract our Inspecting/ Executing authority and start the work as per his direction.

6. **SCOPE OF WORK CUM QUOTED RATE:**

PART-A(Construction of Gabion Boulder Retaining wall at Ranichua Waste Dump)

Sl. No	Description of Job	Unit	Qty	Rate	Amount
1	Earth work excavation (40x5x0.5=100 m3)	m3	100	255.00	25500.00
2	Transportation of Boulders (40x5x5=1000 m3)	m3	1000	750.00	750000.00
3	Wire Mesh to enclose the boulder wall in Sq. m	Sq.m	940	243.00	228420.00
Total Amount (Rs)					1003920.00

PART-B(Construction of Gabion Boulder Retaining wall at OT Hill Waste Dump)

Sl. No	Description of Job	Unit	Qty	Rate	Amount
1	Earth work excavation (50x5x0.5=100 m3)	m3	125	255.00	31875.00
2	Transportation of Boulders (50x5x5=1000 m3)	m3	1250	750.00	937500.00
3	Wire Mesh to enclose the boulder wall in Sq. m	Sq.m	1161	243.00	282123.00
Total Amount (Rs)					1251488.00
Total Amount(Part -A & Part- B)					2255408.00

Rupees in words Twenty Two Lakhs Fifty Five Thousand Four Hundred Eight Only

[Signature]
General Manager (Mines) & E&L
NAIL-BSL, Gua Ore Mines

[Signature]
GM (CC), GOM

CC: GM (F&A)/ GM (P&A)/DGM(Geo)- with a copy of NIT
AGM (Mining) - Date of commencement should be intimated to the office of U/s



JHARKHAND STATE POLLUTION CONTROL BOARD
ADITYAPUR, JAMSHEDPUR
AMBIENT AIR QUALITY REPORT (R&D)

Lab. Ref. No. - 170/2024

Name of the Industry :-

M/s Duarguiburu Iron Ore Mining Lease.
 M/S sail Gua Ore Mines.
 PO- Gua, Dist.- Weas Singhbhum

No. of Sampling point
 Sampling Position:

1. Near Club
2. Near Lab.
3. Near Mines Canteen

Date of Sampling :- 03.04.2024
 Weather Condition :- Clear

Time	SO ₂	NO _x	RSPM	Norms in µg/m ³
				SO ₂ - 80
				NO _x - 80
				RSPM - 100
Point- 1				
09.00 AM TO 01.00 PM	26.31	33.20	102.84	
01.00 PM TO 05.00 PM	21.92	28.19		
05.00 PM TO 09.00 PM	24.12	30.70	83.82	
09.00 PM TO 01.00 AM	18.64	24.43		
Maximum	26.31	33.20	102.84	
Average	22.75	29.13	93.33	
Point-2				
09.15 AM TO 01.15 PM	32.34	40.10	109.50	
01.15 PM TO 05.15 PM	33.28	45.13		
05.15 PM TO 09.15 PM	34.53	42.60	88.12	
09.15 PM TO 01.15 AM	29.60	36.96		
Maximum	34.53	45.13	109.50	
Average	33.44	41.35	98.81	
Point- 3				
09.40 AM TO 01.40 PM	27.41	34.46	98.11	
01.40 PM TO 05.40 PM	31.25	38.84		
05.40 PM TO 09.40 PM	25.21	31.95	79.16	
09.40 PM TO 01.40 AM	23.02	29.44		
Maximum	31.25	38.84	98.11	
Average	26.72	33.67	88.64	

Note :- All values are expressed in Micro gram/cubic meter.

Remarks :- The value of all parameters were observed within the limit prescribed

[Signature]
 ASO
 Jamshedpur

[Signature]
 Regional Officer
 Jamshedpur

[Signature]
 Board Analyst
 15/04/2024

[Signature]
 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines



JHARKHAND STATE POLLUTION CONTROL BOARD
ADITYAPUR, JAMSHEDPUR

AMBIENT AIR QUALITY REPORT (R&D)

Lab. Ref. No. :- 170/2024

Name of the Industry :-

M/s Duarguiburu Iron Ore Mining Lease,
M/S sail Gua Ore Mines,
PO- Gua, Dist.- Weas Singhbhum

No. of Sampling point
Sampling Position:

4. Near D.G. Area
5. Near WTP
6. Near Village Hirzi Hutting

Date of Sampling :- 03.04.2024

Weather Condition :- Clear

Time	SO ₂	NO _x	RSPM	Norms in µg/m ³ SO ₂ - 80 NO _x - 80 RSPM - 100
Point- 1				
10.30 AM TO 02.30 PM	29.05	36.34	104.82	
02.30 PM TO 06.30 PM	34.53	44.94		
06.30 PM TO 10.30 PM	32.34	41.66	75.16	
10.30 PM TO 02.30 AM	24.12	30.70		
Maximum	34.53	44.94	104.82	
Average	30.01	38.42		
Point-2				
10.45 AM TO 02.45 PM	23.02	28.82	84.34	
02.45 PM TO 06.45 PM	19.73	25.06		
06.45 PM TO 10.45 PM	16.44	21.30	70.50	
10.45 PM TO 02.45 AM	18.09	23.18		
Maximum	23.02	28.82	84.34	
Average	19.32	24.59	77.42	
Point- 3				
11.00 AM TO 03.00 PM	16.99	21.93	79.16	
03.00 PM TO 07.00 PM	13.15	17.54		
07.00 PM TO 11.00 PM	14.80	19.42	67.12	
11.00 PM TO 03.00 AM	11.51	15.66		
Maximum	16.99	21.93	79.16	
Average	14.11	18.64	73.14	

Note :- All values are expressed in Micro gram/cubic meter.

Remarks :- The value of all parameters were observed within the limit prescribed

ASO
Jamshedpur

Regional Officer
Jamshedpur

Board Analyst

General Manager (R&D)
SAIL-BSL, Gua Ore Mines



JHARKHAND STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE CUM-LABORATORY, ADITYAPUR, JAMSHEDPUR

Lab. Ref. No. 09/2024

Analysis report of Physico Chemical Examination of Sewage/Trade Effluent

1. Name and Address of the Unit :- M/s Duarguiburu Iron Ore Mining Lease,
M/S sail Gua Ore Mines,
PO- Gua, Dist.- Weas Singhbhum
2. Point of Collection :- U/S Karo River Near Kali Mandir
3. Date and Time of Collection :- 03.04.2024 at 04.15 PM
4. Collected by :- Regional office-cum-Laboratory.
5. Sample Source :- River Water

Sl. No.	Particulars	Limit	Value Obtained
1.	Temp. A/W	<40°C	36.3/33.6
2.	pH	6.5-8.5	7.8
3.	BOD ₅ mg/lit.	30 mg/lit.	0.6
4.	COD mg/lit.	250 mg/lit.	8.0
5.	T S mg/lit.	-	472.0
6.	T S S mg/lit.	100 mg/lit.	84.0
7.	T D S mg/lit.	-	388.0

Remarks :- The value all parameters were observed within the limit prescribed.

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12.4.24
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12.4.24
(ASO)

[Signature]
Regional Officer
13/04/24

[Signature]
Board Analyst
15/04/2024

[Signature]
General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines



JHARKHAND STATE POLLUTION CONTROL BOARD

REGIONAL OFFICE CUM-LABORATORY, ADITYAPUR, JAMSHEDPUR

Lab. Ref. No. 11/2024

Analysis report of Physico Chemical Examination of Sewage/Trade Effluent

1. Name and Address of the Unit :- M/s Duarguiburu Iron Ore Mining Lease,
M/S sail Gua Ore Mines,
PO- Gua, Dist.- Weas Singhbhum
2. Point of Collection :- D/S Karo River after meeting Mines
water, Near Bridge.
3. Date and Time of Collection :- 03.04.2024 at 04.40 PM
4. Collected by :- Regional office-cum-Laboratory.
5. Sample Source :- River

Sl. No.	Particulars	Limit	Value Obtained
1	Temp. A/W	<40°C	34.4/31.6
2	pH	6.5-8.5	8.37.5
3	BOD ₅ mg/lit.	30 mg/lit.	1.2
4	COD mg/lit.	250 mg/lit.	12.0
5	T S mg/lit.	-	468.0
6	T S S mg/lit.	100 mg/lit.	88.0
7	T D S mg/lit.	-	380.0

Remarks :- The value all parameters were observed within the limit prescribed..

12.4.24
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12.04.2024
(ASO)

Regional Officer
13/04/24

15/04/2024
Board Analyst

General Manager (Mines & Metals)
SAIL-BSL, Gua Ore Mines



JHARKHAND STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE CUM-LABORATORY, ADITYAPUR, JAMSHEDPUR

Lab. Ref. No. 08/2024

Analysis report of Physico Chemical Examination of Sewage/Trade Effluent

- 1 Name and Address of the Unit :- M/s Duarguiburu Iron Ore Mining Lease,
M/S sail Gua Ore Mines,
PO- Gua, Dist.- Weas Singhbhum
- 2 Point of Collection :- Mines water, final outlet, Near Kali Mandir
- 3 Date and Time of Collection :- 03.04.2024 at 04.10 PM
- 4 Collected by :- Regional office-cum-Laboratory.
- 5 Sample Source :- I/E

Sl. No.	Particulars	Limit	Value Obtained
1.	Temp A/W	<40°C	36.4/34.1
2.	pH	6.5-8.5	8.1
3.	BOD ₅ mg/lit.	30 mg/lit.	4.0
4.	COD mg/lit.	250 mg/lit.	24.0
5.	T.S mg/lit.	-	422.0
6.	T.S.S mg/lit.	100 mg/lit.	74.0
7.	T.D.S.mg/lit.	-	348.0

Remarks :- The value all parameters were observed within the limit prescribed.

MKS
13.4.24
(ST)

[Signature]
13.04.2024
(ASO)

[Signature]
Regional Officer
13/04/24

[Signature]
15/04/2024
Board Analyst

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



JHARKHAND STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE-CUM-LABORATORY, MB/15, NEW HOUSING COLONY
ADITYAPUR, JAMSHEDPUR

Lab Ref. No- 171/2024

NOISE LEVEL

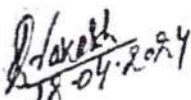
The Ambient Noise Level report at various location inside the premises of

M/s Duarguiburu Iron Ore Mining Lease, M/S SAIL Gua Ore Mines, Gua, Dist. - West Singhbhum taken on 03.04.2024

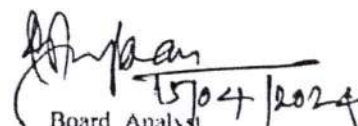
From 12.30 PM to 01.30 PM

Sl. No.	Location	Status of operation of Plant	Prescribed limit in day time	Noise Level dB(A)
1	Near Club	Operation	75 dB(A)	66.5
2	Near Lab	- Do -	75 dB(A)	72.8
3	Near Mines Canteen	- Do -	75 dB(A)	58.3
4	Near D.G Area	- Do -	75 dB(A)	74.2

Remarks : The value of Noise Level at all the point were observed within the limit prescribed.


ASO
Jamshedpur.


Regional Officer
Jamshedpur.


Board Analyst


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Sabz Care Environmental Consultancy Pvt. Ltd.



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TEST REPORT

Unique Lab Report No. (ULR No.)		TC994824000001091F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Particular of the Plant	Iron Ore Mines
Discipline	Chemical	Group	Atmospheric Pollution
Date of Sampling	21.09.2024 to 22.09.2024	Sample Collected By	Ranjeet Yadav & Team
Sample Receiving Date	24.09.2024	Sample Condition	Sealed and Preserved
Sample Details	Ambient Air	Sampling Plan	SCECPL/SOP/AA/01
Sampling Method	IS 5182 and CPCB Air Manual Volume 1 (NAAQM/36/2012-13)		
Type of Sample	Suspended Dust and Gases	Sample Drawn By	Sabz Care Lab
Sample ID	SCECPL/TR/24/241/AA-324/01-03	Plant Status	Operational
Period of Analysis	24.09.2024 to 25.09.2024	Report Release Date	01.10.2024
Meteorological Information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

A. GENERAL INFORMATION

Location of Sampling: Location-1: Near Main Canteen (Coordinates- 22°12'54.86"N to 85°21'29.63"E)
Location-2: Near Environmental Lab (Coordinates- 22°12'49.08"N to 85°22'38.24"E)
Location-3: Near D.G. Area (Coordinates- 22°12'46.51"N to 85°22'35.68"E)

Duration of Sampling: 24 hours

B. TEST RESULTS

S.N.	PARAMETERS	UNIT	TEST METHOD	RESULTS (Location-1)	RESULTS (Location-2)	RESULTS (Location-3)	Requirements as per NAAQS 2009
1.	Particulate Matter as PM _{2.5}	µg/m ³	IS 5182 (Part 24)	37.81	39.55	41.34	60 (µg/m ³)
2.	Particulate Matter as PM ₁₀	µg/m ³	IS 5182 (Part 23)	84.15	85.45	89.81	100 (µg/m ³)
3.	Sulphur Dioxide as SO ₂	µg/m ³	IS 5182 (Part 2)	17.40	18.38	20.59	80 (µg/m ³)
4.	Nitrogen Dioxide as NO ₂	µg/m ³	IS 5182 (Part 6)	20.33	22.46	24.60	80 (µg/m ³)

Remarks: The ambient air quality with respect to Particulate matters, SO₂ and NO₂ are within the prescribed National Ambient Air Quality Standard.

- Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory

Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
Contact : 09334315731, 07563048389, e-mail : scecpimdp@gmail.com



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सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines



TEST REPORT

Unique Lab Report No. (ULR No.)	TC994824000001092F		
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Particular of the Plant	Iron Ore Mines
Discipline	Chemical	Group	Atmospheric Pollution
Date of Sampling	22.09.2024 to 23.09.2024	Sample Collected By	Ranjeet Yadav & Team
Sample Receiving Date	24.09.2024	Sample Condition	Sealed and Preserved
Sample Details	Ambient Air	Sampling Plan	SCECPL/SOP/AA/01
Sampling Method	IS 5182 and CPCB Air Manual Volume 1 (NAAQM/36/2012-13)		
Type of Sample	Suspended Dust and Gases	Sample Drawn By	Sabz Care Lab
Sample ID	SCECPL/TR/24/241/AA-325/01-03	Plant Status	Operational
Period of Analysis	24.09.2024 to 25.09.2024	Report Release Date	01.10.2024
Meteorological Information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

A. GENERAL INFORMATION

Location of Sampling: Location-1: Near Gua Club (Coordinates- 22°12'42.57"N to 85°22'53.57"E)
Location-2: Near WTP Area (Coordinates- 22°12'13.11"N to 85°22'39.22"E)
Location-3: Near Hirzi Hutting (Coordinates- 22°11'37"N to 85°22'53"E)

Duration of Sampling: 24 hours

B. TEST RESULTS

S.N.	PARAMETERS	UNIT	TEST METHOD	RESULTS (Location-1)	RESULTS (Location-2)	RESULTS (Location-3)	Requirements as per NAAQS 2009
1.	Particulate Matter as PM _{2.5}	µg/m ³	IS 5182 (Part 24)	35.85	34.10	30.70	60 (µg/m ³)
2.	Particulate Matter as PM ₁₀	µg/m ³	IS 5182 (Part 23)	76.24	72.85	71.55	100 (µg/m ³)
3.	Sulphur Dioxide as SO ₂	µg/m ³	IS 5182 (Part 2)	16.67	15.69	13.48	80 (µg/m ³)
4.	Nitrogen Dioxide as NO ₂	µg/m ³	IS 5182 (Part 6)	19.52	18.45	16.65	80 (µg/m ³)

Remarks: The ambient air quality with respect to Particulate matters, SO₂ and NO₂ are within the prescribed National Ambient Air Quality Standard.

- Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory

Piyush
01/10/2024
Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)

Contact : 09334315731, 07563048389, e-mail : scecplmdp@gmail.com



MSME
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



TEST REPORT

Unique Lab Report No. (ULR No.)	TC994824000001093F		
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Particular of the Plant	Iron Ore Mines
Discipline	Chemical	Group	Atmospheric Pollution
Date of Study	21.09.2024 to 22.09.2024	Sample Collected By	Ranjeet Yadav & Team
Sample Receiving Date	24.09.2024	Time of Duration	24 Hours
Sample ID	SCECPL/TR/24/240/NR-201/01-04	Sample Drawn By	Sabz Care Lab
Sampling Plan	SCECPL/SOP/NOISE/01	Data Analysis Date	23.09.2024
Sample Details	Ambient Noise	Plant Status	Operational
Sampling Method	IS:9989-1981 (Reaffirmed-2020)	Report Release Date	01.10.2024
Meteorological Information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

Limit in Leq dB(A)

(CENTRAL POLLUTION CONTROL BOARD, MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVERNMENT OF INDIA)

PERMISSIBLE NOISE EXPOSURE FOR INDUSTRIAL WORKERS

S.N.	CATEGORY OF AREA	DAY TIME	NIGHT TIME
1.	Industrial Area	75	70
2.	Commercial Area	65	55
3.	Residential Area	55	45
4.	Silence Zone	50	40

Exposure time (in hours per day)	Limit in dB(A)
8	90
4	93
2	96
1	99
1/2	102
1/4	105
1/8	108
1/16	111
1/32	114

*Day time is reckoned in between 6:00 A.M. & 10:00 P.M.

* Night time is reckoned in between 10:00 P.M. & 6:00 A.M.

AMBIENT NOISE QUALITY REPORT

Sampling Location	NOISE LEVEL IN dB(A)				
	Minimum	Ld-Mean (Day)	Ln-Mean (Night)	Leq Mean	Maximum
1. Near Environmental Lab (Coordinates- 22°12'49.08"N to 85°22'38.24"E)	46.5	67.1	54.2	66.4	72.3
2. Near Main Canteen (Coordinates- 22°12'54.86"N to 85°21'29.63"E)	36.4	56.7	43.1	55.8	61.0
3. Near Gua Club (Coordinates- 22°12'42.57"N to 85°22'53.57"E)	35.7	52.3	37.2	51.1	58.0
4. Near Gua Hospital (Coordinates- 22°12'39.87"N to 85°22'58.63"E)	31.1	49.5	36.9	48.8	54.5

Remarks- Noise level is well within the standard specified limit for Silence Zone.

- dB(A) L_d & L_n denotes the time weighted average of the level of sound in decibels on scale(A) in day and night respectively and L_{eq} denotes average of 24 hours which is relatable to human hearing.



Authorized Signatory

Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
Contact : 09334315731, 07563048389, e-mail : scecpmdp@gmail.com



General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



TEST REPORT

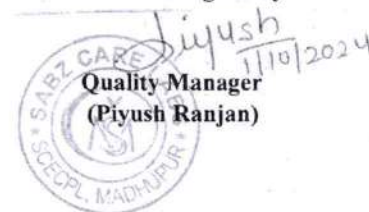
Unique Lab Report No. (ULR No.)		TC994824000001094F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
		Particular of the Plant	Iron Ore Mines
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Group	Water & Residues in Water
Discipline	Chemical	Sample Collected By	Ranjeet Yadav & Team
Date of Sampling	22.09.2024	Sample Condition	Sealed & Preserved
Date of Sample Receiving	24.09.2024	Sampling Plan	SCECPL/SOP/WA/01
Type of Sample	Water	Sample Drawn By	Sabz Care Lab
Sample Details	Drinking Water (RO Water)	Sampling Method	IS 17614 Part 1: 2021
Sample ID	SCECPL/TR/24/241/WT-247	Location – RO Water (Bachelor & Married Hostel)	
Period of Analysis	24.09.2024 to 27.09.2024	Report Release Date	01.10.2024
Meteorological information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

TEST REPORT

S.N.	Parameter	Unit	Test Method	Minimum Detection Limit	Result	Acceptable Limit as per IS 10500: 2012	Permissible Limit (In the absence of alternate source) as per IS 10500: 2012
1	pH@25°C	---	IS:3025: P- 11	4.0	6.63	6.5 to 8.5	6.5 to 8.5
2	Colour	Hazen	IS:3025: P- 4	1.0	2.0	5	15
3	Conductivity	µS/cm	IS:3025: P- 14	1.0	105.0	-	-
4	Turbidity	NTU	IS:3025: P- 10	0.1	0.1	1	5
5	Odour	---	IS:3025 : P- 5	Qualitative	Agreeable	Agreeable	Agreeable
6	Total Dissolved Solids	mg/L	IS:3025: P- 16	2.0	59.0	500	2000
7	Total Alkalinity	mg/L	IS:3025: P- 23	0.5	32.3	200	600
8	Total Hardness as CaCO ₃	mg/L	IS:3025: P- 21	1.0	17.1	200	600
9	Calcium as Ca	mg/L	IS:3025: P- 40	1.0	4.08	75	200
10	Magnesium as Mg	mg/L	IS:3025: P- 46	1.0	1.41	30.0	100
11	Chloride as Cl	mg/L	IS:3025: P- 32	1.0	5.49	250	1000

Authorized Signatory

Quality Manager
(Piyush Ranjan)



Page 1 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
Contact : 09334315731, 07563048389, e-mail : scecp1mdp@gmail.com



General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

MSME
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

**Sabz Care****Environmental Consultancy Pvt. Ltd.**

TC-9948

*lets start thinking about nature for tomorrow***TEST REPORT**

ULR No.- TC994824000001094F

S.N.	Parameter	Unit	Test Method	Minimum Detection Limit	Result	Acceptable Limit as per IS 10500: 2012	Permissible Limit (In the absence of alternate source) as per IS 10500: 2012
12	Fluoride as F	mg/L	IS:3025: P- 60	0.05	0.29	1.0	1.5
13	Sulphate as SO ₄	mg/L	IS:3025: P- 24	1.0	6.3	200	400
14	Nitrate as NO ₃	mg/L	IS:3025: P- 34	0.1	BDL	45	45
15	Arsenic as As	mg/L	IS:3025: P- 37	0.05	BDL	0.01	0.01
16	Total Chromium	mg/L	IS:3025: P- 52 i	0.03	BDL	0.05	0.05
17	Copper as Cu	mg/L	IS:3025: P- 42 a	0.03	BDL	0.05	1.5
18	Iron as Fe	mg/L	IS:3025: P- 53 a	0.075	0.087	1.0	1.0
19	Manganese as Mn	mg/L	IS:3025: P- 59 b	0.01	BDL	0.1	0.3
20	Lead as Pb	mg/L	IS:3025: P- 47 iv	0.03	BDL	0.01	0.01
21	Zinc as Zn	mg/L	IS:3025: P- 49 i	0.02	BDL	5	15
22	Nickel as Ni	mg/L	IS:3025: P- 54 a	0.03	BDL	0.02	0.02
23	Residual Free Chlorine	mg/L	IS:3025: P- 26	0.1	BDL	0.2	1.0

Note-

- BDL = Below Detection Limit
- Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory


Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Page 2 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
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[Signature]
 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines

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 MICRO, SMALL & MEDIUM ENTERPRISES

**Sabz Care****Environmental Consultancy Pvt. Ltd.**

TC-9948



lets start thinking about nature for tomorrow

TEST REPORT

Unique Lab Report No. (ULR No.)		TC994824000001095F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
		Particular of the Plant	Iron Ore Mines
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Sample Collected by	Ranjeet Yadav & Team
Discipline	Chemical	Group	Water & Residues in Water
Date of Sampling	22.09.2024	Sampling Plan	SCECPL/SOP/WA/01
Date of Sample Receiving	24.09.2024	Sample Condition	Sealed & Preserved
Type of Sample	Water	Sample Drawn By	Sabz Care Lab
Sample Details	Surface Water (River)	Sampling Method	IS 17614 Part 1: 2021
Sample ID	SCECPL/TR/24/241/WT-248	Location: Karo River Water (Upstream)	
Period of Analysis	24.09.2024 to 27.09.2024	Report Release Date	01.10.2024
Meteorological information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

TEST REPORT

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result
1	pH@25°C	---	IS 3025 Part-11	4.0	7.52
2	Colour	Hazen	IS:3025: P- 4	1.0	4.0
3	Turbidity	NTU	IS 3025 Part-10	1.0	5.1
4	Electrical Conductivity	µS/cm	IS 3025 Part-14	5.0	165.3
5	Total Suspended Solids @105°C	mg/L	APHA 2540 D: 23 rd Ed.	2.0	17.1
6	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part-16	1.0	107.0
7	Total Hardness (as CaCO ₃)	mg/L	IS 3025 Part-21	1.0	109.3
8	Dissolved Oxygen	mg/L	APHA 4500-O, B, 24 th Ed.	0.2	7.4
9	Biological Oxygen Demand (For 3 days @ 27°C)	mg/L	IS:3025 P- 44	2.0	3.4
10	Total Solids	mg/L	IS 3025 Part-15	1.0	124.1
11	Chloride (as Cl)	mg/L	IS 3025 Part 32	1.0	4.49
12	Iron (as Fe)	mg/L	IS 3025 Part 53a	0.075	0.18
13	Fluoride (as F)	mg/L	IS:3025: P- 60	0.05	0.42
14	Calcium (as Ca)	mg/L	IS:3025: P- 40	1.0	28.56
15	Magnesium (as Mg)	mg/L	IS:3025: P- 46	1.0	12.12
16	Copper (as Cu)	mg/L	IS:3025: P- 42a	0.03	BDL
17	Manganese (as Mn)	mg/L	IS:3025: P- 59b	0.01	0.028

Authorized Signatory

Quality Manager
(Piyush Ranjan)

Page 1 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)

Contact : 09334315731, 07563048389, e-mail : scecpmdp@gmail.com

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines**MESE**
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

**Sabz Care****Environmental Consultancy Pvt. Ltd.**

TC-9948

*Let's start thinking about nature for tomorrow***TEST REPORT**

ULR No.- TC994824000001095F

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result
18	Sulphate (as SO ₄)	mg/L	IS:3025: P- 24	1.0	18.7
19	Nitrate (as NO ₃)	mg/L	IS:3025: P- 34	0.1	8.7
20	Lead (as Pb)	mg/L	IS:3025: P- 47, IV	0.03	BDL
21	Zinc (as Zn)	mg/L	IS:3025: P- 49i	0.02	BDL
22	Nickel (as Ni)	mg/L	IS:3025: P- 54a	0.03	BDL
23	Total Alkalinity (as CaCO ₃)	mg/L	IS:3025: P- 23	0.5	123.3

Water Quality Criteria as per Central Pollution Control Board is as follows-

S. N.	Parameters	Class A	Class B	Class C	Class D	Class E
1.	pH	6.5 – 8.5	6.5 – 8.5	6.0 – 9.0	6.5 – 8.5	6.0 – 8.5
2.	Dissolved Oxygen (as O ₂), mg/L	6	5	4	4	-
3.	BOD, 5 days at 20 °C, mg/L	2	3	3	-	-
4.	Electrical Conductivity	-	-	-	-	2250

Class A : Drinking Water Source without conventional treatment but after disinfection

Class B : Outdoor bathing (Organised)

Class C : Drinking water source after conventional treatment and disinfection

Class D : Propagation of Wild life and Fisheries

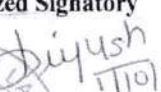
Class E : Irrigation, Industrial Cooling, Controlled Waste disposal

Below E: Not meeting A, B, C, D & E Criteria

Note-

- BDL= Below Detection Limit
- Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory


Quality Manager
(Piyush Ranjan)


*** END OF REPORT ***



Page 2 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines
MSME
 सूक्ष्म, लघु एवं मध्यम उद्यम
 MICRO, SMALL & MEDIUM ENTERPRISES



TEST REPORT

Unique Lab Report No. (ULR No.)		TC994824000001096F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
		Particular of the Plant	Iron Ore Mines
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Sample Collected by	Ranjeet Yadav & Team
Discipline	Chemical	Group	Water & Residues in Water
Date of Sampling	22.09.2024	Sampling Plan	SCECPL/SOP/WA/01
Date of Sample Receiving	24.09.2024	Sample Condition	Sealed & Preserved
Type of Sample	Water	Sample Drawn By	Sabz Care Lab
Sample Details	Surface Water (River)	Sampling Method	IS 17614 Part 1: 2021
Sample ID	SCECPL/TR/24/241/WT-249	Location: Karo River Water (Downstream)	
Period of Analysis	24.09.2024 to 27.09.2024	Report Release Date	01.10.2024
Meteorological information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

TEST REPORT

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result
1	pH@25°C	---	IS 3025 Part-11	4.0	7.36
2	Colour	Hazen	IS:3025: P- 4	1.0	4.0
3	Turbidity	NTU	IS 3025 Part-10	1.0	6.5
4	Electrical Conductivity	µS/cm	IS 3025 Part-14	5.0	173.7
5	Total Suspended Solids @105°C	mg/L	APHA 2540 D: 23 rd Ed.	2.0	20.7
6	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part-16	1.0	114.0
7	Total Hardness (as CaCO ₃)	mg/L	IS 3025 Part-21	1.0	114.7
8	Dissolved Oxygen	mg/L	APHA 4500-O, B, 24 th Ed.	0.2	7.4
9	Biological Oxygen Demand (For 3 days @ 27°C)	mg/L	IS:3025 P- 44	2.0	3.0
10	Total Solids	mg/L	IS 3025 Part-15	1.0	134.7
11	Chloride (as Cl)	mg/L	IS 3025 Part 32	1.0	4.7
12	Iron (as Fe)	mg/L	IS 3025 Part 53a	0.075	0.20
13	Fluoride (as F)	mg/L	IS:3025: P- 60	0.05	0.47
14	Calcium (as Ca)	mg/L	IS:3025: P- 40	1.0	26.5
15	Magnesium (as Mg)	mg/L	IS:3025: P- 46	1.0	11.88
16	Copper (as Cu)	mg/L	IS:3025: P- 42a	0.03	BDL
17	Manganese (as Mn)	mg/L	IS:3025: P- 59b	0.01	0.030

Authorized Signatory

Quality Manager
(Piyush Ranjan)

Page 1 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

**Sabz Care****Environmental Consultancy Pvt. Ltd.**

TC-9948



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TEST REPORT

ULR No.- TC994824000001096F

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result
18	Sulphate (as SO ₄)	mg/L	IS:3025: P- 24	1.0	20.3
19	Nitrate (as NO ₃)	mg/L	IS:3025: P- 34	0.1	10.7
20	Lead (as Pb)	mg/L	IS:3025: P- 47, IV	0.03	BDL
21	Zinc (as Zn)	mg/L	IS:3025: P- 49i	0.02	BDL
22	Nickel (as Ni)	mg/L	IS:3025: P- 54a	0.03	BDL
23	Total Alkalinity (as CaCO ₃)	mg/L	IS:3025: P- 23	0.5	127.8

Water Quality Criteria as per Central Pollution Control Board is as follows-

S. N.	Parameters	Class A	Class B	Class C	Class D	Class E
1.	pH	6.5 – 8.5	6.5 – 8.5	6.0 – 9.0	6.5 – 8.5	6.0 – 8.5
2.	Dissolved Oxygen (as O ₂), mg/L	6	5	4	4	-
3.	BOD, 5 days at 20 °C, mg/L	2	3	3	-	-
4.	Electrical Conductivity	-	-	-	-	2250

Class A : Drinking Water Source without conventional treatment but after disinfection

Class B : Outdoor bathing (Organised)

Class C : Drinking water source after conventional treatment and disinfection

Class D : Propagation of Wild life and Fisheries

Class E : Irrigation, Industrial Cooling, Controlled Waste disposal

Below E: Not meeting A, B, C, D & E Criteria

Note-

- BDL= Below Detection Limit
- Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory

Piyush Ranjan
 11/10/2024
 Quality Manager
 (Piyush Ranjan)

*** END OF REPORT ***

Page 2 of 2

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)

Contact : 09334315731, 07563048389, e-mail : scecpmdp@gmail.com



Piyush Ranjan
 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines

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 MICRO, SMALL & MEDIUM ENTERPRISES



TEST REPORT

Unique Lab Report No. (ULR No.)		TC994824000001098F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Particular of the Plant	Iron Ore Mines
Discipline	Chemical	Sample Collected by	Ranjeet Yadav & Team
Date of Sampling	22.09.2024	Group	Pollution & Environment
Date of Sample Receiving	24.09.2024	Sampling Plan	SCECPL/SOP/WA/01
Type of Sample	Water	Sample Condition	Sealed & Preserved
Sample Details	Waste Water (Domestic Effluent)	Sample Drawn By	Sabz Care Lab
Sample ID	SCECPL/TR/24/241/WT-251	Sampling Method	IS 17614 Part 1: 2021
Period of Analysis	24.09.2024 to 27.09.2024	Location: Near Railway Bridge	
Meteorological information	Average Ambient Temperature : 29.5°C, Barometric Pressure : 1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

TEST REPORT

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result	Requirement/Specifications as per CPCB Guideline for Inland Surface Discharge (EPR 1986, Schedule VI)
1	pH@25°C	---	APHA-4500-H+ B: 24 th Ed	4.0	7.03	5.5 to 9.0
2	Temperature	°C	APHA-2550 B: 24 th Ed	10	23.6	Shall not exceed 5°C above the receiving water temperature
3	Total Suspended Solids	mg/L	APHA 2540 D: 23 rd Ed	1.0	59.3	100
4	Total Dissolved Solids	mg/L	APHA 2540-C: 24 th Ed	1.0	153.0	2100
5	Chemical Oxygen Demand (COD)	mg/L	APHA 5220 B: 24 th Ed	5.0	57.4	250
6	Biological Oxygen Demand (BOD) for 3 days @ 27°C	mg/L	IS 3025 Part-44: 2019	2.0	16.0	30
7	Oil & Grease	mg/L	APHA 5520-B: 24 th Ed	2.0	5.3	10
8	Iron (as Fe)	mg/L	IS 3025: Part 53a	0.075	0.1228	3
9	Manganese (as Mn)	mg/L	IS 3025 Part-59b	0.01	0.2593	2
10	Chloride (as Cl)	mg/L	APHA 4500 Cl- B: 24 th Ed	1.0	47.1	-

Note-

Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory

Piyush
11/10/2024
Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
Contact : 09334315731, 07563048389, e-mail : scecpmdp@gmail.com



[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

**Sabz Care****Environmental Consultancy Pvt. Ltd.***let's start thinking about nature for tomorrow***TEST REPORT**

Unique Lab Report No. (ULR No.)		TC99482400001099F	
Name of Customer	Duarguiburu Iron Ore Mining Lease, M/s SAIL, Gua Ore Mines	JSPCB Application No.	20202157 (Date- 18.09.2024)
Address	Gua Ore Mines, SAIL, Post – Gua Dist – West Singhbhum, Jharkhand	Particular of the Plant	Iron Ore Mines
Discipline	Chemical	Sample Collected by	Ranjeet Yadav & Team
Date of Sampling	22.09.2024	Group	Pollution & Environment
Date of Sample Receiving	24.09.2024	Sampling Plan	SCECPL/SOP/WA/01
Type of Sample	Water	Sample Condition	Sealed & Preserved
Sample Details	Waste Water	Sample Drawn By	Sabz Care Lab
Sample ID	SCECPL/TR/24/241/WT-252	Sampling Method	IS 17614 Part 1: 2021
Period of Analysis	24.09.2024 to 27.09.2024	Location: Near Kali Mandir	
Meteorological information	Average Ambient Temperature : 29.5°C, Barometric Pressure :1006 mBar, Relative Humidity : 72% Weather Condition – Clear		

TEST REPORT

Sl. No.	Parameter	Unit	Test Method	Minimum Detection Limit	Result	Requirement/Specifications as per CPCB Guideline for Inland Surface Discharge (EPR 1986, Schedule VI)
1	pH@25°C	---	APHA-4500-H+ B: 24 th Ed	4.0	7.15	5.5 to 9.0
2	Temperature	°C	APHA-2550 B: 24 th Ed	10	23.1	Shall not exceed 5°C above the receiving water temperature
3	Total Suspended Solids	mg/L	APHA 2540 D: 23 rd Ed	1.0	21.7	100
4	Total Dissolved Solids	mg/L	APHA 2540-C: 24 th Ed	1.0	104.0	2100
5	Chemical Oxygen Demand (COD)	mg/L	APHA 5220 B: 24 th Ed	5.0	78.3	250
6	Biological Oxygen Demand (BOD) for 3 days @ 27°C	mg/L	IS 3025 Part-44: 2019	2.0	19.0	30
7	Oil & Grease	mg/L	APHA 5520-B: 24 th Ed	2.0	3.9	10
8	Iron (as Fe)	mg/L	IS 3025: Part 53a	0.075	0.1198	3
9	Manganese (as Mn)	mg/L	IS 3025 Part-59b	0.01	0.2517	2
10	Chloride (as Cl)	mg/L	APHA 4500 Cl- B: 24 th Ed	1.0	35.2	-

Note-

Samples will be destroyed after 15 days from date of issues of the Test Report subject to nature of preservation. Samples will be preserved as per the standard method.

Authorized Signatory

Piyush
11/10/2024
Quality Manager
(Piyush Ranjan)

*** END OF REPORT ***

Registered Office : Aarti Bhawan, Bawan Bighas, PO- Madhupur, Dist-Deoghar-815353 (Jharkhand)
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[Signature]
General Manager (Mines) & E&E
SAIL-BSL, Gua Ore Mines

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MICRO, SMALL & MEDIUM ENTERPRISES

**Gua Ore Mines
Environment Management Cell**

Ambient Air Quality Monitoring Report

Period: April, 2024 to September, 2024

Location	PM ₁₀ (µg/m ³)		
	Min	Max	Average
Near Hospital	31.8	51.5	41.3
Near Environment & QC Lab	46.4	72.6	57.5
Near Gua Club	32.6	51.4	42.1
Near Time Office	51.4	77.6	63.9
Standard as per NAAQS			100
Location	PM _{2.5} (µg/m ³)		
	Min	Max	Average
Near Hospital	14.6	26.6	20.3
Near Environment & QC Lab	22.8	36.8	29.4
Near Gua Club	14.8	26.8	20.5
Near Time Office	29.6	46.4	38.1
Standard as per NAAQS			60
Location	SO ₂ (µg/m ³)		
	Min	Max	Average
Near Hospital	6.8	12.1	9.4
Near Environment & QC Lab	8.3	12.2	10.2
Near Gua Club	6.9	13.2	9.9
Near Time Office	8.7	14.4	11.6
Standard as per NAAQS			80
Location	NO _x (µg/m ³)		
	Min	Max	Average
Near Hospital	6.8	9.8	8.3
Near Environment & QC Lab	8.7	12.8	10.5
Near Gua Club	6.6	10.2	8.4
Near Time Office	8.6	12.8	10.6
Standard as per NAAQS			80

Alok Kumar Yadav
(Alok Kumar Yadav)
 Sr. Manager (F&E)
 गुआ अयस्क खान / GUA ORE MINES
 पो. : गुआ-833213 / P.O. : Gua-833213
 जिला : सिंहभूम (प.) प्रखण्ड / Dist. Singhbhum (W) Jharkhand

Dharmendra Sethia
(Dharmendra Sethia)
 Asst. Manager (Env.)
 गुआ अयस्क खान / GUA ORE MINES
 पो. : गुआ-833213 / P.O. : Gua-833213
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Dharmendra Sethia
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Noise Level Monitoring Report

Period: April, 2024 to September, 2024

Location	Observed Noise Level dB(A)		
	Min	Max	Average
Near Hospital	42.1	43.4	42.8
Near Environment & QC Lab	65.8	67.7	66.8
Near General Office	51.3	52.8	52.1
Near Time Office	64.3	65.9	65.2
Near workshop	70.4	71.8	71.1
Near Mines canteen	58.4	59.1	58.7
Prescribed Day Limit dB (A)	75		

Alok
29/11/2024

(Alok Kumar Yadav)

Sr. Manager (F&E)

आलोक कुमार यादव
ALOK KUMAR YADAV

व. प्रबंधक (वन एवं पर्यावरण) / व. प्रबंधक (F&E)
सेल, बोकारो इस्पात क्षेत्र, SAIL, Gua Ore Mines Plant
गुआ अयस्क खान / GUA ORE MINES
फो. गुआ-833213, प.ओ. गुआ-833213
जिला - सिंहभूम (प.) झारखण्ड / Dist. Singhbhum (W) Jharkhand

[Signature]
29/11/24
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Dharmendra
29/11/2024

(Dharmendra Sethia)

Asst. Manager (Env.)

सहायक प्रबंधक (पर्यावरण) / Asst. Manager (Env.)
सेल-बी / SAIL-BSL
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जिला - सिंहभूम (प.) झारखण्ड / Dist. Singhbhum (W) Jharkhand

Mines Effluent Analysis Report

Period: April, 2024 to September, 2024

Sample Location: Near WTP Dam (I/E)

Weather: Sunny/Cloudy

Parameters	Unit	Observed Value			Prescribed Limit
		Min	Max	Average	
pH	-	7.24	7.45	7.34	5.5-9.0
TDS	mg/l	93	99	96.33	-
TSS	mg/l	44	83	59.83	100
COD	mg/l	51	59	54.67	250

Sample Location: Oil Separator (EME)/ Treated Effluent

Weather: Sunny/Cloudy

Parameters	Unit	Observed Value			Prescribed Limit
		Min	Max	Average	
pH	-	7.32	7.78	7.61	5.5-9.0
TDS	mg/l	142	166	152.33	-
TSS	mg/l	65	93	80.33	100
COD	mg/l	38	146	124.50	250

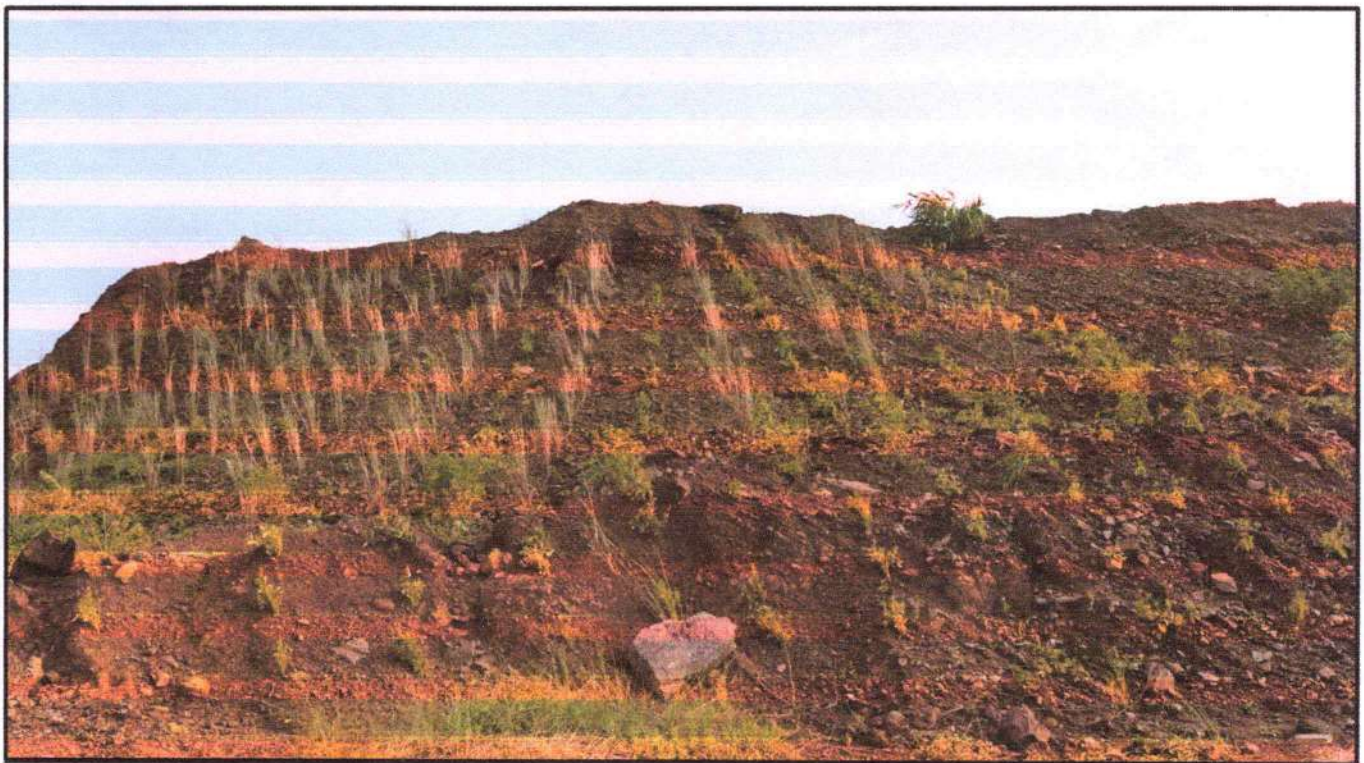
(Alok Kumar Yadav)
Sr. Manager (F&E)

ALOK KUMAR YADAV
व. प्रबन्धक (पर्यावरण) / Sr. Manager (F&E)
सेल-बी.एन.एम. प्र. सं. / SAIL - BSL Iron Steel Plant
गुआ अयस्क खान / GUA ORE MINES
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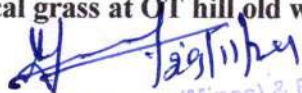
(Dharmendra Sethia)
Asst. Manager (Env.)

Dharmendra Sethia
सहायक प्रबंधक (पर्यावरण) / Asst. Manager (Env.)
सेल-बी.एन.एम. प्र. सं. / SAIL-BSL-IGOM
गुआ अयस्क खान / GUA ORE MINES
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जिला-सिंहभूम (प.) झारखण्ड / Dist. Singhbhum (W) Jharkhand

Plantation at Gua Ore Mines during F.Y.2024-25



Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

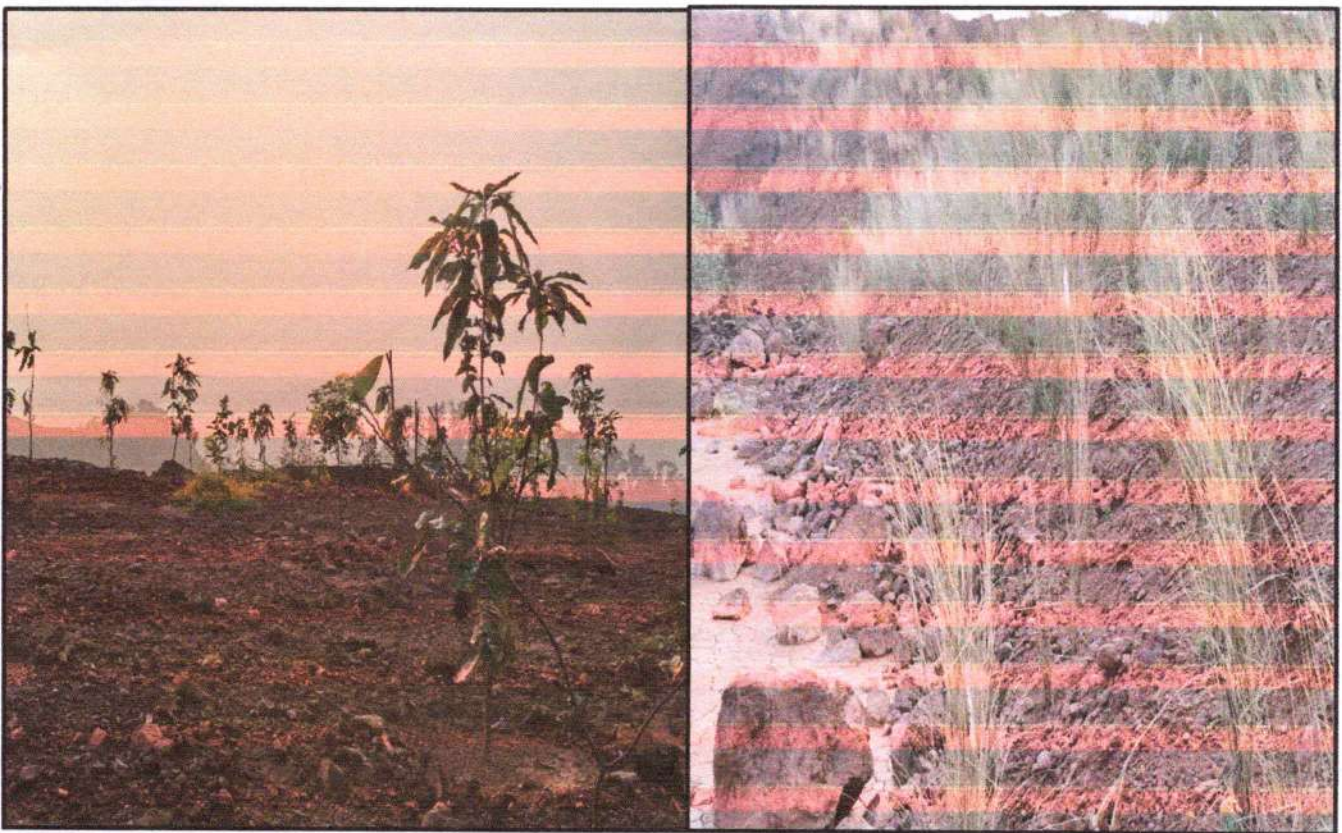

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

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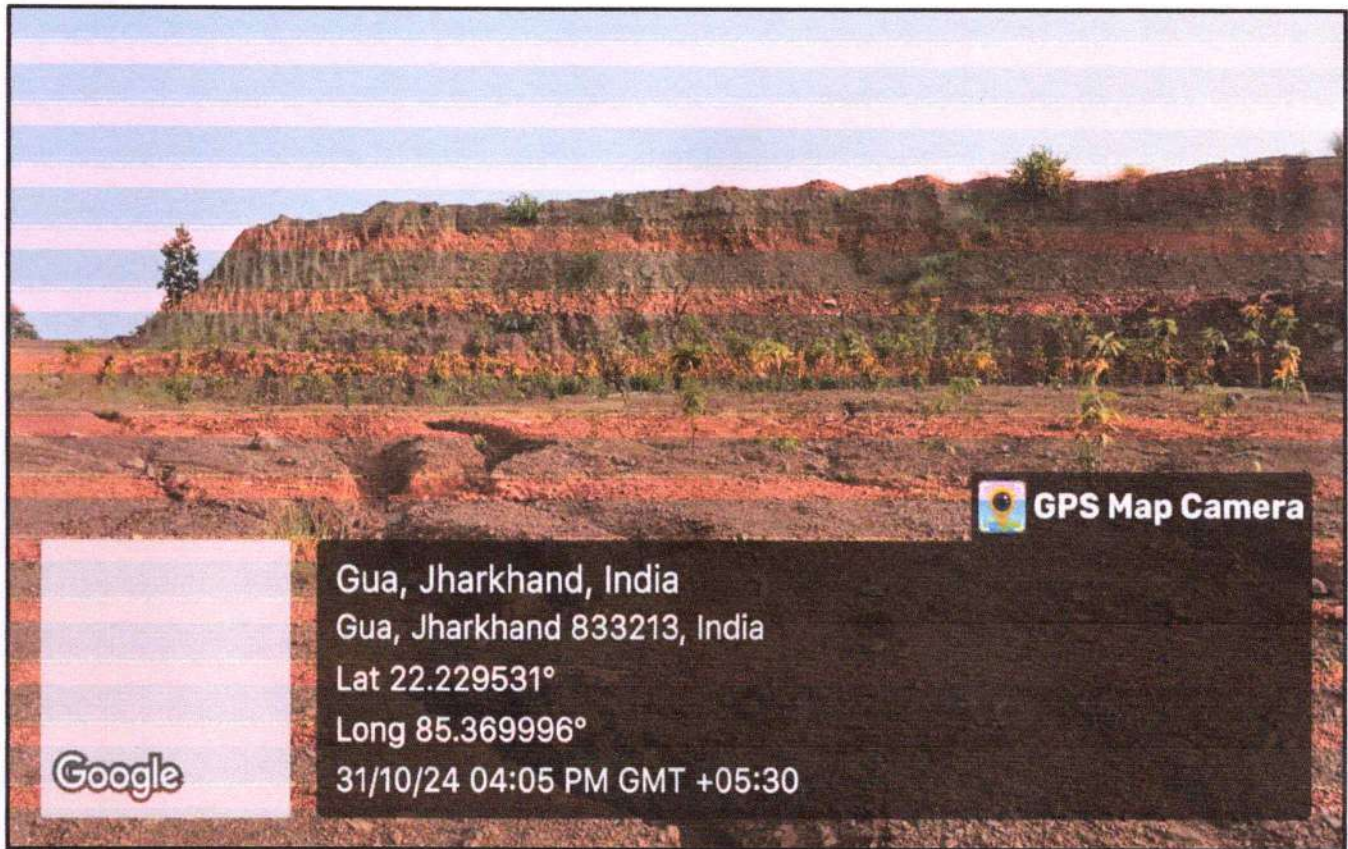
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



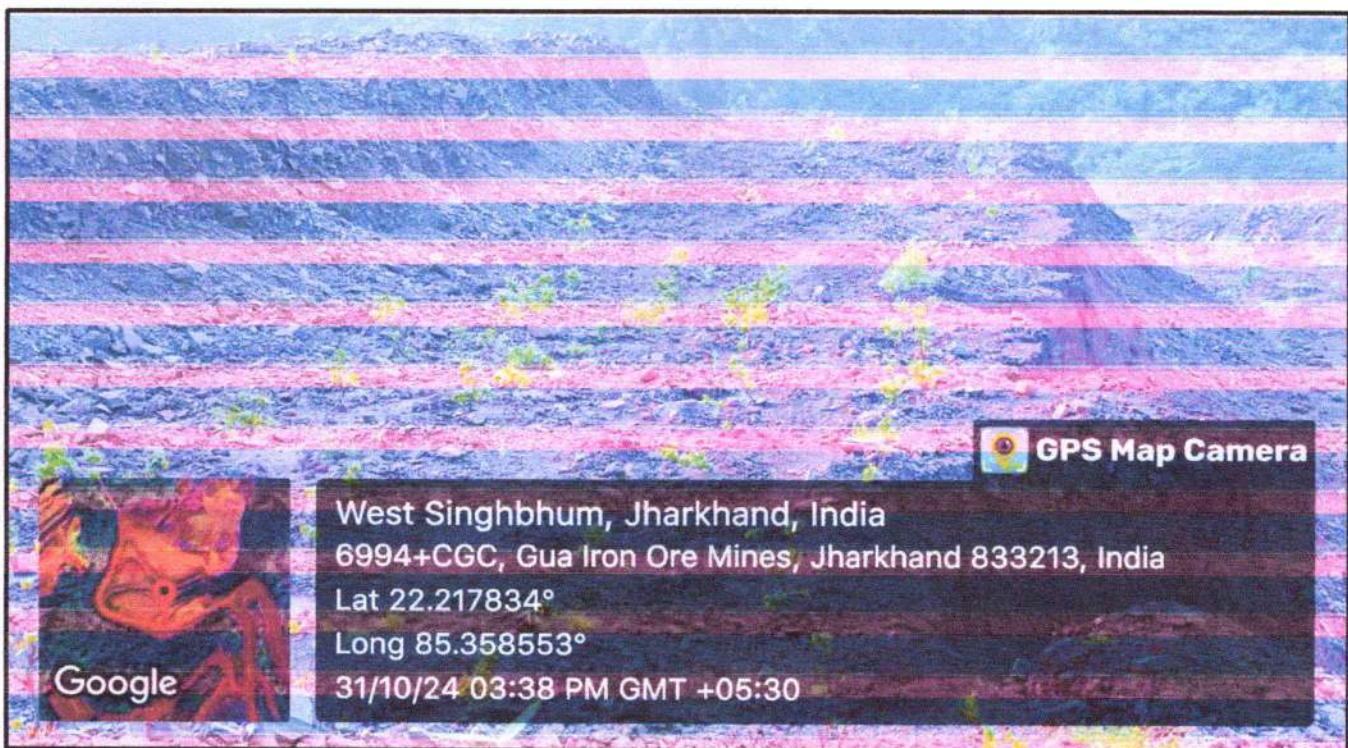
Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

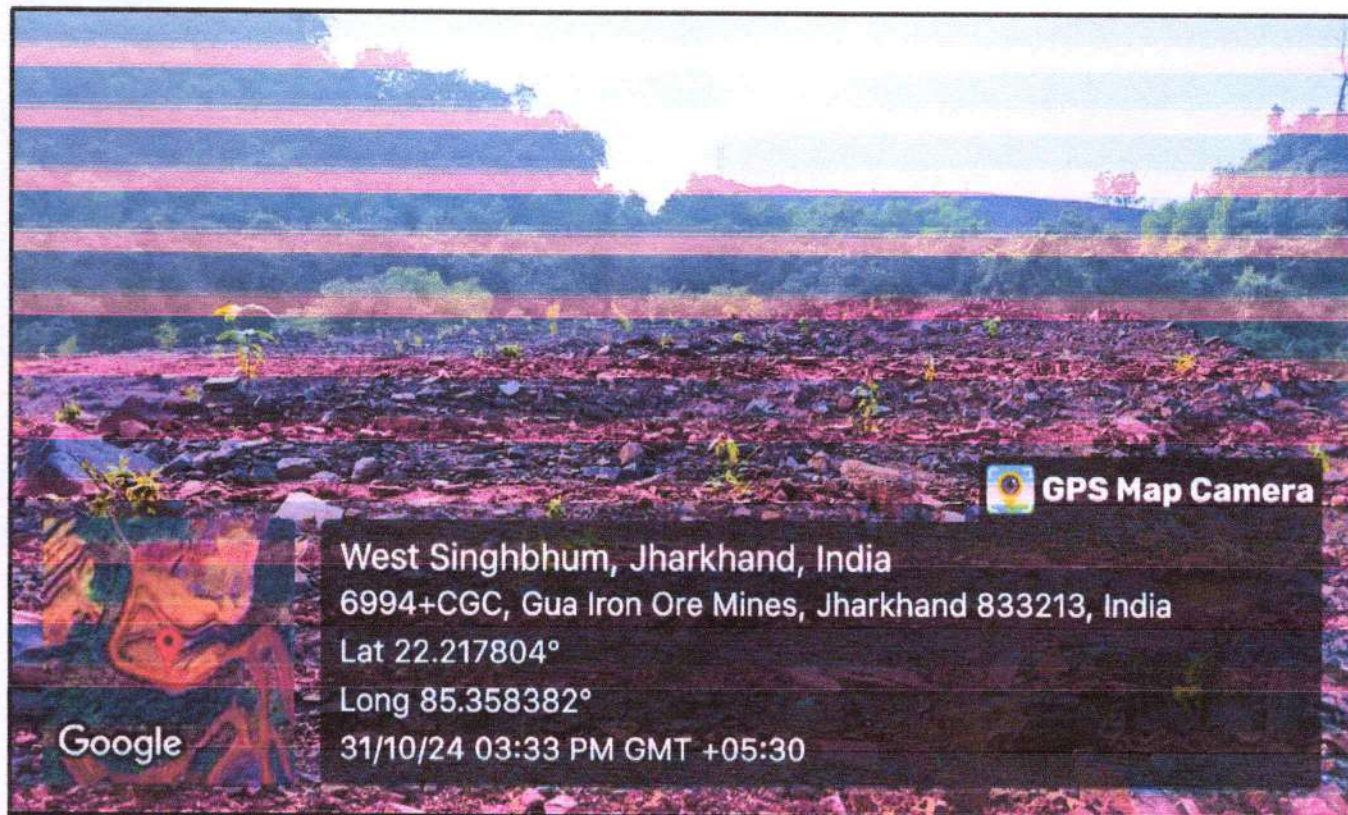


Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

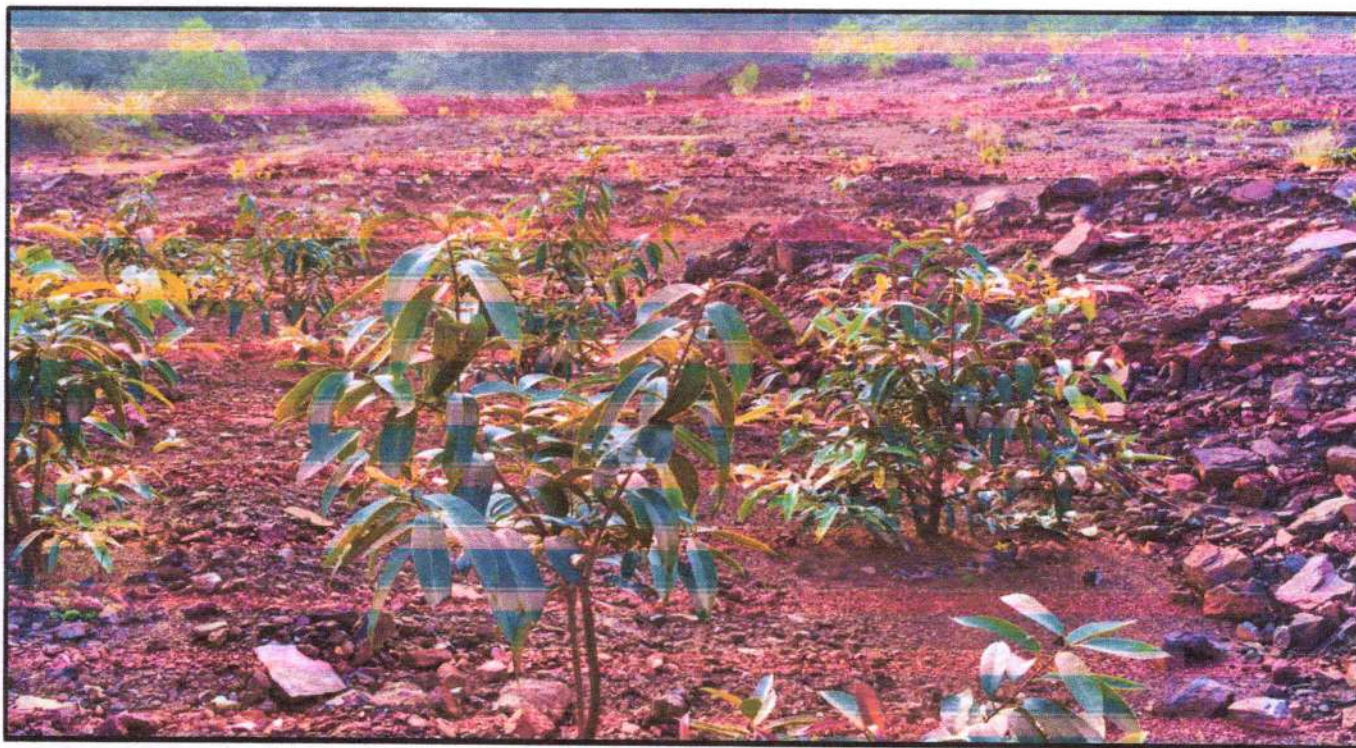


Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



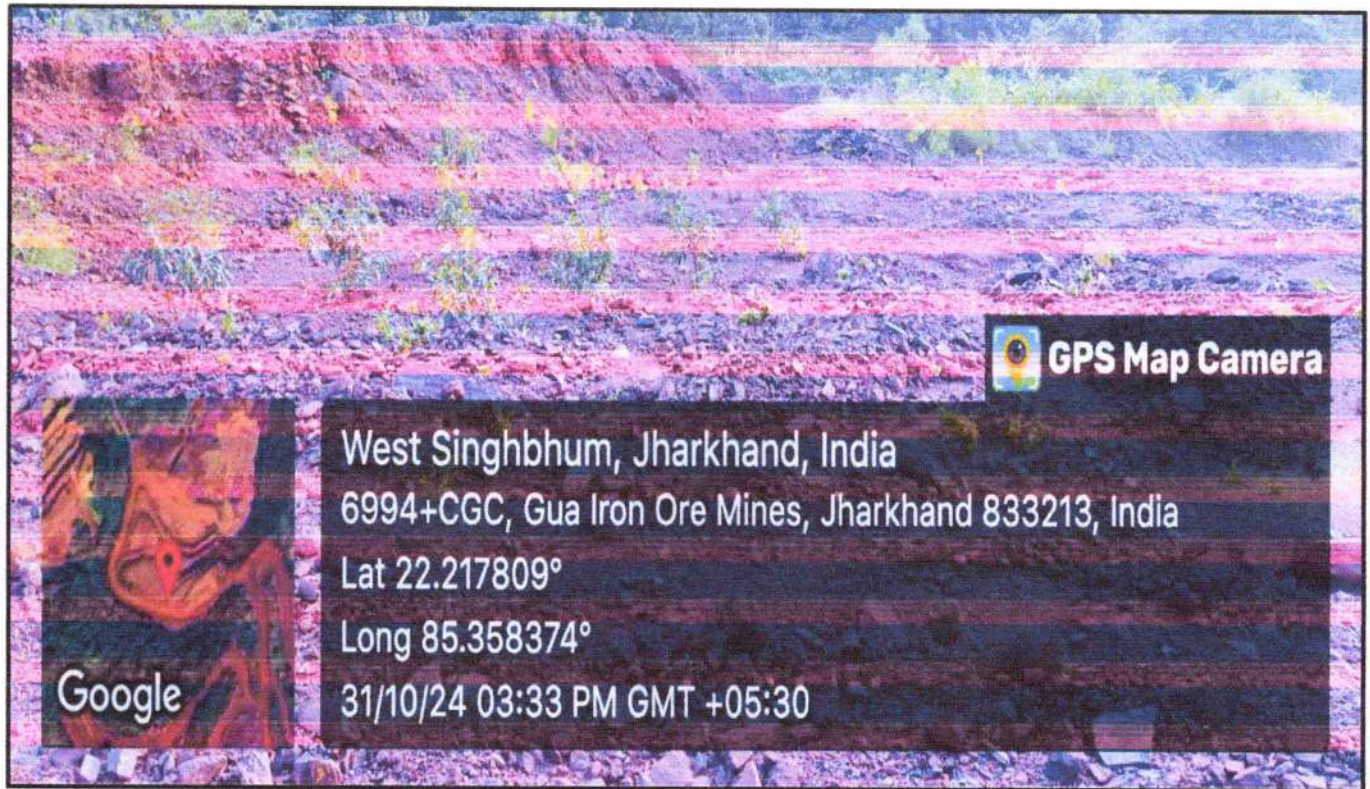
Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area



Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

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29/11/24

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

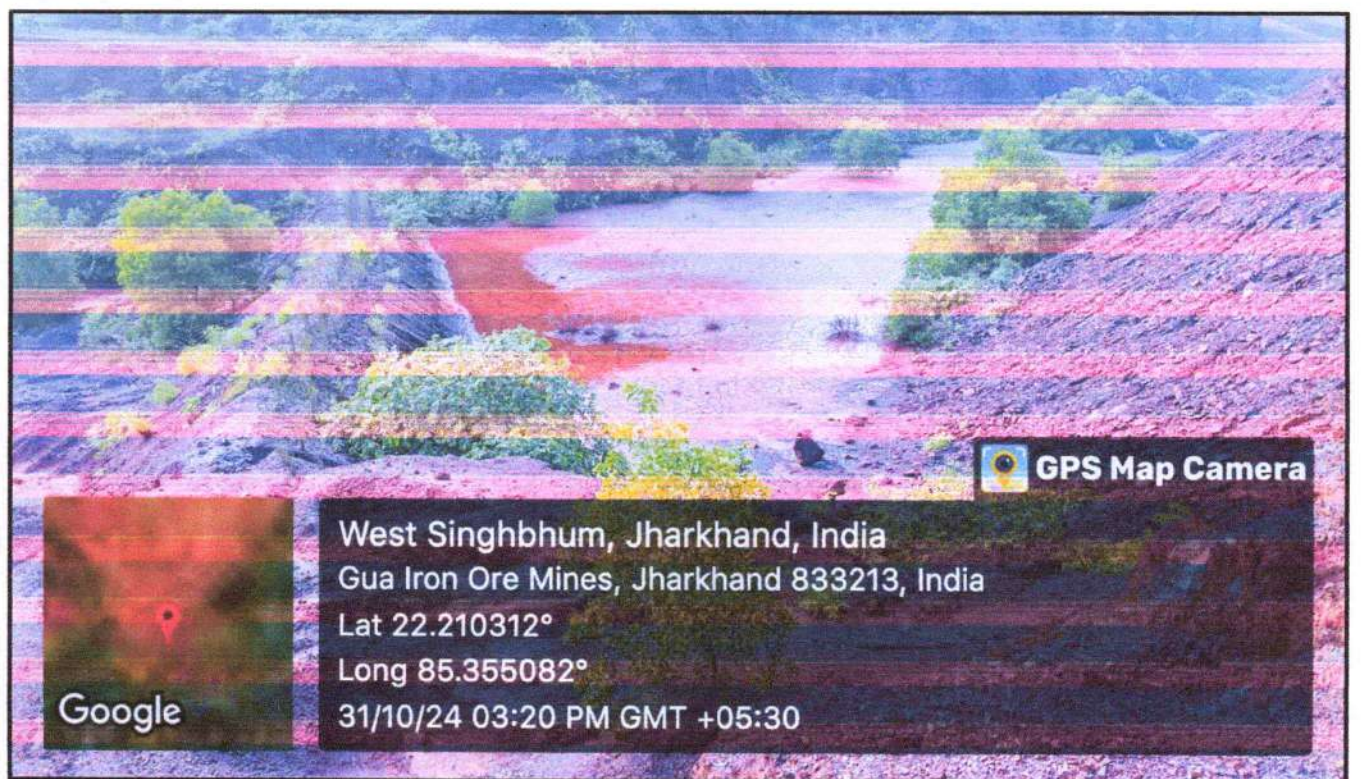
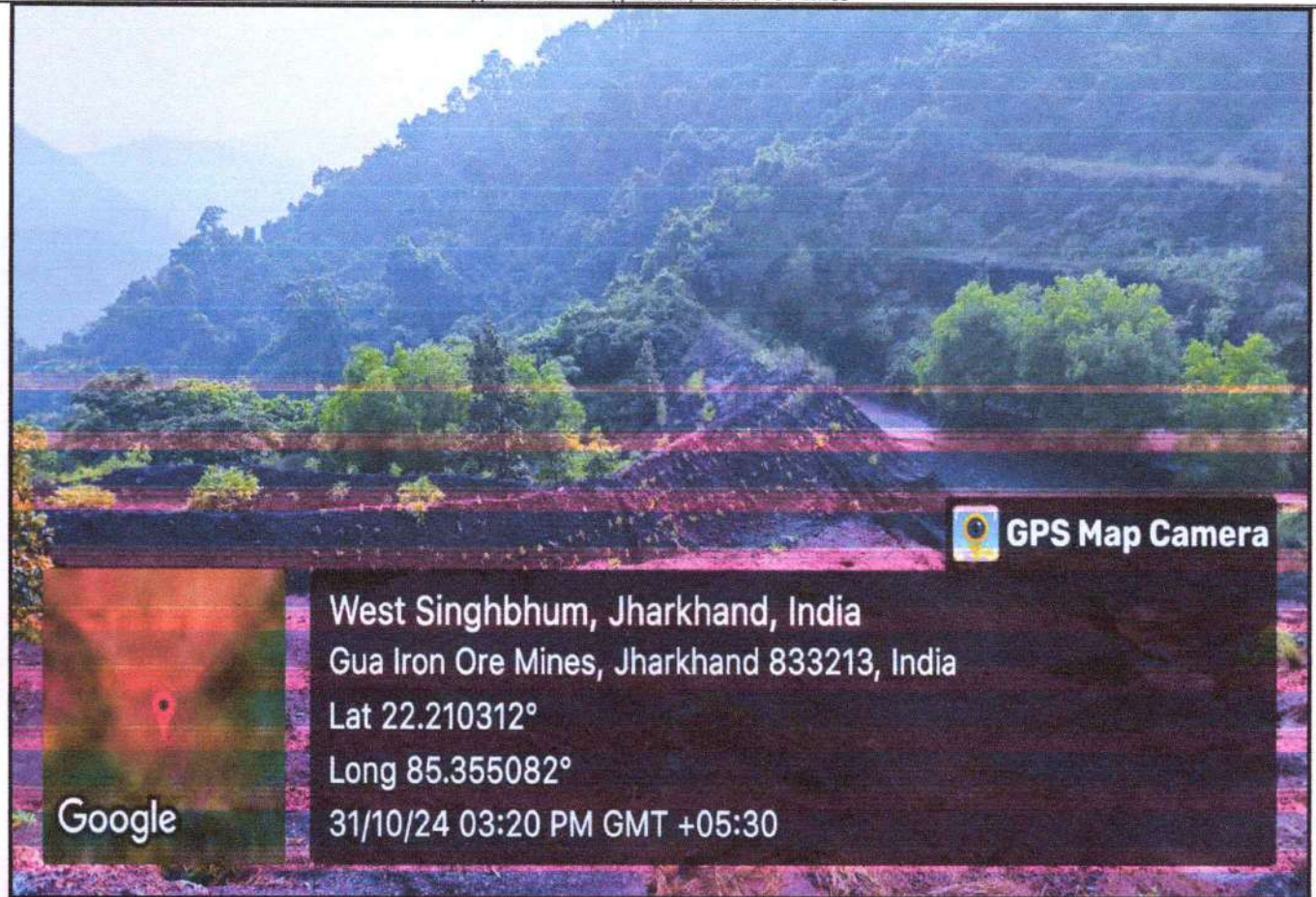


Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area



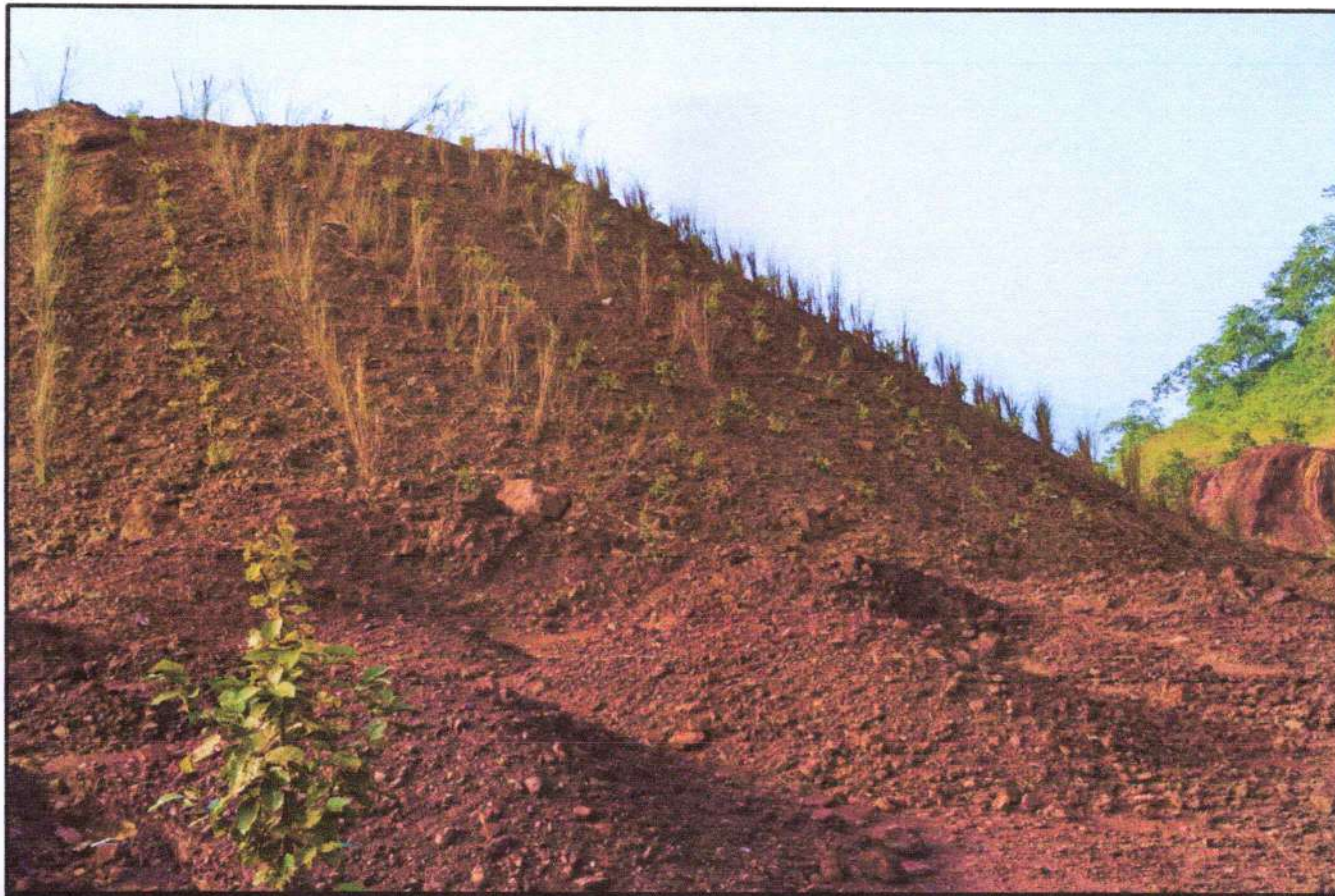
Photos: Plantation of saplings, hedge and local grass at Ranichua road side area

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photos: Plantation of saplings, hedge and local grass at Bai Hill area

[Signature]
General Manager (Mines) & E&E
SAIL-BSL, Gua Ore Mines



Photos: Plantation of saplings, hedge and local grass at Bai Hill area



Photos: Plantation of saplings, hedge and local grass at Bai Hill area

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photo: Plantation of hedge and local grass at berms of the haul road at mines



Photo: Plantation of hedge and local grass at the barren slope

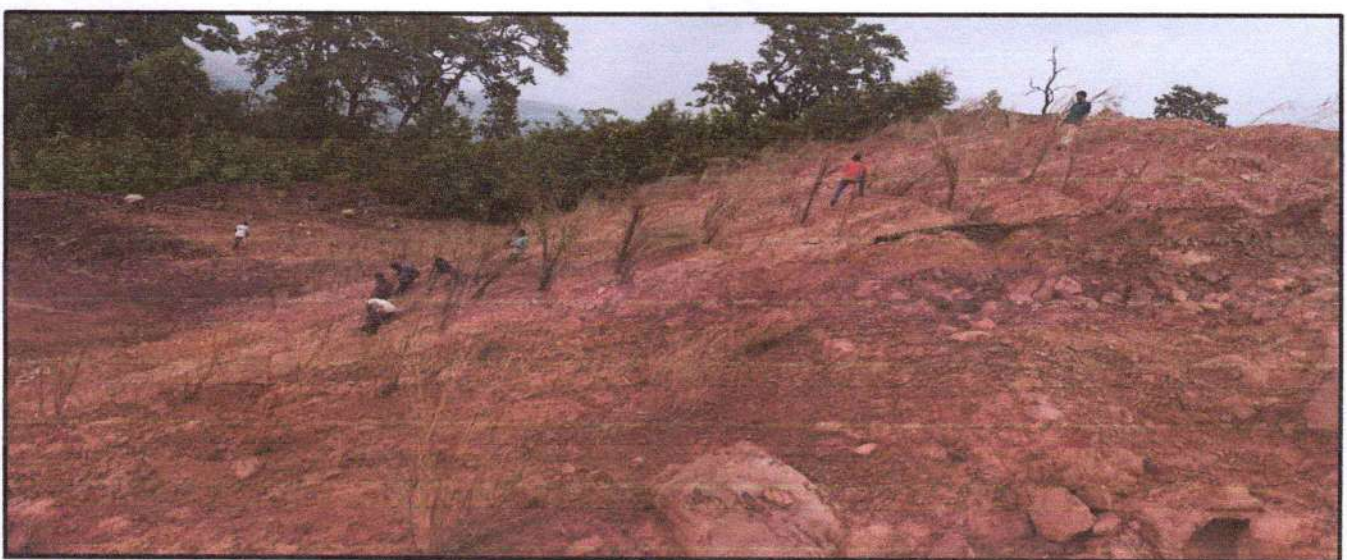
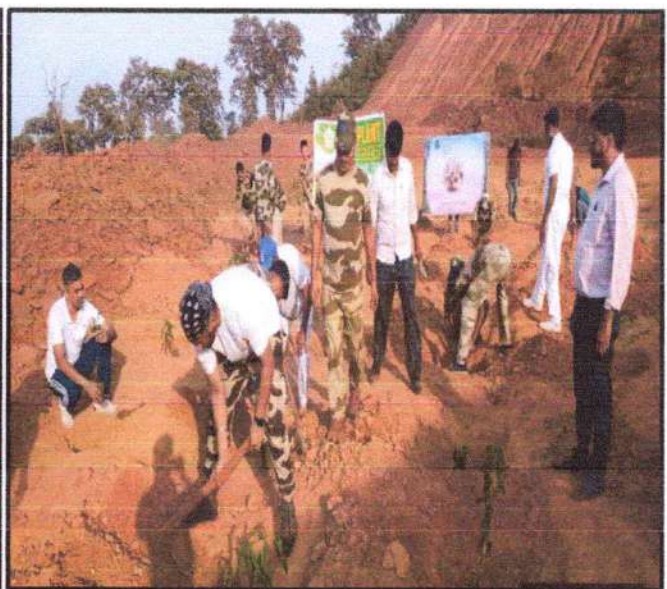


Photo: Plantation of hedge and local grass at the barren slope

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photos: Sapling Plantation on the occasion of World Environment Day and Swachhata Pakhwada

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photographs showing measures undertaken for management of Waste Dump



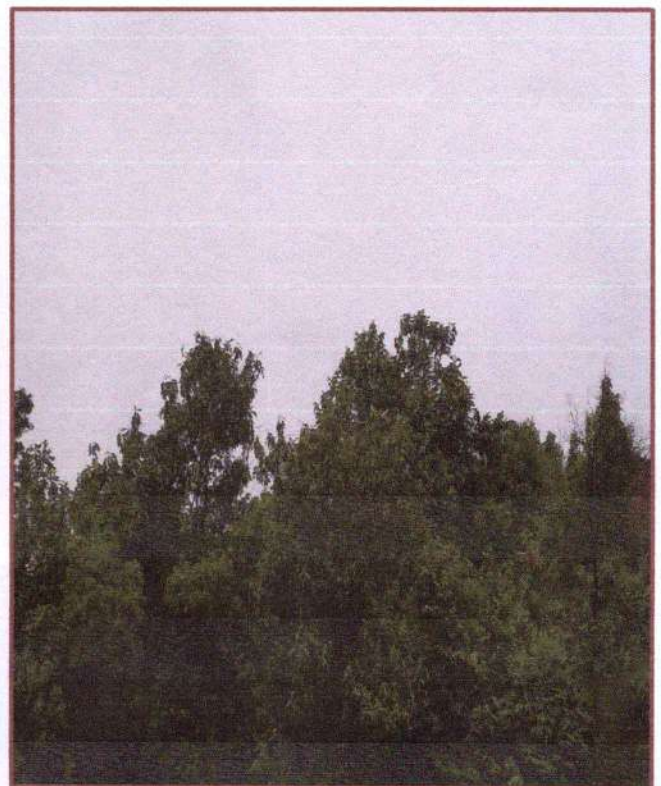
Photo: Stabilized Old Waste Dump



Photo: Partially Stabilized Portion of Existing Dump



Photo: Stabilized Old Waste Dump



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Photographs showing Earthen & Concrete Check Dams at Gua Ore Mines

Photo: Earthen Dams and Sedimentation Traps at the slope of Fines Heap

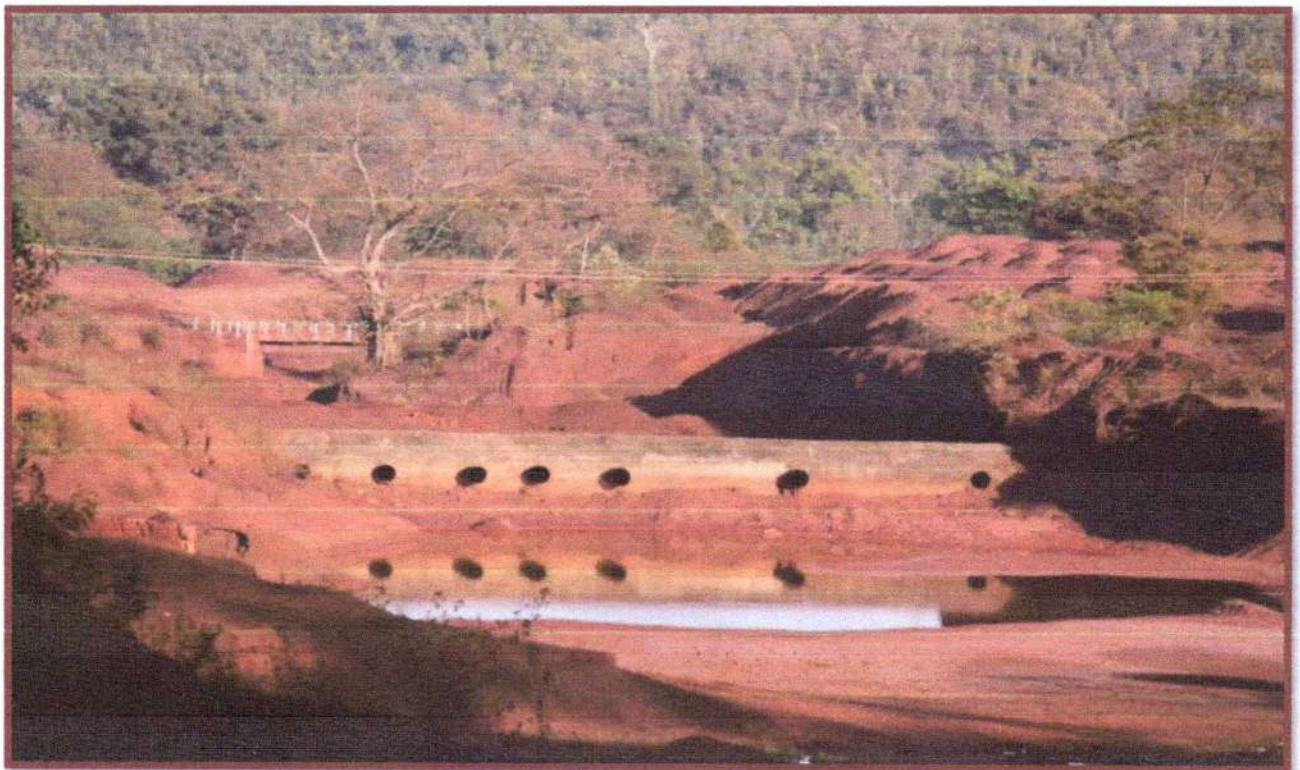


Photo: Concrete Check dam at Dam No.-5 towards zero point nallah

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SAIL-BSL, Gua Ore Mines

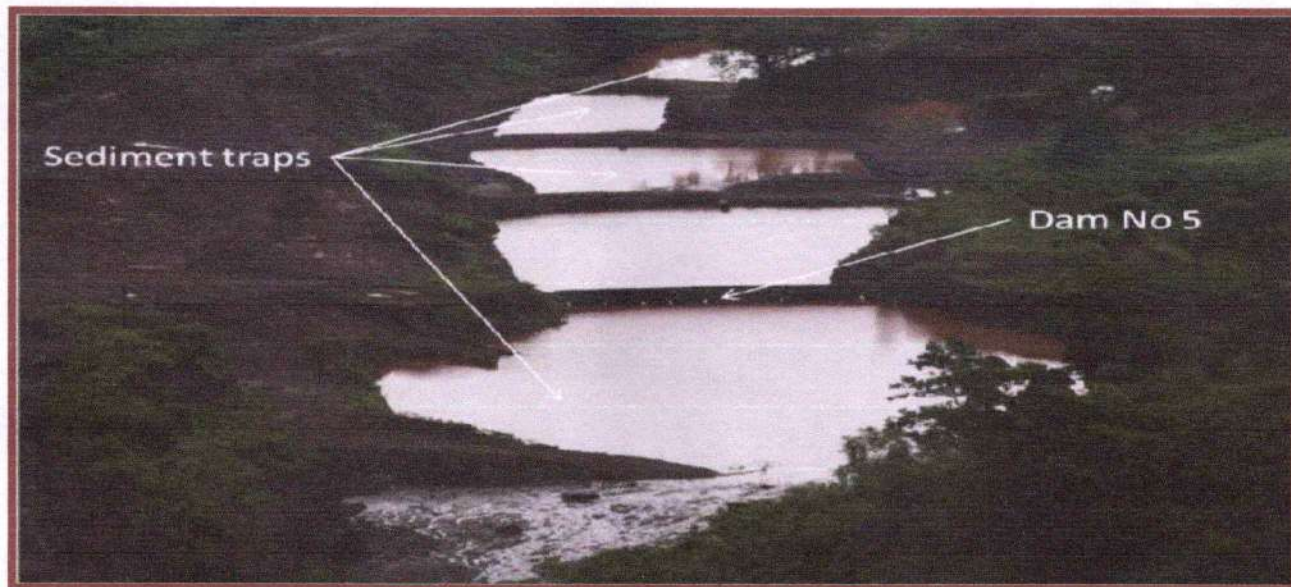
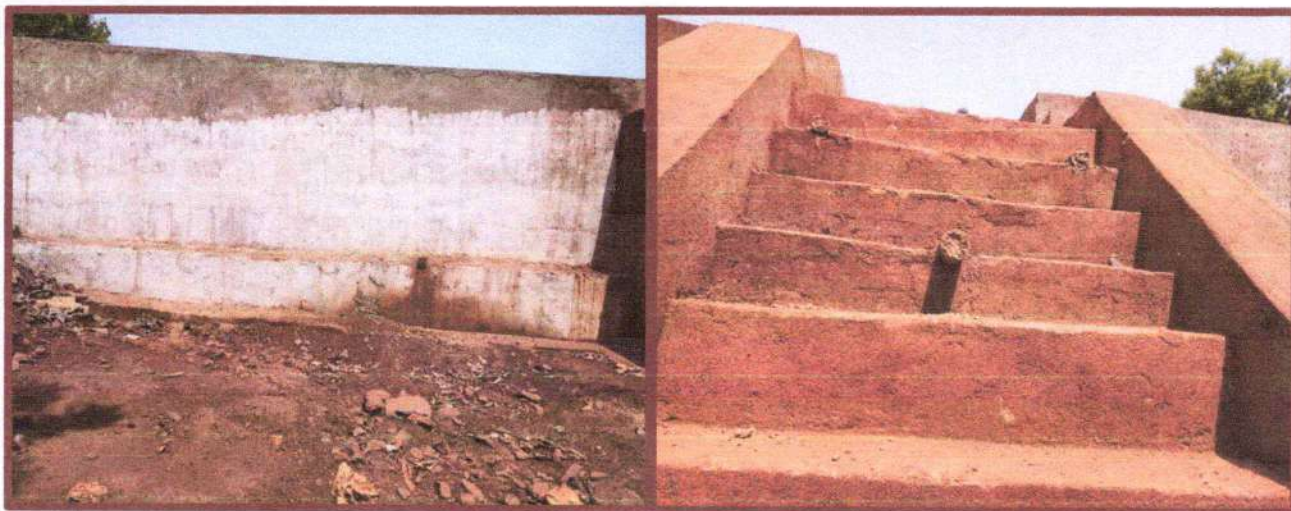


Photo: Series of 5 nos. of earthen dams followed by 4 nos. of settling ponds at the foot of Fines Heap



Photos: Construction of additional concrete check dam at Zero point nalla & all opening in the dams are closed to restrict flow of water through it.

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photo: Newly constructed check dam across DB nallah



Photo: De-siltation across Newly Constructed Check Dam at DB Nalla

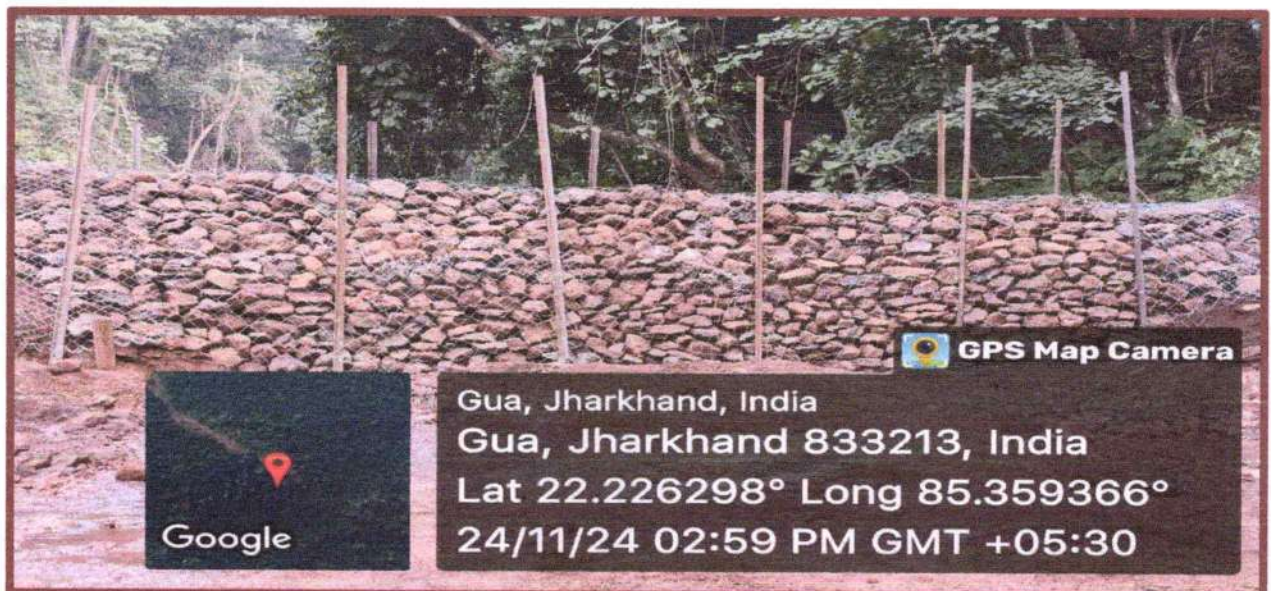


Photo: Gabion Boulder walls constructed between earthen dams at the toe of Ranichua waste dump area

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General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines



Photo: Concrete Check Dam at GojaPahar Nalla



Photo: Settling cum Harvesting Pits along-with vetiver plantation near Zero Point Nalla

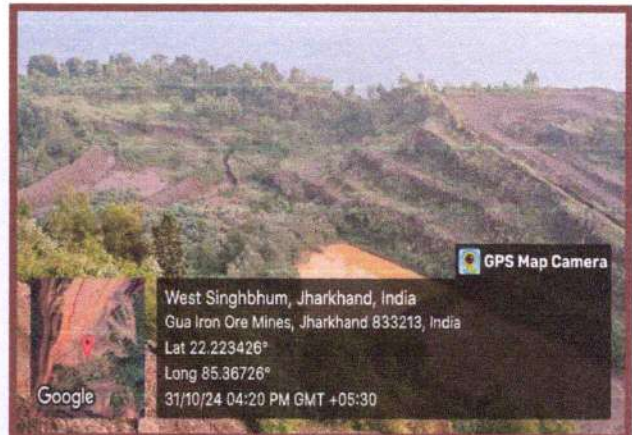
Photographs showing Rain Water Harvesting Cum Settling Pond at Mines



[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photos: Rain Water Harvesting cum Settling Pond at IInd Level Area of Mines and desiltation of the same carried out



Photos: Desiltation of Sedimentation Pond at IInd Level Area of Mines

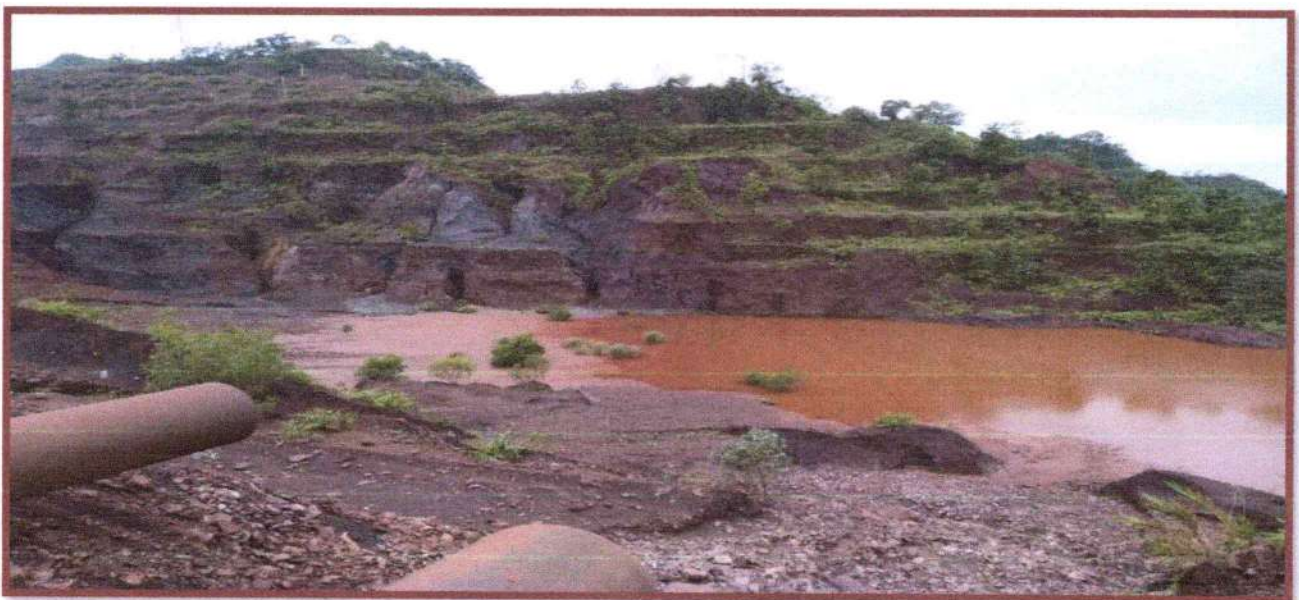
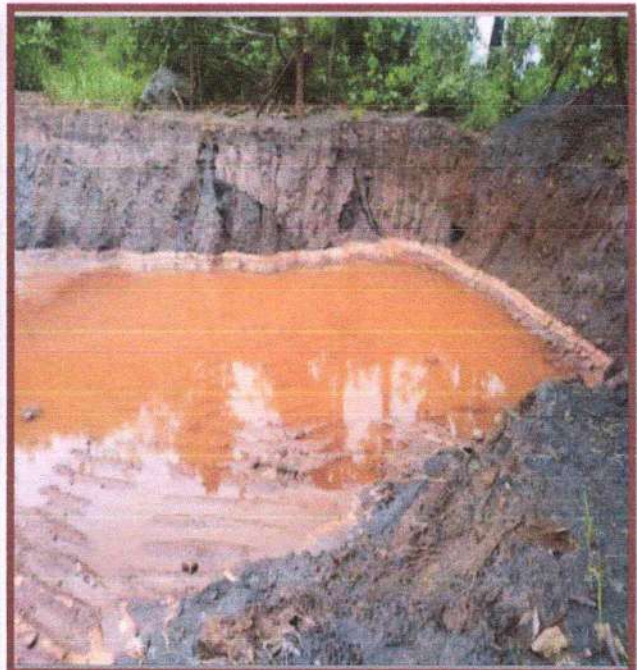


Photo: Rain Water Harvesting Cum Settling Pond at HD Buru Area of Mines



Photos: Desiltation of Bai-Hill sedimentation pit



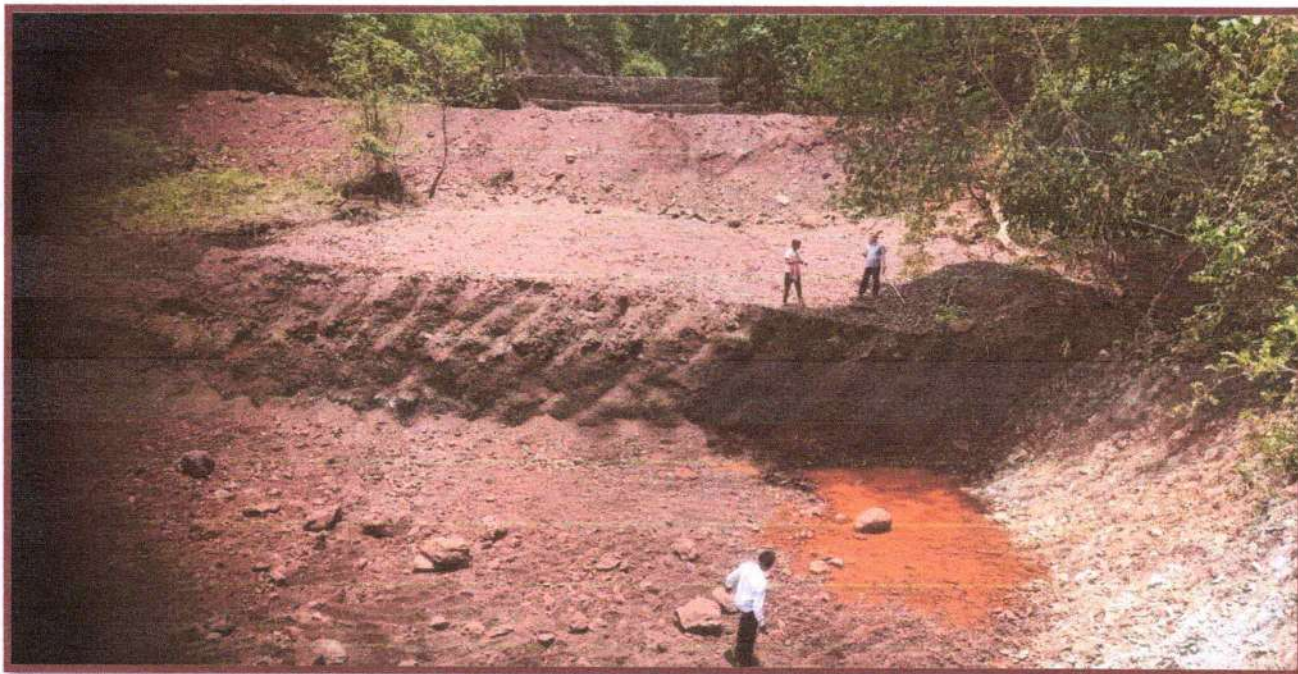
Photo: Rain Water Harvesting Cum Settling Pond at Bai Hill Area of Mines

[Handwritten Signature]

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photo: Desiltation near Zero Point check dam and earthen traps.

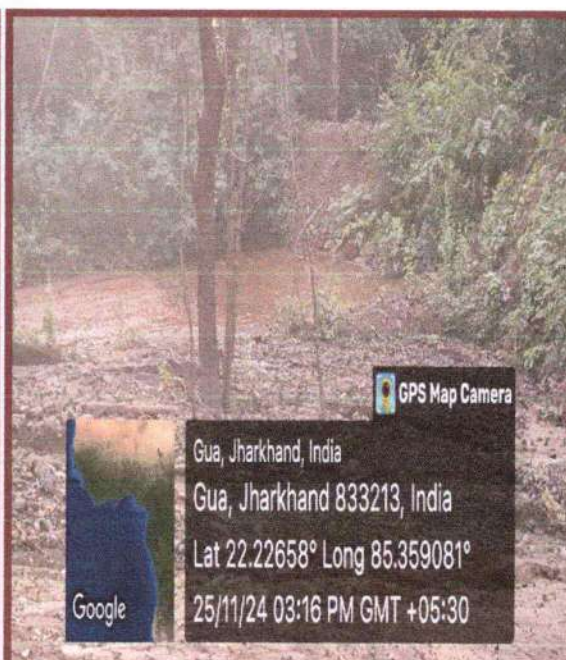


Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of Ranichua waste dump area.

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of Ranichua waste dump area.



Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of OT Hill Waste dump area.

[Signature]
General Manager (Mines) & E&L
SAIL BSL, Gua Ore Mines



Photo: Garland Drain to divert runoff water into the pits



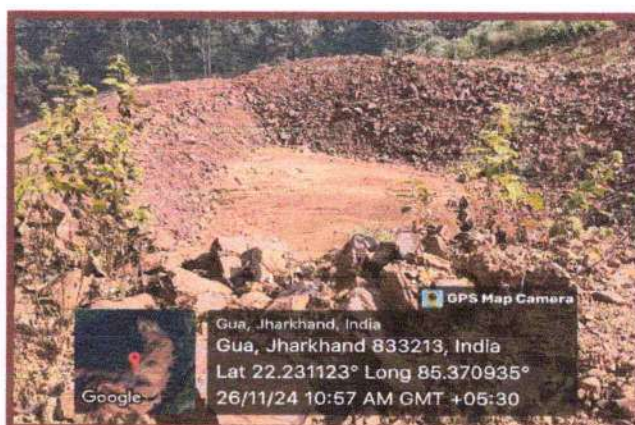
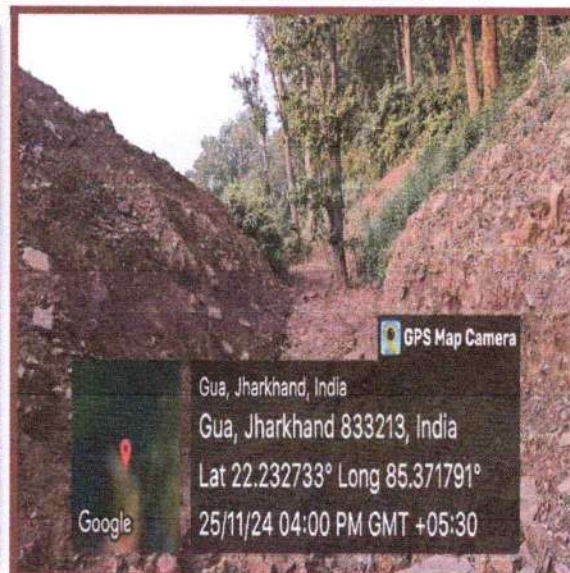
Photo: Desiltation of Kalimandir Check Dam and closing of hole completed.

[Signature]
General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

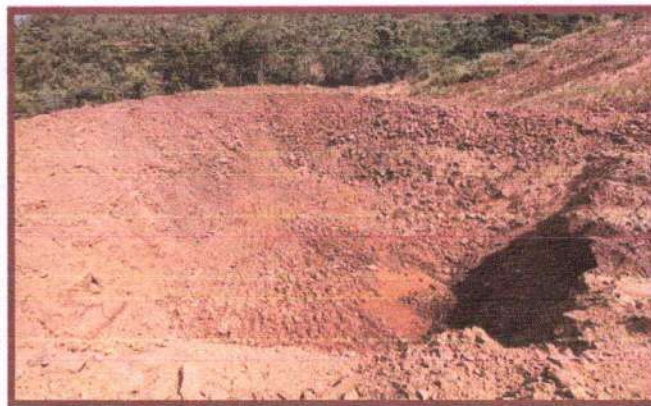


Photos: Desiltation at u/s side of Check Dam near Kali Mandir & Gojapahar Nalla

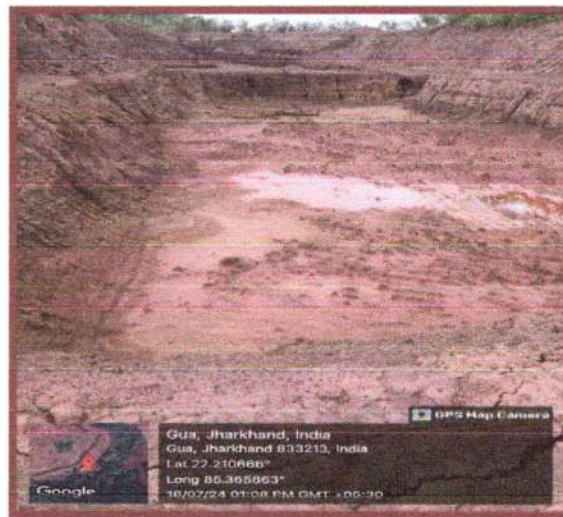
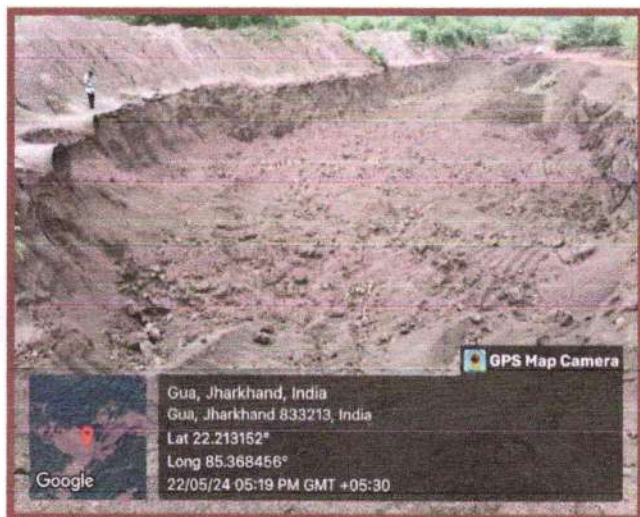
Photographs showing Catch Drains & Siltation Pond at Gua Ore Mines



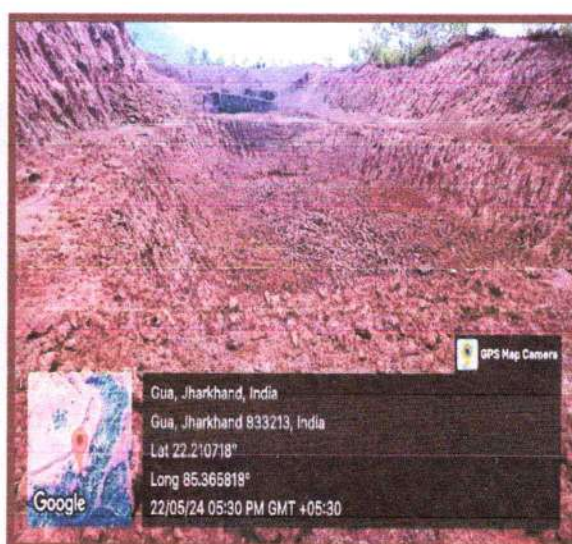
Photos: Catch drains and siltation ponds of the appropriate size has been constructed at Ranichua and OT-Hill waste dump



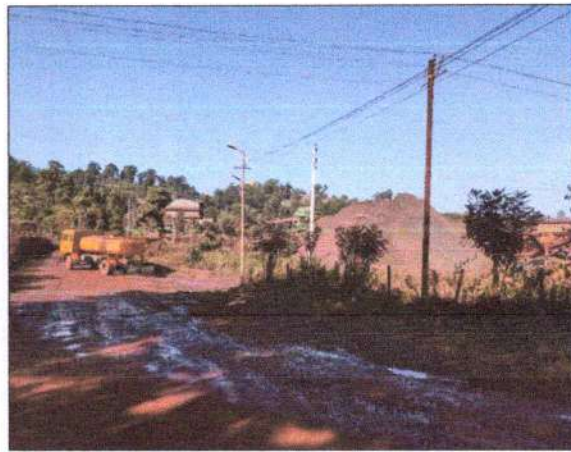
Photos: Catch drains and siltation ponds of the appropriate size has been constructed at Ranichua and OT-Hill waste dump



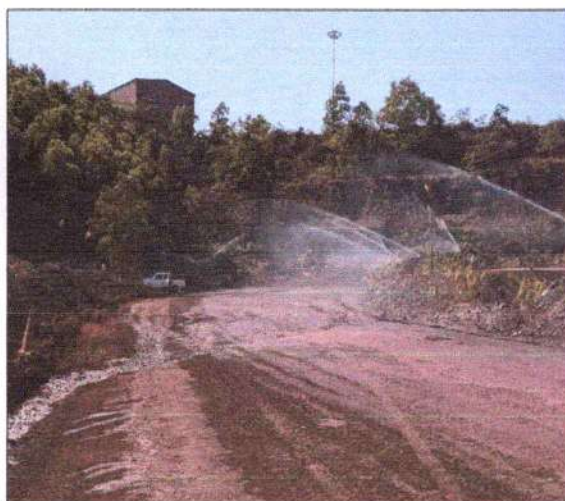
Photos: Settling Pits / Sediment Traps constructed between Dam 1, 2 and 3 to control flow of fines



Photos: Settling Pits / Sediment Traps constructed between Dam 1, 2 and 3 to control flow of fines

Annexure-6Photographs showing Measures undertaken for Management of Air Pollution

Photos: Water sprinkling through mobile water tanker at mines haul road and near railway siding area.



Photos: Fixed water sprinkling arrangement at mines haul road, railway siding area, OHP area and at township.

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Photo: Dry Fog Dust Suppression System at Hopper



Photo: Dust extraction system at crushing plant.



Photos: Water spraying arrangement at the railway siding area


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Gua Ore Mines, BSL, SAIL
Environment & Lease Department
River Water Flow Measurement

Location: Karo River U/s side near Kalimandir

Latitude: 22° 22' 18" **Longitude:** 85° 22' 55"

Sl. No.	Date	Parameters	Unit	Value
1	11.04.2024	Water Flow Rate	m ³ /sec	0.9431
2	19.06.2024			1.4131
3	17.07.2024			1.5703
4	19.09.2024			1.7112

Alok Kumar Yadav
Sr. Manager (F&E)

आलोक कुमार यादव
ALOK KUMAR YADAV
 व. प्रबन्धक (वन एवं पर्यावरण) / Sr. Manager (Forest & Env.)
 सेल. बोकारो इस्पात संयंत्र / SAIL - Bokaro Steel Plant
 गुआ अयस्क खान / GUA ORE MINES
 पो. : गुआ-833213 / P.O. : Gua-833213
 जिला : सिंहभूम (प.) झारखण्ड / Dist : Singhbhum (W) Jharkhand

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

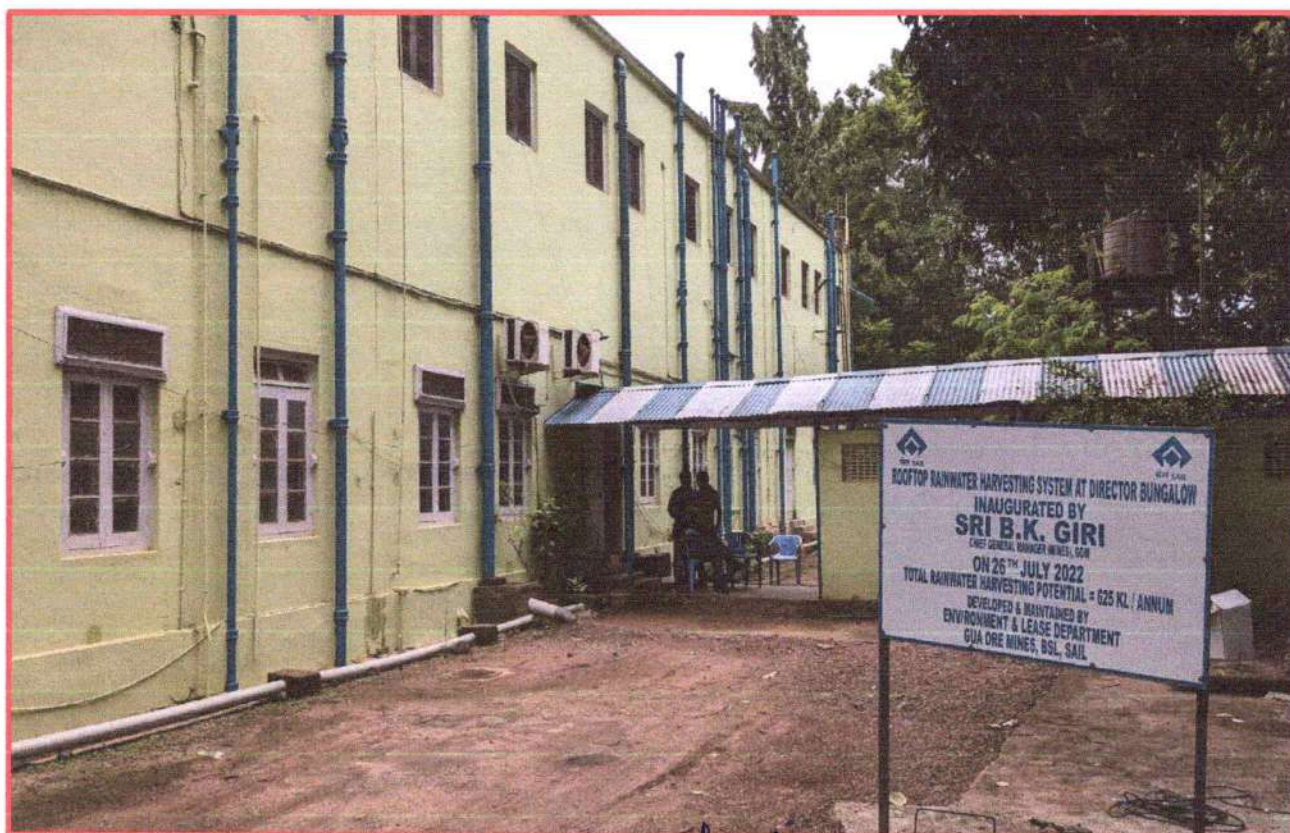
Dharmendra Sethia
Asst. Manager (Env.)

धर्मेन्द्र सेठिया
Dharmendra Sethia
 सहायक प्रबंधक (पर्यावरण) / Asst. Manager (Env.)
 सेल-बी.एस.एल. / SAIL-BSL JGOM
 गुआ अयस्क खान / GUA ORE MINES
 पो. : गुआ-833213 / P.O. : Gua-833213
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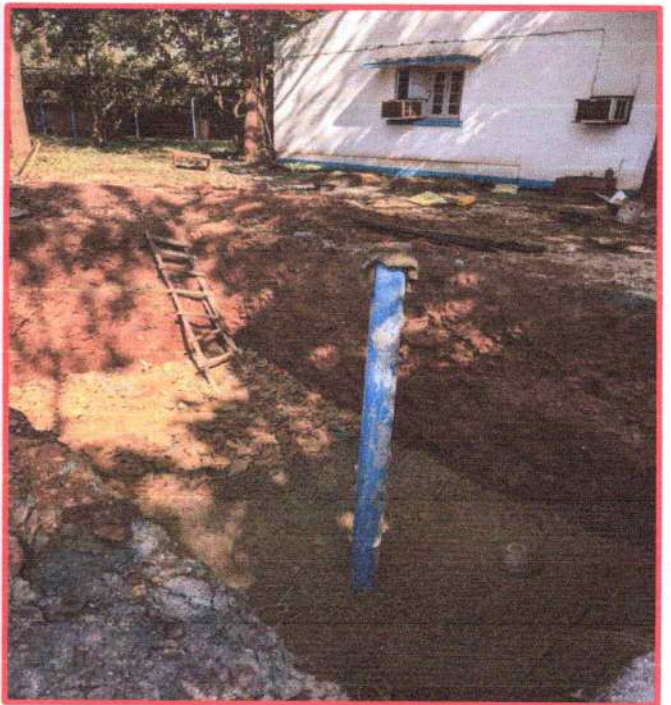
Photographs showing 03 nos. rooftop rainwater harvesting through recharge pit cum shaft installed with realtime groundwater level monitoring system at Director Bungalow and DB annexe buildings of Gua Ore Mines.



[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



[Signature]
 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines



Photos: Photos of recharge pit cum shaft during construction period


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो इस्पात संयंत्र
BOKARO STEEL PLANT
गुआ अयस्क खान
GUA ORE MINES

Ref. No.: GUA/E&L/Duarg-CGWB /2023-24/ 167

Date: 12.08.2023

To,
The Executive Engineer
Central Ground Water Board (CGWB)
30 C, Park Road
1B, Main, Ashok Nagar
Ranchi-834012

Sub: Report of suitable water conservation measures implemented to augment ground water resources as per the condition stipulated in Environmental Clearance accorded by MoEF&CC to the projects: Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation Plant of M/s SAIL located in Ghatkuri Reserve Forest, Tehsil Gua, West Singhbhum Dist., Jharkhand

Ref.: 1. Ministry's Environment Clearance Letter No. J-11015/453/2008-IA. II(M) dated 25.03.2013 for project Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation of Gua Ore Mines, SAIL
2. Consent to Operate (CTO) granted to Duarguiburu Iron Ore Mining Lease of M/s SAIL vide letter ref. no. JSPCB/HO/RNC/CTO-10884468/2021/1533 dated 17.12.2021

Sir,

This has reference to the above mentioned subject, wherein the Ministry of Environment, Forest and Climate Change, GoI, has granted Environmental Clearance (EC) to the Duarguiburu Iron Ore Mining Lease of Gua Ore Mines vide letter dated 25.03.2013 (*Copy enclosed as Annexure-1*). Subsequently, CTE and then CTO has been granted by Jharkhand State Pollution Control Board to the project vide letter dated 17.12.2021 (*Copy of latest CTO enclosed as Annexure-2*).

As per General Condition no. (xxv) of EC, suitable water conservation measures should be implemented to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board. Also, as per General Condition no. 6 of the CTO, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge.

In the view of the above, we are herewith submitting details of rainwater harvesting measures (*Copy enclosed as Annexure-3*) adopted at Gua Ore Mines, Bokaro Steel Plant, SAIL for vetting please.

Submitted for kind information and further advise please.

With regards,

For & on behalf of
SAIL-BSL, Gua Ore Mines

(S.P. Das)

General Manager (Mines) and E&L

Encl: As stated above

Copy to:

1. Deputy Director General of Forest (C), IRO, MoEF&CC, Bungalow No A-2, Shyamali Colony, Ranchi-834002- For kind information

सिंहभूम (पश्चिम), झारखण्ड-833213, दूरभाषः(का): 06596-263713, फैक्स : 06596-263714, Kamal Bhasker

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ अयस्क खान
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

No. J-11015/453/2008-IA.II(M)
Government of India
Ministry of Environment and Forests
IA Division

Paryavaran Bhawan
CGO Complex, Lodhi Road,
New Delhi-110 003
Dated the 25th March, 2013

To
M/s Steel Authority of India Limited
Raw Materials Division,
10 Camac Street (5th Floor),
Kolkata-700 017

Subject: Integrated Durgaburu Iron Ore Mining, Beneficiation and Pelletisation Plant Project of M/s Steel Authority of India Limited (SAIL), located in Ghatkuri Reserve Forest, Tehsil Gua, District West Singhbhum, Jharkhand - environmental clearance - regarding.

Sir,

This has reference to your letter No. RMD/K/E&L/2010-724 dated 23.11.2010 and subsequent letters dated 18.02.2011 and 26.02.2011 on the subject mentioned above, as well as your Board resolution dated 11.08.2011 stating that violation will not be repeated in the future. The State Pollution Control Board, Jharkhand vide their letter 29.12.2011 have mentioned that a petition in the court of chief Judicial Magistrate, Chaibasa has been filed. The project was earlier prescribed Terms of Reference (TORs) by the Ministry of Environment and Forests on 05.02.2009 for undertaking detailed EIA study for the purpose of obtaining environmental clearance. The proposal is for renewal of mine lease, which fell due in February, 2009 and enhancement of production of iron ore to 10million TPA (ROM) and installation of a new beneficiation plant of 12.5million TPA and installation of a new pellet plant of 4million TPA capacity. Besides, 10million TPA of ROM to be produced from the mine, 2.5million TPA of fines from existing fines dumps will be utilized in the beneficiation plant.

2. The total mine lease area of the project is 1443.756ha, which is a forest land. Stage - I forest clearance for diversion of broken up area of 274.691ha of forest land, out of the total applied area of 635.986 ha for iron ore mining has been obtained vide letter no. 8-251/1986-FC dated 14th August, 2012 subject to certain conditions. The Karo River (1km), the Koina River (4.5km) and the Sarako River (6.5km) are reported to be located in the buffer zone of the mine. A number of seasonal drainage channels reported to flow down of the core zone escarpment on either side towards SE or NW. Modification/diversion in the existing natural drainage pattern at any stage has not been envisaged.

3. It has been stated that no National Park/ wildlife sanctuary/biosphere reserve/tiger reserve etc. are reported to be located in the core and buffer zone of the mine and that the area does not report to form corridor for Schedule-I fauna. However, the entire mine lease area falls within the core zone of Singhbhum Elephant Reserve. The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Jharkhand

vide letter No. 564 dated 04.12.2010 stated that the proposed mine lease area falls within the core area of the Singhbhum Elephant Reserve. The Karo Karampada Elephant corridor touches the Southern boundary of the study area / buffer zone of the mine. Three reserve forests namely the Uliburu RF(4.5km), the Ankua RF(7.3km) the Karo RF(8.7km) and nine protected forests are reported to be located in the buffer zone of the mine.

4. The mine working will be opencast by mechanized method with Shovel Dumper combination and involving drilling and blasting. The targetted production capacity of the mine is 12,000,000TPA(10,000,000TPA (ROM) from mine and 2,500,000TPA of fines from existing fines dumps) and the life of mine is 8.7years. Mineral will be transported through the rail. The capacity of the Beneficiation plant will be 12.5million TPA throughput and the capacity of the Pellet Plant will be 4million TPA. The beneficiation and pellet plant will be outside the mine lease. The beneficiation process will involve crushing, screening, washing, jigging etc. Part of the beneficiated product will be pelletized. The pelletization process involves additive mixing, balling, travelling grate operation, hearth layer separation etc. There will be three tailing ponds. The topography of the area is hilly and reported to lies between 21°12'00"- 22°14'00"N Latitude and 85°21'00"- 85°23'00" E Longitude in Survey of India topo sheets No. 73 F/8, at an elevation above mean sea level ranging from 410m-880m AMSL. The ultimate working depth of mine will be 550m AMSL. The groundwater table varies between 394m-400m AMSL. The mine working will not intersect the groundwater table. The peak water requirement of the project is estimated as 11,500m³ per day, which will be obtained from the Karo River. It has been reported that there is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. A total of 7.71million m³ of OB has already been accumulated and disposed of in the form of four external dumps namely dumps D1, D2 and D3(21.32ha) and Dump 4(3.68ha). In the expansion phase, it is estimated that 49.5million m³ of OB will be generated, which will be utilized for backfilling. It has been envisaged that an area of 98.6ha will be backfilled and reclaimed by plantation. In addition, 21.75 million tonnes of tailings will be generated during the life of the mine. It is proposed that backfilling of old tailings to quarried void will be carried out from 2020. Plantation will be raised in an area of 496.838 ha at the end of mine life and there will be no water body left during the post mining stage.

5. The public hearing of the project was held on 16.09.2010 for enhancement of production of mine to 10,000,000TPA (ROM), from mine and 2,500,000TPA of fines, over mine lease area of 1443.756ha and establishment of 12.5million TPA beneficiation plant and 4million TPA Pellet plant. The Indian Bureau of Mines had approved the modification proposed in the mining plan of the project on 18.08.2010 for lease area of 1443.756ha. The capital cost of the project is Rs.2,87,800 Lakhs and the capital cost for the environmental protection measures is proposed as Rs.120 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.290 Lakhs. It has been stated that there is no court case to the project or related activity.

6. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Integrated Durgaburu Iron Ore Mining, Beneficiation and Pelletisation Plant Project of Mis Steel Authority of India Limited (SAIL)

for an annual production capacity of 10million tonnes(ROM) of iron ore and 2.5million tonnes of fines from existing fines dumps by the opencast mechanized method involving 274.691 ha of broken up area for which FC has been obtained out of the total mine lease area of 1443.756ha, for setting up of a new beneficiation plant of 12.5 million TPA throughput capacity and installation of a new pellet plant of 4 million TPA capacity, outside the mine lease, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

- (i) No mining activities will be allowed in forest area for which the Forest Clearance is not available.
- (ii) The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide their letter F. No. 11-362/ 2012-FC, failing which the mining lease area will be reduced to the non forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.
- (iii) Need to submit a proposal for faster utilization of entire dumps of fines within a period of one year.

B. General conditions

- (i) The project proponent shall obtain Consent to Establish and Consent to operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.
- (ii) Environmental clearance is subject to final order of the Hon'ble Supreme Court of India In the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.
- (iii) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.
- (iv) Coordinated efforts shall be made along with other operating mines in the area and action plan drawn for control of pollution load in the area. The action plan so prepared shall be effectively implemented. The air and water quality shall be monitored by involving the State Pollution Control Board and results submitted within 6 months.
- (v) The Forest Right Act shall be implemented.

- (vi) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.
- (vii) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.
- (viii) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.
- (ix) The over burden generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. There shall be four external over burden dumps. Proper terracing of the OB dumps shall be carried out so that the overall slope of the dump shall be maintained to 28°. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining.
- (x) Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
- (xi) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.
- (xii) Dimension of the retaining wall at the toe of the over burden dumps and the OB benches within the mine to check run-off and siltation shall be based on the rain fall data.

- (xiii) The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby Karo River, Kona River, Sarako River and other water bodies.
- (xiv) The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.
- (xv) The effluent from the ore beneficiation plant and pelletization plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.
- (xvi) The tailing dam shall be lined on all the sides as well as in the bottom with thick HDPE lining.
- (xvii) The project proponent shall take necessary safeguard measures to ensure that there is no leaching from the tailing pond.
- (xviii) The decanted water from the tailing pond shall be re-circulated and there should be zero discharge from the tailing ponds.
- (xix) Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing dam.
- (xx) The project proponent shall constitute an emergency management team under the control of project incharge to deal with the emergency situation pertaining to the tailing dam for the timely and effective control of emergency situation. It shall be ensured that training programme & mock drills shall be organized for the employees.
- (xxi) Plantation shall be raised in an area of 496.838ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dumps, around beneficiation plant, mine benches, around tailing ponds, pelletisation plant, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.
- (xxii) The greenbelt shall be developed all around the mine lease within the initial 3 years from the issue of clearance.
- (xxiii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xxiv) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.

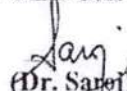
- (xxv) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xxvi) Regular monitoring of ground water level and quality shall be carried out in and around the project area (mine lease, beneficiation plant, pelletisation plant and tailing ponds) by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubneshwar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.
- (xxvii) The groundwater and surface water in and around the mine including tailing ponds shall be regularly monitored at strategic locations for heavy metals. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.
- (xxviii) Appropriate mitigative measures shall be taken to prevent pollution of the Karo River, the Koina River and the Sarako River in consultation with the State Pollution Control Board.
- (xxix) Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall be covered with a tarpaulin and shall not be overloaded.
- (xxx) No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.
- (xxxi) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxxii) Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.
- (xxxiii) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

- (xxxiv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.
- (xxxv) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
- (xxxvi) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Palm Civet, Panther, Mouse deer etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.
- (xxxvii) The entire mining lease area shall be fenced by erecting solar powered electric fencing all around it. The fencing so erected shall be maintained properly and the cost towards erection and maintenance of the solar powered electric fencing shall be borne by the project proponent out of the project cost.
- (xxxviii) No road transportation of ore outside the mine lease area shall be carried out after the sunset.
- (xxxix) 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.
- (xl) The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM₁₀) and NO_x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TOS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.
- (xli) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

- (xlii) Steps to control flow of fines into the river stream shall be taken.
- (xliii) A time bound action plan for consumption of accumulated fines as per approved Mine Plan/EIA/EMP report shall be executed in the beneficiation and Pelletization Plant.
- (xliv) In order to strengthen the management system staggered trenches shall be provided in all the earthen dams to accommodate maximum silt flow to reduce any pressure in the downstream.
- (xlv) The silt collected along the nallas should be removed completely before the onset of next monsoon and should be a regular practice of the mine.
- (xlvi) The slopes of the Earthen Dams should be provided with vegetative cover suitably with native species, thorny bushes and vetiver grasses as a part of biological measures of dump management.
- (xlvii) Monitoring of all water quality parameters as per the discharge standards shall be ensured by the project management.
- (xlviii) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (xlix) No further expansion or modifications in the beneficiation and pelletization plants shall be carried out without prior approval of the Ministry of Environment and Forests.
- (l) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.
- (li) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 101-1m i.e. PM_{10}) and NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- (lii) Data on ambient air quality RSPM (Particulate matter with size less than $10\mu m$ i.e., PM_{10}) & NO_x should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (liii) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- (liv) 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 / muffs.

- (lv) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
- (lvi) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- (lvii) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (lviii) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubneswar.
- (lix) The project authorities should inform to the Regional Office located at Bhubneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (lx) The Regional Office of this Ministry located at Bhubneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (lxi) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office Bhubneswar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- (lxii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

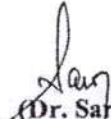
- (lxiii) The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/ Tehsildar's Office for 30 days.
- (lxiv) The environmental statement for each financial year ending 31st March in Form-Vas is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar by e-mail.
- (lxv) The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubneswar.
7. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
8. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
9. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court of Jharkhand and any other Court of Law relating to the subject matter.


(Dr. Sarej)
Scientist 'F'

Copy to:

- (i) The Secretary, Ministry of Mines, Government of India Shastri Bhawan, New Delhi.
- (ii) The Secretary, Department of Environment, Government of Jharkhand, Secretariat, Ranchi.
- (iii) The Secretary, Department of Mines, Government of Jharkhand, Secretariat, Ranchi.
- (iv) The Secretary, Department of Forests, Government of Jharkhand, Secretariat, Ranchi.
- (v) The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Government of Jharkhand, Secretariat, Ranchi.
- (vi) The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandra Shekar, Bhubneswar-751 023.
- (vii) The Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.

- (viii) The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), HEC Campus, P.O. Dhurwa, Ranchi - 834004, Jharkhand.
- (ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (x) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (xi) The District Collector, West Singhbhum District, Jharkhand.
- (xii) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
- (xiii) Monitoring File.
- (xiv) Guard File.
- (xv) Record File.


(Dr. Saroj)
Scientist 'F'



JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004

Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No. JSPCB/HO/RNC/CTO-10884468/2021/1533

Dated : 2021-12-17

Consent to operate (CTO) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981

1. Application (s) dated 2021-08-27 of DUARGUIBURU IRON ORE MINING LEASE, M/S. SAIL, Occupier Name :BIPIN KUMAR GIRI for consent under section 25 (1)(b)/25 (1) (c)/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(1) of the Air (Prevention & Control of Pollution) Act,1981..

2. **Documents Relied Upon:**
 1. The content of Environmental Clearance (EC) Ref No. J-11015/453/2008-IA.II(M), Dated 25.03.2013 issued by MoEF, Govt. of India, Environmental Clearance vide Ref No. J-11015/453/2008-IA.II(M), Dated 02.02.2015 (Amendment of previous Environmental Clearance) and Environmental Clearance vide Ref No. J-11015/453/2008-IA.II(M), Dated 06.11.2020 (Amendment of previous Environmental Clearance);
 2. The content of Consent-to-Establish (CTE) granted vide Ref. No. G-1299 dated 06.04.2013 Iron Ore (ROM)-10 Million TPA, Iron Ore fines-2.5 Million TPA (from existing fine dumps), Iron Ore Beneficiation Plant-12.5 million TPA Throughput capacity(Outside lease area), Pellet Plant-4 million TPA (Outside lease area);
 3. The content of Consent-to-Operate (CTO), Ref No. JSPCB/HO/RNC/CTO-8783815/2020/2015 Dated: 2020-12-31 for Mining of Iron Ore (ROM)-10 MTPA, Disposal of Iron Ore Fines from fines dump-2.5 MTPA valid till 31.12.2021
 4. The content of Proposal for non-forestry use of 361.295 ha of unbroken forest land, in addition to 274.691 ha of broken up forest area (already granted Stage-II on 22.08.2014) in favor of M/s Steel Authority of India Limited (SAIL) for mining of iron ore in Durgaburu Iron Ore mine in Saranda Forest Division in West Singhbhum district of Jharkhand – regarding vide File No.8-251/1986FC dated 07.12.2020;
 5. The content of Hazardous Waste Authorization granted vide ref. no. JSPCB/HO/RNC/HWM-6383857/2020/5 28/01/2020 for 05 years;
 6. The content of Extension of lease deed by Government of Jharkhand by letter NO. Kha.Ni,(Chaibasa)-84/2003-1035/M Ranchi dated 25.06.2019 for the period of 20 years w.e.f. 22.02.2009 to 21.02.2029,
 7. The content of Registered lease deed NO. 533/503/2019 dated 30.09.2019 for the period of 20 years w.e.f. 22.02.2009 to 21.02.2029,
 7. The content of inspection report, dated 03.11.2021 of Regional Office -cum-Laboratory, Jamshedpur;

3. The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to operate the project in Mauza -Gua Forest Range , P S -Gua , District -WEST SINGHBHUM , as follows:

Project	Site-Area		Investment (Rs)	Product & Capacity	Period of CTO
	Plot Nos.	Area			Date of issue To
Before Expansion	Ghaktkuri Reserve Forest, Tehsil, Gua, Dist. West Singhbhum	274.69 1 Ha	2952 Crores	Mining of Iron Ore (ROM)- 10 MTPA, Disposal of Iron Ore Fines from fines dump - 2.5 MTPA	31/12/2026

(A) Specific Conditions:

1. That, the transportation shall be done through covered vehicle to avoid fugitive dust emission.
2. That, the occupier shall maintain garland drain, settling tanks and check dams to prevent run off water and flow of sediments into river.
3. Catch drains and siltation pond of appropriate size shall be constructed around the mine working, mineral and OB dump to prevent runoff of water and flow of sediments directly into the river and other water bodies
4. That, the over burden dump shall be made in accordance with conditions imposed in Environmental Clearance.
5. That, the occupier shall reclaim the mine out area regularly and tree plantation shall be made over it
6. That, the occupier shall take appropriate mitigative measures to prevent pollution of the Karo river, the Kona river and the Sarako river.
7. The mining operations shall be restricted to above ground water table and it should not intersect with ground water table.
8. That, the occupier shall operate the mines within the broken up lease area of 274.691 ha for which Forest Clearance has been issued by the MOEF, Govt. of India vide letter No. F No. 8-251/1986/FC (Pt) dated 22.08.2014.
9. That, the occupier shall install STP for the colony and shall provide ETP for the workshop and waste water generated during the mining operation.
10. Plantation on the OB dump slopes has to be increased and managed properly. Housekeeping should be maintained in the specified area.

11. The top soil, if any shall temporarily be stored at earmarked site only and it should not be kept unutilized for long. The top soil shall be used for land reclamation and plantation. The overburden generated during the mining operations shall be stacked at earmarked dump site only and it should not be kept active for a long period of time. The overall slope of the dump shall be maintained at 28 degrees.
12. That, the occupier shall do sprinkling of water time to time on haul roads and dusty areas.
13. That, the occupier shall submit Ambient Noise level Monitoring report to the Board and it should conform to the prescribed standard
14. That, the occupier shall submit a copy of six monthly report regarding compliance of conditions imposed in Environmental Clearance which is presently being submitted to Regional Office, MOEF, Govt. of India, Bhubaneswar.
15. That, the occupier shall not exceed the annual production as granted by MOEF in the environmental clearance and shall submit six monthly production figure duly certified by the Dist. Mining Officer, Chaibasa, West Singhbhum under intimation to Regional Officer.
16. That, the occupier shall maintain and operate special water jets with mist water spray at dump
17. That, the occupier shall cover all dusty points such as screen, crusher and conveyor belt and free fall of iron ore within the consent period.
18. That, the occupier shall obtain prior permission in case of shifting of the screens & crushers from the present location to another place.
19. That, the occupier shall ensure the cleaning and wetting of the ground regularly to improve house keeping.
20. That, the unit shall maintain the fugitive emission up to $1200 \mu\text{g}/\text{Nm}^3$ in the predominant downwind direction at a distance of 25 ± 2 metres from the source of fugitive emission.
21. That, the occupier shall develop plantation in 496.838 ha including a 7.5 m wide green belt in the safety zone, around the mining lease, over burden dumps, mine benches, roads etc.
22. That, the unit shall make stack of minimum of 15 metres height attached with de-dusting arrangement along with ladder, platform and hole arrangement for emission testing.
23. That, the occupier shall submit the compliance of conditions every year.
24. That, the occupier shall comply all the conditions imposed in Environmental Clearance issued vide Ref No. J-11015/453/2008-IA.II(M), Dated 25.03.2013, Amendment dated 02.02.2015 and amendment Dated 06.11.2020 by MOEF, Govt. of India within the consent period.

25. That, the occupier shall submit applications for renewal of consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days prior to the date of expiry of this consent i.e. 31.12.2026 with requisite fee and documents showing compliance of all of the above conditions.

26. That, the occupier shall keep the Iron ore fines old dump intact and shall use for captive use only.

(B) General Conditions :

- (1) That, the occupier shall maintain the **National Ambient Air Quality Standard** given below:

S N	Pollutant	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Govt.)
(1)	(2)	(3)	(4)	(5)
1.	Sulphur Dioxide (SO ₂), µg/m ³	Annual 24 hours	50 80	20 80
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual 24 hours	40 80	30 80
3.	Particulate Matter (size less than 10 µm) or PM ₁₀ , µg/m ³	Annual 24 hours	60 100	60 100
4.	Particulate Matter (size less than 2.5 µm) or PM _{2.5} , µg/m ³	Annual 24 hours	40 60	40 60
5.	Ozone(O ₃), µg/m ³	8 hours 1 hour	100 180	100 180
6.	Lead (Pb) µg/m ³	Annual 24 hours	0.50 1.0	0.50 1.0
7.	Carbon Monoxide (CO) mg/m ³	8 hours 1 hour	02 04	02 04
8.	Ammonia (NH ₃) µg/m ³	Annual 24 hours	100 400	100 400
9.	Benzene (C ₆ H ₆) µg/m ³	Annual	05	05
10.	Benzo(a) Pyrene(BaP) Particulate Phase only ng/m ³	Annual	01	01
11.	Arsenic (As) ng/m ³	Annual	06	06
12.	Nickel (Ni) ng/m ³	Annual	20	20
Note : Serial no. 1 to 4 – Mandatory Serial no. 5 to 12 As applicable for specific type of industry.				

- (2) That, the occupier shall maintain the emission quality within the standard and the quantity, as follows:

S N	Parameter	Standard
1	Particulate Matter	1200 µg/ m ³

- (3) That, the occupier shall keep process effluent in close-circuit and the quality of effluent from other sources in conformity with the standard (s) and the discharge quantity as below:

S N	Parameter	Standard
1	Total Suspended Solids	100 mg/L
2	BOD	30 mg/L
3	COD	250 mg/L
4	Oil & Grease	10 mg/L

- (4) That, the occupier shall dispose of solid wastes as follows:

S N	Waste Type	Mode of Disposal
1	Hazardous Carbonaceous Wastes	In co-processing in high temperature furnaces or kilns
2	Hazardous Non-Carbonaceous Wastes	In TSDF
3	Non-Carbonaceous Non-Hazardous solid wastes/ Mine Over Burden	As a substitute of Soil or Mineral

- (5) That, the occupier shall keep D G Set(s) within acoustic enclosure and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm.
- (6) That, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge and submit the photographic view of the structures within a month.
- (7) That, the occupier shall grow and maintain greenery of the project in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.
- (8) That, the occupier shall submit environmental statement with supporting stoichiometric calculations analyses reports, every year latest by 30th September of the next financial year.
- (9) That, the occupier shall submit report(s) duly monitored and issued by an NABL accredited / ISO 9001:2008 and OHSAS 18001:2007 certified laboratory in compliance sub-para (2), (3), (4) and (5) of paragraph 3 of this CTO yearly at required periodicity.

- (10) That, this CTO is valid subjected to the validity of mining Lease/Mining Plan/Ecofriendly/Environmental Clearance, if applicable. In case of no renewal of Mining Lease/Mining Plan, this consent shall be treated as revoked automatically.
 - (11) That, this CTO is issued from the environmental angle only and does not absolve the occupier from other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ occupier.
 - (12) That, this CTO shall not in any way, adversely affect or jeopardize the legal proceeding, if any, instituted in the past or that could be, instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.
 - (13) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules made there under.
4. That, this CTO shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of courts or any other instrument for the time being in force.
 5. That, this CTO is being issued on the basis of information/ documents/ certificate submitted by the unit. This CTO will be revoked if any of the information/documents/certificates/undertaking given by the occupier is found false/fictitious/forged in future.
 6. The Order shall be valid subject to compliance of all other legal requirements applicable to the unit.
 7. The State Board reserve the right to revoke, withdraw or make any reasonable variation / change / alteration in conditions of this consent.

This is issued with the approval of the Competent authority

**Yatindra
Kumar Das**

Digitally signed by
Yatindra Kumar Das
Date: 2021.12.17
16:54:30 +05'30'

(Y. K. Das)

Member Secretary

Dated : 2021-12-17

Memo No. : JSPCB/HO/RNC/CTO-
10884468/2021/1533

Copy to: M/s Durgaiburu Iron Ore Mining, Beneficiation & Pelletisation Plant of M/s. SAIL, Gua Ore Mines, Ghaktkuri Reserve Forest, Tehsil, Gua, Dist. West Singhbhum / D.F.O., Saranda Forest Division, Chaibasa West Singhbhum/ Deputy Commissioner, Chaibasa, West Singhbhum/ Dist. Mining Officer, Chaibasa, West Singhbhum/ Regional Officer, Regional Office-Cum-Laboratory, Jamshedpur for information & necessary action. He is directed to submit the status of compliance every year.

**Yatindra
Kumar Das**

Digitally signed by
Yatindra Kumar Das
Date: 2021.12.17
16:53:57 +05'30'

(Y. K. Das)

Member Secretary


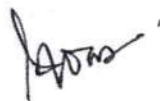
**RAIN WATER HARVESTING MEASURES
ADOPTED AT
GUA ORE MINES,
BOKARO STEEL PLANT (BSL), SAIL**

**Post:Gua, Block: Noamundi District:
West Singbhum Jharkhand**



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Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

**RAIN WATER HARVESTING MEASURES
AT GUA ORE MINES,
BOKARO STEEL PLANT (BSL), SAIL
WEST SINGBHUM DISTRICT, JHARKHAND**



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General Information:-

Steel Authority of India Limited (SAIL), a Maharatna public sector undertaking under Ministry of Steel, Government of India, is one of the leading steel makers in the country and is having Integrated Steel Plants at Bokaro, Durgapur, Rourkela, Bhilai & Burnpur. SAIL sources its entire requirement of iron ore and part of its requirement of limestone, dolomite and coking coal from its captive mines located in Jharkhand, Odisha, Chhattisgarh and Madhya Pradesh.

One of SAIL's captive iron ore mining leases is Duarguiburu Iron Ore Mining Lease over 1443.756 ha which is located in Village Gua and Ghatkuri Reserve Forest (R.F.) in West Singhbhum District of Jharkhand. The entire ML area is within Ghatkuri R.F. of Saranda Forest Division. The mine is part of Gua Ore Mines (which comprises of total four mining leases – Duarguiburu, Jhillingburi-I, Jhillingburi-II, and Topailore) and is presently under the control of Bokaro Steel Plant of SAIL. The Survey of India toposheet No. 73F/8 (RF 1:50000) covers Gua Ore Mines, which is located between latitude 22.238200° N to 22.186359° N and longitude: 85.332622° E to 85.390746° E.

Brief Description of the Project:

SAIL has applied for the diversion of a total of 635.986 hectares out of the 1443.756 hectares of forest land for the Duarguiburu mining lease. The company has obtained Stage-II of forest clearance vide letter No. F. No.- 8-251/1986FC (Pt) dated 22nd August 2014 by MoEF&CC, New Delhi.

SAIL has again applied for the diversion of 361.295 hectares of forest land for the Duarguiburu mining lease. The company has obtained Stage-I and Stage-II forest clearance as per letter No. F. No.- 8-251/1986-FC dated 04th March 2014 and F. No.- 8-251/1986FC dated 07th December 2020 respectively.

Table: Summary of Duarguiburu Iron Ore Mining Lease

Project Name	Duarguiburu Iron Ore Mining Lease
Area	1443.756 ha
Forest land	1443.756 ha
Capacity	12.5 MTPA
Method of mining	Open cast

Aras

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Environment clearance	Granted by MoEF&CC, New Delhi, vide Letter No.- J-11015/453/2008-IA.II(M) dated 25 th March, 2013
Forest Clearance (Stage-I)	Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986-FC, dated-14 th August 2012 (Stage-I) for diversion of 274.691 ha forest land Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986-FC, dated-04 th March 2014 (Stage-I) for diversion of 361.295 ha forest land
Forest clearance (Stage-II)	Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC (Pt) dated- 22 nd August, 2014 (Stage-II) for diversion of 274.691 ha forest land Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC dated-07 th December, 2020 (Stage-II) for diversion of 361.295 ha forest land
Operation Status	Operational

Mining:

At present, Mechanised opencast mining with shovel-dumper combination is being practised for exploitation of the iron ore. The lease area is divided into four exploration blocks namely D, A, B & C extending from South-West to North-East. Presently three blocks namely, 'A', 'B' & C are being worked. The 'A' block consists of a part of Bai Hill & Ranichua, 'B' block consists of a part of H D Buru & part of IInd level, where as block 'C' consists of a part of IInd level & OT Hill. 'D' block consists of part of Bai hill & Darbarburu and Gojapahar area are virgin.

Mechanized opencast mining with deep hole drilling and blasting along with deployment of shovel - dumper combination is practiced at Duarguiburu lease of Gua ore mine. The height of the benches are 10 m in overburden and/ or ore. The width of the benches will vary at places but are not less than the height of the bench in any case. Drilling will be done with 150mm dia. drills and loading carried out with diesel operated shovels / hydraulic excavators/ front end loaders of 9.5 m³ bucket capacity. Hauling of ore/ waste is done with 100 tonne rear discharge dumpers. Blasting is done with slurry explosives and Nonel detonators. Spacing and burden in OB/ Ore will be 5m and 4.5m. The mine is worked by top slicing method.

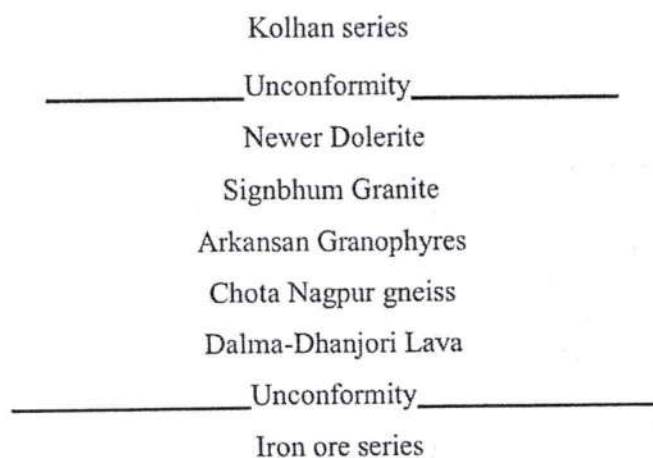
Local Geology:

Iron ore occurring in the Gua deposit belongs to the Precambrian metasedimentary rocks. The strike of the main iron ore body in the Gua ridge is NNE – SSW and the dip of the beds is 25°.
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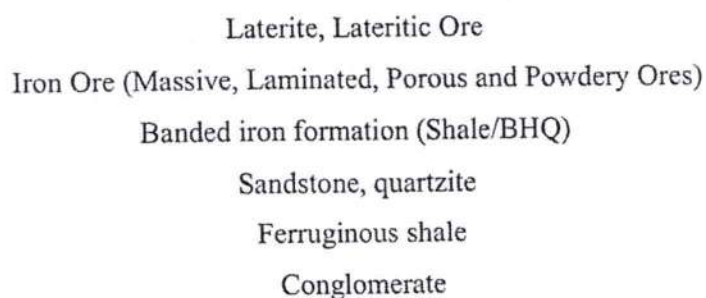
- 88° towards west and north-west. However, dips due East and North East have been recorded at few places as a result of folding. The iron ore in the main ridge is exposed on the flanks while several outlying ore bodies also occur as capping of the hills. The ore body has few major and minor faults in the leasehold and invariably dips on either side indicating isoclinal folding. BHQ rocks overlying or underlying the iron ore body are exposed continuously all along the eastern flanks. The ore types vary considerably both in lateral as well as in vertical directions.

The study of geological and structural controls and its influence on the occurrence, distribution, movement and quality of ground water is invariably essential to evaluate ground water resources and to obtain data necessary for designing the site-specific Rainwater Harvesting structures.

The district of West Singhbhum is one of the main mineralized district of Jharkhand. The stratigraphic sequence of Singhbhum (Source: CGWB Brochure) is as follows-



The general succession of the strata at lease area is as follows:-




Duarguiburu lease area has an elevation range of 410 to 880 meters above mean sea level (MSL). Sources of water in the study area are surface water in streams and river and ground water. The study area has a distinct dendritic drainage pattern due to hilly terrain. The sub

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water shed where the project falls is drained mainly by Karo and Koina river. Karo river flows in the eastern side of the lease area travels about 0.5 km towards north side in the buffer zone and joins river South Koel beyond the study area. Koina river flows in the western side of the lease area travels about 3-4 km towards north side in the buffer zone and joins river South Koel beyond the study area.

The sustainability of the water extraction structures are controlled by their location and recharge conditions as well as the inference of pumping of borewells due to cone of influence. The top soil condition such as laterite capping and clay cover may not allow natural percolation of rainwater into the subsurface stratum. Connectivity between the surface water retention structures like ponds, rainwater harvesting structures should have connectivity to the ground water system which may gradually improve the quantity and quality of ground water. The study of fracture pattern, ground water flow lines, recharge zones, discharge zones, etc. are also essential not only to accelerate recharge activities but also to identify favorable locations to extract water from potential aquifers.

Ultimate working depth at Durgaiburu mine lease of Gua will be at 550 m AMSL whereas ground water table in the vicinity occurs at 400m AMSL. Hence, mining excavations will not intersect ground water.



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Water demand and requirement for Duarguiburu Mining Lease:-


Water requirement for the project is shown in the table below:

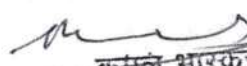
Water Demand as per EIA report of Jun 2010

Purpose	Demand (m ³ /day)	
	Existing	Proposed
1.Ore Processing		
a. Crushing Plant	200	400
b. Wet Beneficiation	0	6100
c. Pelletisation	0	3100
2.Dust Suppression at Mines	100	150
3. Equipment/ Vehicle Washing	100	200
4. Drinking at Work Site	40	50
5. Township	750	1000
6. Plantation	110	400
Total	1300	11400

However, at present, the ore processing at Gua Ore Mines is by dry process. There is no beneficiation plant at Gua Ore Mines. Therefore, there is no scope of generation & discharge of ore washing effluent.

Presently, the average daily domestic demand of water at Gua Township is 5532 m³ and average daily industrial demand of water 884 m³.




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Statutory Clearances of Duarguiburu Mining Lease:-

Govt. of Jharkhand vide letter dated 25.06.2019, renewed the Duarguiburu lease from 22.02.2009 to 21.02.2029 (20years) as per the then MMGC Rules, 2015. Subsequently, lease deeds were executed on 24.09.2019. At present Duarguiburu Mine is in operation with capacity of 4.1 million tonnes per year (MTPA). Iron Ore from Duarguiburu mines is transported by private railway siding situated at Gua Ore Mines to integrated steel plants of SAIL.

Environmental Clearance (EC) for Duarguiburu Iron Ore Mining project was granted by MoEFCC vide letter no J-11015/453/2008-IA.II (M) dated 25th March, 2013 & EC modification dated 06.11.2020 for excavation of iron ore fines from the fines dump dated at the rate of 3.1 MTPA for selling in open market keeping the total production within the approved EC limit of 12.5 MTPA.

Permission obtained from Water Resource Department, Govt. of Jharkhand and agreement has been made with Water Ways Division, Chaibasa on 28.02.2019, for drawl of water from Karo river to the tune of 4.16 MCM per annum for Gua Ore Mines, Gua (Gua Township & mining leases of Gua Ore Mines).

Out of total 1443.756 ha area, Forest Clearance was granted by MoEFCC, New Delhi, for an area of 274.691 ha of broken area vide No. 8-251/1986FC (Pt) dated- 22nd August, 2014. Further, FC has been granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC dated-07th December, 2020 (Stage-II) for diversion of additional 361.295 ha forest land.

IBM, Ranchi vide letter ref. no. RAN/LOH/BXT/ROMP-4/2023-24 dated 11.08.2023 approved the Review of Mining Plan of Duarguiburu Lease for the period 2023-24.

Consent to Establish (NOC) was obtained from Jharkhand State Pollution Control Board (JSPCB), Ranchi vide letter No. G- 1299, dated 06.04.2013. The CTO has been renewed by JSPCB for the periods from 17.12.2021 to 31.12.2026 vide Ref. No. JSPCB/HO/RNC/CTO-10884468/2021/1533, dated 17.12.2021. While granting CTO by JSPCB and EC by MoEFCC, stipulated conditions for implementation and monitoring of Rainwater Harvesting and Conservation measures to augment ground water resources in the area are as stated below,

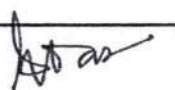
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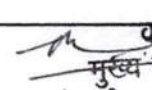
CTO General Condition no: 6 states that *"The occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge and submit the photographic view of the structures within a month"*.

EC Specific Condition no: xv states that *"The project should implement suitable conservation measures should be implemented to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board"*.

As per the recommendation given in the study report conducted by IIT Kharagpur for Gua Ore Mines and as per the direction of Statutory bodies, various rain water harvesting measures are implemented at Duarguiburu Mines and Gua Township are as summarized as given below.

1. Series of 05 no. of earthen dams at the foothill of the Fines Heap followed by series of 04 no. Trap Pits (Siltation Ponds) have been provided for arresting eroded soil by providing enough retention time for the soil to settle down during monsoons. This also helps in the percolation of water thus augmenting groundwater level.
2. Further, the slopes of dams and trap pits are stabilized through plantation with species like Vetiver and hedges. As instructed during the visit of Forest officials, plantation of local grasses and hedges has been carried out on the slopes of waste dump in consultation with local Forest Department.
3. Four nos. of concrete check dams at strategic locations were constructed and maintained. Further, construction of additional concrete check dam across DB nallah has been completed recently.
4. Boulder retention wall has been constructed at the foot of both active waste dumps i.e. OT Hill and Ranichua waste dumps. Construction of additional gabion boulder wall at the foot of Ranichua Waste Dump is completed. Further, 02 (Two) nos. of sedimentation pond has been constructed at downstream side of already constructed gabion boulder wall at the foot of Ranichua waste dump area.
5. Proper benching of the waste dumps with plantation of native saplings, local grasses and vetiver at slopes for stabilization of the same is being carried out at regular intervals.
6. Bunds along the haul roads and outer periphery of the pits is being maintained to ensure that no sediment laden storm water get discharged from the mined out area.
7. Garland drains have been provided around the mine pits, haul roads to divert surface runoff from the mining and other areas to sedimentation cum rainwater harvesting pits, where it is allowed to settle and percolate into the ground water.




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8. Catch drains with sedimentation pit has been constructed and maintained around waste dump areas to arrest the flow of fines during monsoon.
9. As per drainage pattern of the mining lease area and watershed, the rain water from the mining lease drains towards western side into catchment of Koina River and accordingly to arrest flow of sediments during rainy season and to maintain zero discharge from working mines, settling pits have been developed at OT Hill Area, IInd Level Area, Bai Hill and HD Buru Area of mines. Storm Water is directed towards these pits by developing bunds and garland drains. The retention capacity of the pits and the nature of soil allow the water to percolate and thus help in augmenting the ground water resource.
10. Regular plantation and maintenance of sapling, local grass, and hedges is carried out at waste dump areas and barren slopes of Mines to bind soil and prevents soil erosion.
11. Desiltation of sedimentation pits, catch drains, garland drains, upstream & downstream side of check dams and boulder walls is a regular activity and the same has been carried out also in the year 2023 prior to the onset of the monsoon.
12. The construction of 03 nos. for rooftop rain water harvesting system for ground water recharge through recharge pit cum shaft for two main buildings i.e. Director Bungalow & DB Annexe cum Guest House with total annual rainwater harvesting potential of 1700KL has been completed. The design calculations and structural drawing of the rooftop rainwater harvesting system for DB and DB annexe building has been done in accordance with CGWB manual on Artificial Recharge of Groundwater, CPWD Manual on Rainwater Harvesting, and CGWB Rainwater Harvesting Guide.

The photos of the of the water conservation measures implemented in Gua Ore Mines is enclosed as **Annexure-A**



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Photo: Earthen Dams and Sedimentation Traps at the slope of Fines Heap



Photo: Series of 5 nos. of earthen dams followed by 4 nos. of settling ponds at the foot of Fines Heap

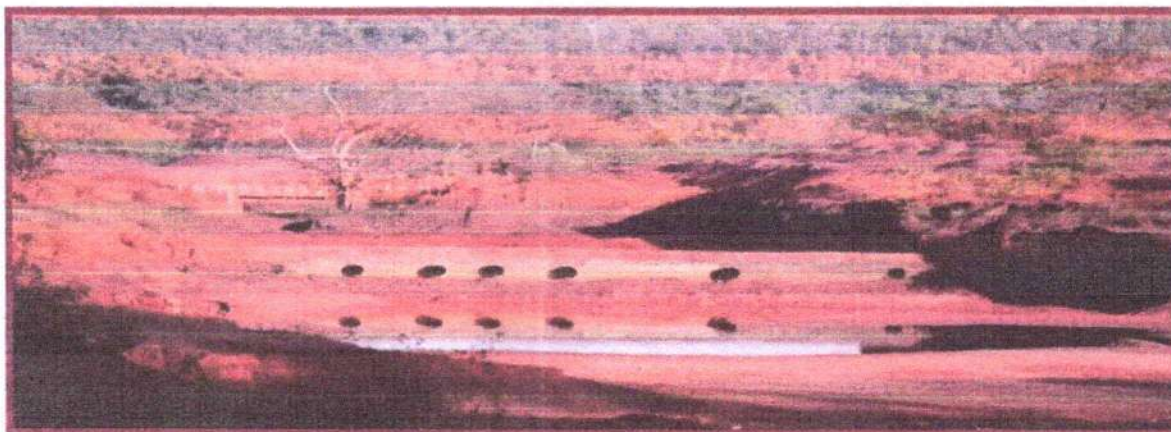


Photo: Concrete Check dam at Dam No.-5 towards zero point nallah

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Photo: Construction of additional concrete check dam at Zero point nalla



Photo: Concrete dam beside Kali Mandir before joining Karo River



Photo: Concrete Check Dam at Goja Pahar Nalla

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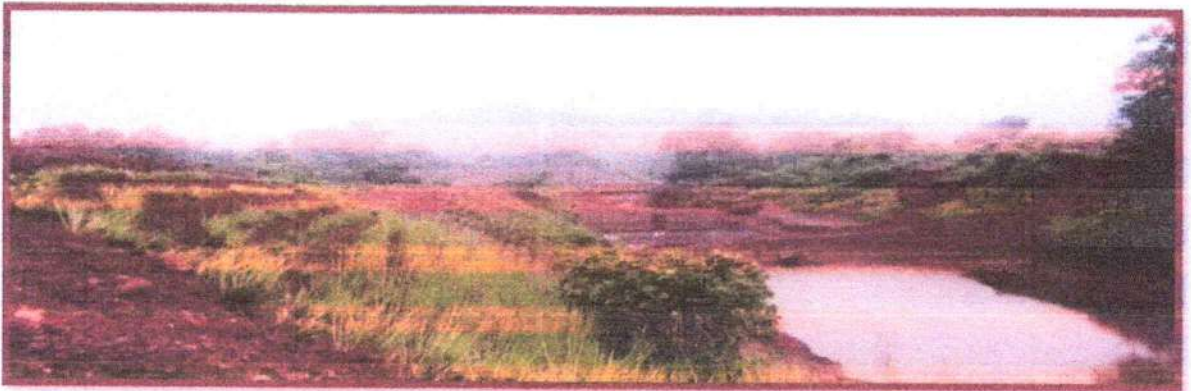


Photo: Settling cum Harvesting Pits along-with vetiver plantation near Zero Point Nalla



Photo: Construction of additional gabion boulder wall at the foot of Ranichua Waste Dump

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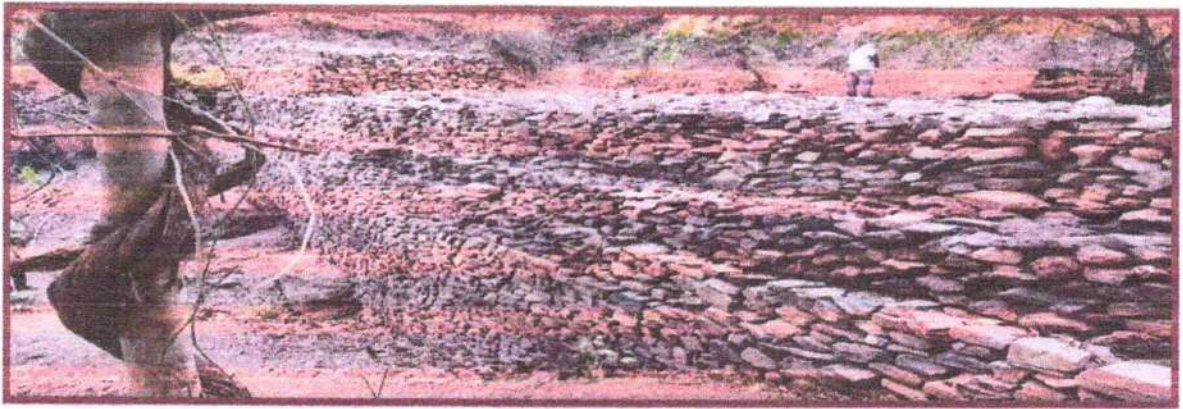


Photo: Boulder wall constructed at the toe of Ranichua waste dump area



Photo: Garland Drain to divert runoff water into the pits



Photo: Catch drains and siltation ponds of the appropriate size has been constructed at Ranichua and OT Hill waste dump

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Photos: Desiltation of Bai-Hill sedimentation pit

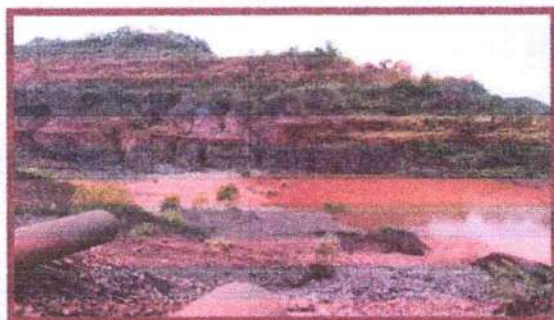
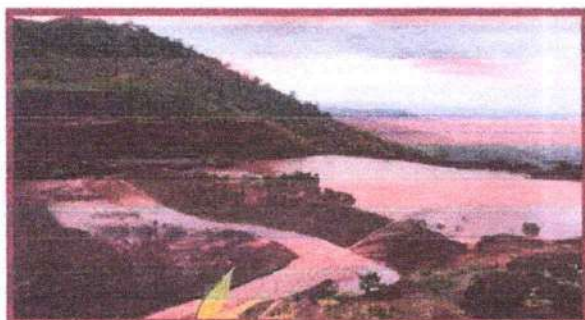
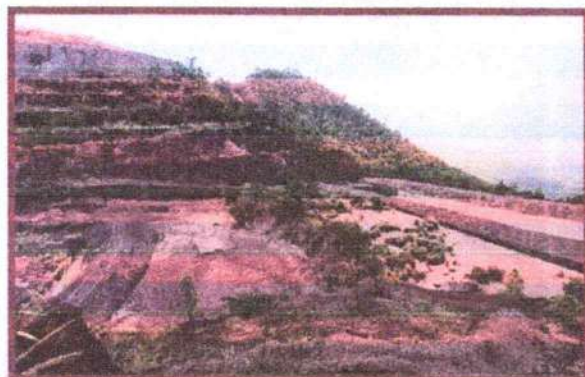
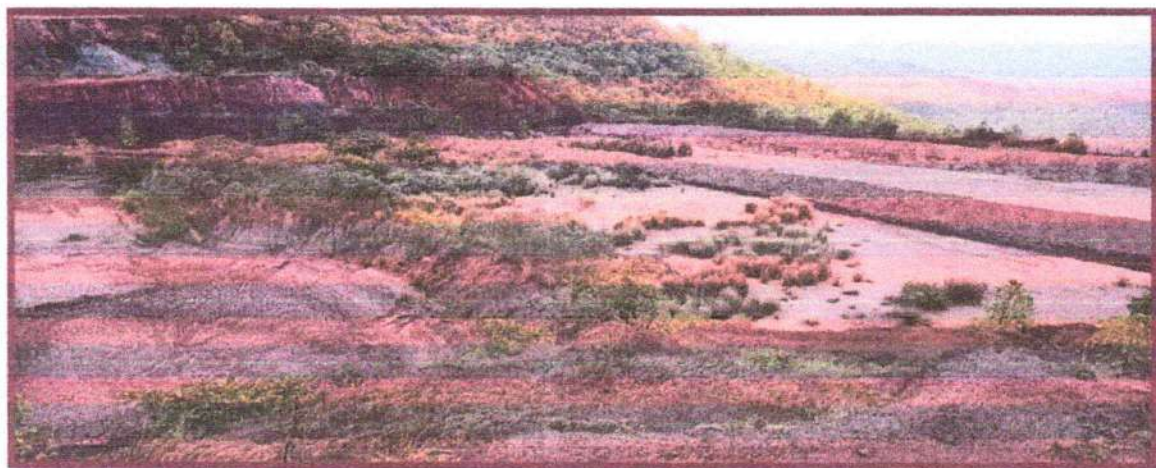


Photo: Rain Water Harvesting cum Settling Pond at IInd Level and HD buru Area of Mines



Photos: Desiltation of Sedimentation Pond at IInd Level Area of Mines

Atas

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Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of Ranichua waste dump area.

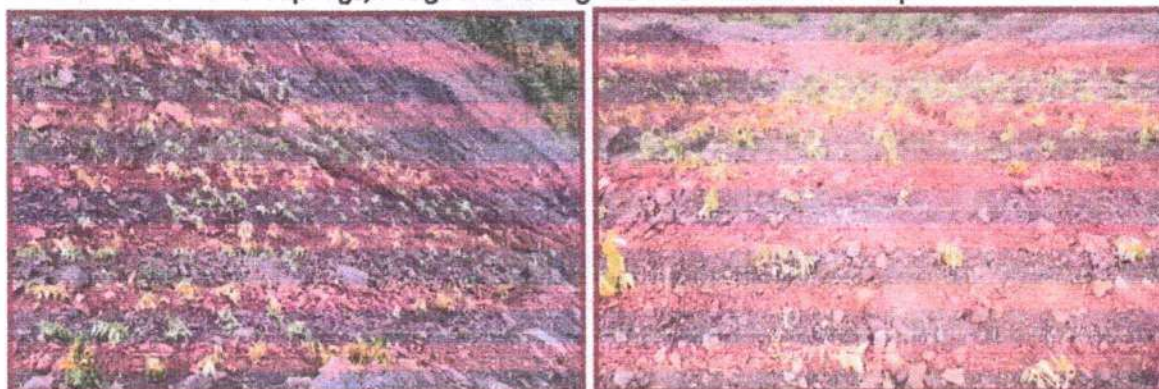


Photos: Plantation of local grass and hedge at slopes of earthen dam

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Photos: Plantation of saplings, hedge and local grass at OT Hill waste dump



Photos: Plantation of saplings and hedge at Bai Hill barren slope



Photos: Hedge and sapling plantation at safety berm along mine haul road towards OT Hill area



Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump

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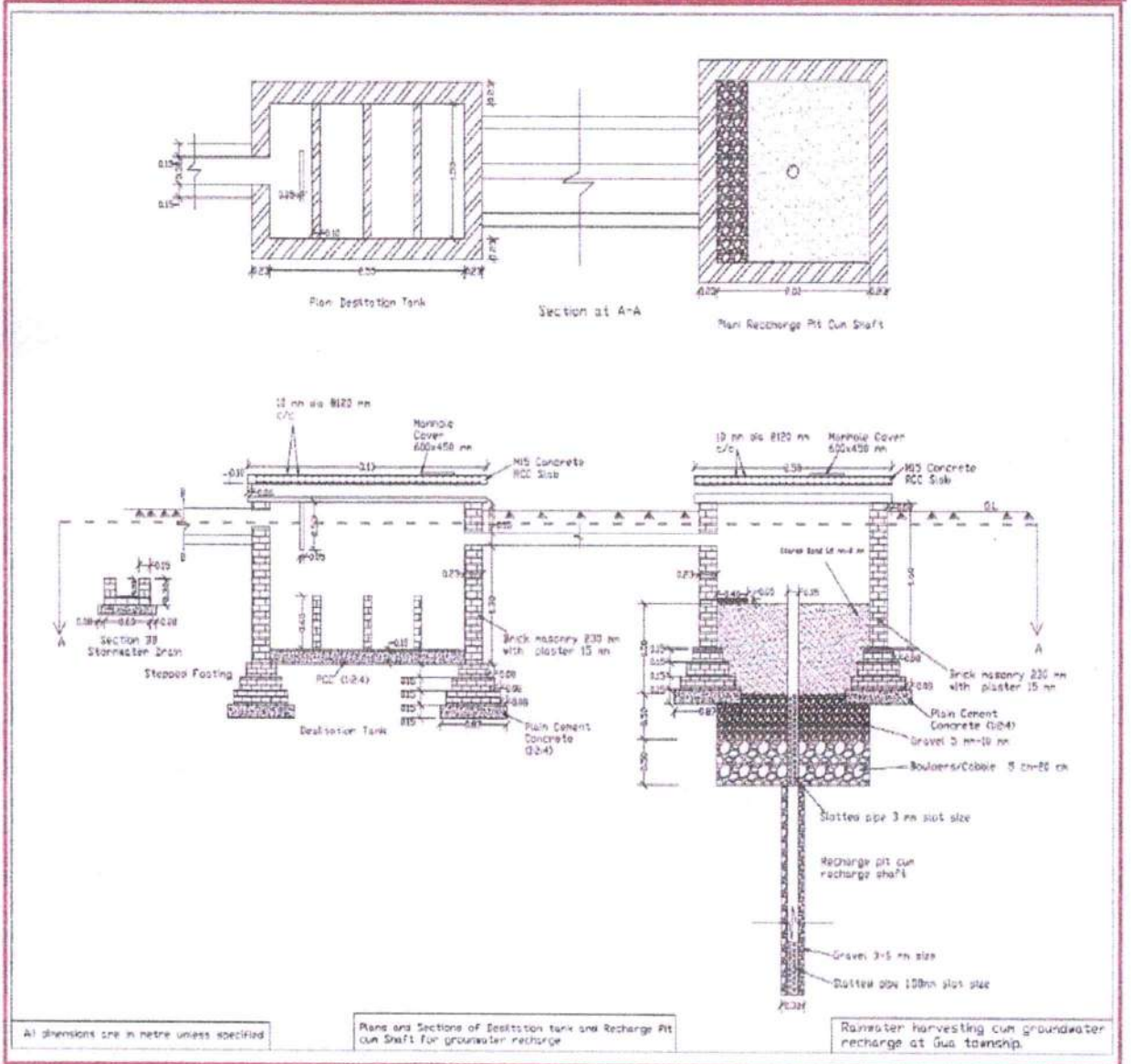
Photographs showing 03 nos. rooftop rainwater harvesting system through recharge pit cum shaft with design drawing lstalled with piezometer at Director Bungalow and DB annexe buildings of Gua Ore Mines.



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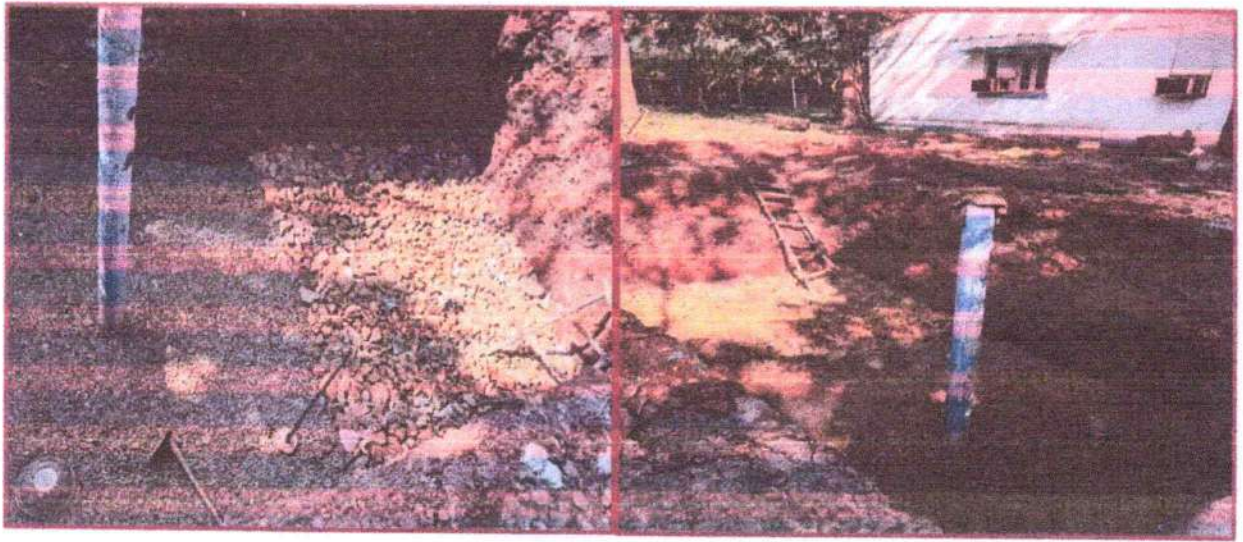


Photo: During construction of recharge pit cum shaft for roof top rainwater harvesting

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GROUND WATER LEVELS
GROUND WATER LEVELS & QUALITY

LOCATION :Guasai – Forest Bungalow (Latitude 22°12'40" N and Longitude 85°23'6" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 1 (Jun, 24)	Quarter – 2 (Aug, 24)
Depth of Water Table below Ground Level	m	-	-	8.3	4.3
Quality					
pH	-	6.5 – 8.5	No relaxation	7.49	7.53
Turbidity	NTU	1	5	0.69	0.58
Dissolved Solids	mg/l	500	2000	198	215
Iron (as Fe)	mg/l	0.3	No relaxation	0.05	0.07
Manganese (as Mn)	mg/l	0.1	0.3	0.04	0.08

LOCATION :Ghatkuri Village (Latitude 22°17'50" N and Longitude 85°23'59" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 1 (Jun, 24)	Quarter – 2 (Aug, 24)
Depth of Water Table below Ground Level	M	-	-	7.6	4.1
Quality					
pH	-	6.5 – 8.5	6.5 – 8.5	7.49	7.36
Turbidity	NTU	1	5	0.75	0.66
Dissolved Solids	mg/l	500	2000	215	240
Iron (as Fe)	mg/l	0.3	0.3	0.17	0.14
Manganese (as Mn)	mg/l	0.1	0.3	0.07	0.05

LOCATION :ChotaNagra-Baihatu Village (Latitude 22°14'45" N and Longitude 85°18'31" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 1 (Jun, 24)	Quarter – 2 (Aug, 24)
Depth of Water Table below Ground Level	m	-	-	8.1	4.4
Quality					
pH	-	6.5 – 8.5	6.5 – 8.5	7.2	7.4
Turbidity	NTU	1	5	0.58	0.64
Dissolved Solids	mg/l	500	2000	194	189
Iron (as Fe)	mg/l	0.3	0.3	0.07	0.08
Manganese (as Mn)	mg/l	0.1	0.3	0.06	0.04

LOCATION :BaraiburuNear Pool (Latitude 22°8'37" N and Longitude 85°20'41" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 1 (Jun, 24)	Quarter – 2 (Aug, 24)
Depth of Water Table below Ground Level	m	-	-	7.9	5.9
Quality					
pH	-	6.5 – 8.5	6.5 – 8.5	7.35	7.24
Turbidity	NTU	1	5	0.8	0.9
Dissolved Solids	mg/l	500	2000	245	240
Iron (as Fe)	mg/l	0.3	0.3	0.23	0.18
Manganese (as Mn)	mg/l	0.1	0.3	0.04	0.05

*as per Drinking Water Specification IS:10500: 2012

Alok Kumar Yadav
29/11/2024
अलोक कुमार यादव
ALOK KUMAR YADAV
व. प्रबंधक (वातावरण एवं वन) : Manager (Forest & Env)
सेल : 833213/13/ P.O. : Gua- 833213
गुआ अयस्क खान / GUA ORE MINES
पो. गुआ- 833213/ P.O. : Gua- 833213
जिला : सिंगभूम (प.) झारखण्ड / Dist: Singhbhum (W) Jharkhand

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Dharmendra Sethia
29/11/2024
धर्मेन्द्र सेठिया
Dharmendra Sethia
सहायक प्रबंधक (पर्यावरण) / Asst. Manager (Env)
सेल : 833213/13/ P.O. : Gua- 833213
गुआ अयस्क खान / GUA ORE MINES
पो. गुआ- 833213/ P.O. : Gua- 833213
जिला : सिंगभूम (प.) झारखण्ड / Dist: Singhbhum (W) Jharkhand

Monthly average ground water level from real time ground water level monitoring system

Locations	Device ID	Monthly Average Ground Water Level (In Metre)					
		April 2024	May 2024	June 2024	July 2024	Aug 2024	Sept 2024
DB Annexe cum Guest House	SAIL_GWLR 1	6.9	7.24	7.60	5.55	4.60	4.67
Director Bungalow	SAIL_GWLR 2	8.67	9.50	9.83	9.47	8.03	7.39
Guasai Forest Bungalow	SAIL_GWLR 3	8.64	9.24	9.35	6.72	5.45	4.32



Photo: Real time groundwater monitoring station installed at Director Bungalow and also installed at other two location namely Guasai-Forest Bungalow and DB Annexe

Alok Kumar Yadav
29/11/2024
Alok Kumar Yadav
Sr. Manager (F&E)
अलोक कुमार यादव
ALOK KUMAR YADAV
व. प्रबंधक (वन एवं पर्यावरण) / Sr. Manager (Forest & Env.)
सेल, बोकारो इस्पात संयंत्र / SAIL - Bokaro Steel Plant
गुआ अयस्क खान / GUA ORE MINES
फो. : गुआ- 833213 / P.O. : Gua- 833213
जिला : सिंहभूम (प.) झारखण्ड / Dist : Singhbhum (W) Jharkhand

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Dharmendra Sethia
29/11/2024
Dharmendra Sethia
Asst. Manager (Env.)
धर्मेन्द्र सेठिया
Dharmendra Sethia
सहायक प्रबंधक (पर्यावरण) / Asst. Manager (Env.)
सेल-बी.एस.एल. झ.ख.स. / SAIL-BSL-JGOM
गुआ अयस्क खान / GUA ORE MINES
फो. : गुआ- 833213 / P.O. : Gua- 833213
जिला : सिंहभूम (प.) झारखण्ड / Dist: Singhbhum (W) Jharkhand

Annexure-5

स्टील अथॉरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
श्री मेटेसियल्स डिपार्टमेंट
RAW MATERIALS DIVISION
गुआ अयस्क खान
GUA ORE MINES

Ref. No.: GM(M)/12-13/24/296

Date : 30/03/2013

To

Regional Officer
Jharkhand State Pollution Control Board
MB/15 New Housing Colony, Adityapur
Jamshedpur

Sub : Compliance of Environment Clearance condition for Duarguiburu
Lease of Gua Ore Mines.

Ref : E.C. Order No.J-11015/459/2008-IA.11(M) dt.25/03/13.

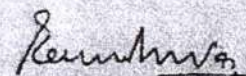
Dear Sir,

Vide above reference Environment Clearance has been granted to Duarguiburu lease with certain conditions. As per general condition laid down at Sl.No.XXVII. We have to monitor ground water & tailing dam at strategic location to be established in consultation with your good office for heavy metals. A copy of E.C. is enclosed for kind perusal.

Therefore, we request you to kindly depute a representative to our Gua Ore Mines to guide us in establishing the monitoring stations.

Thanking you

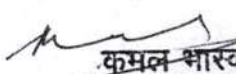
Yours faithfully



GM (Mines) 30/03/13

सिंहभूम (पश्चिम), झारखण्ड - 833 243, फ़ोन : (का) : 06596-263712, फ़ैक्स : 06596-263714, निवात : 06596-263712, मोबाईल : 9477702008
ई-मेल : gmguamineda@gmail.com, वेबसाइट : www.sail.co.in
Singbhum (West), Jharkhand - 833 243, Phone : (O) 06596-263712, Fax : 06596-263714, Telex : 06596-263712, Mobile : 9477702008
E-mail : gmguamineda@gmail.com, Website : www.sail.co.in

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

हर किसी की जिन्दगी से जुड़ा हुआ है सैल


कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-RP, GUA ORE MINES


27/4/2020
Bipin Kumar Giri
M. (Mines), GOM, Gua



स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो इस्पात संयंत्र
BOKARO STEEL PLANT
गुआ अयस्क खान
GUA ORE MINES

Ref. No.: Gua/E&L/JSPCB/EC-Co/2023-24/168

Dated: 12.08.2023

To,
The Regional Officer
Jharkhand State Pollution Control Board
MB/15 New Housing Colony, Adityapur
Jamshedpur

Sub: Reg. compliance of Environmental Clearance condition for Duarguiburu Mining Lease of Gua Ore Mines

Ref.: 1. Ministry's Environment Clearance Letter No. J-11015/453/2008-LA. II(M) dated 25.03.2013 for project Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation of Gua Ore Mines, SAIL.
2. Letter to your office vide letter ref. no. GM (M)/12-13/24/296 dated 30.03.2013

Sir,

This has reference to the above mentioned subject, wherein the Ministry of Environment, Forest and Climate Change, GoI, has granted Environmental Clearance (EC) to the Duarguiburu Iron Ore Mining Lease of Gua Ore Mines vide letter dated 25.03.2013.

As per General Condition no. (xxvii) of EC, the groundwater and surface water in and around the mine including tailing ponds shall be regularly monitored at strategic locations for heavy metals. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.

In this regard, a letter dated 30.03.2013 had been submitted to your office. Subsequently, as advised by JSPCB officials during their visit to Gua Ore Mines, monitoring stations were established in consultation with JSPCB.

The list of present monitoring station for environmental parameters such as air, water and noise is enclosed as **Annexure-1**. Therefore, it is requested to again review the present monitoring stations at Duarguiburu Mining Lease of Gua Ore Mines and provide necessary advise for any modification if required.

Submitted for kind information and further advise please.

With regards,

For and on behalf of
SAIL-BSL, Gua Ore Mines

(S.P. Das)

General Manager (Mines) and E&L

Encl: a/a

Copy to: Executive Engineer, Central Ground Water Board (CGWB), 30C Park Road, 1B, Main, Ashok Nagar, Ranchi-83401

सिंहभूम (पश्चिम), झारखण्ड-833213, दूरभाष(का): 06596-263713, फैक्स : 06596-263714,

मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Location of the stations established for monitoring of environmental parameters such as air water and noise

Stations for Air Quality Monitoring

Sl. NO.	Locations	Parameters	Latitude	Longitude
1	Near Mines Canteen	PM ₁₀ , PM _{2.5} , SO ₂ and NO _x	22° 12' 54.15" N	85° 21' 29.64" E
2	Near Environmental and QC Lab		22° 12' 49.46" N	85° 22' 39.02" E
3	Near Gua Club		22° 12' 43.01" N	85° 22' 52.33" E
4	Near Hospital		22° 12' 39.12" N	85° 22' 57.11" E

Stations for water and waste water monitoring

Sl. NO.	Locations	Type of water	Latitude	Longitude
1	Karo River (Downstream)	Surface water	22° 13' 16" N	85° 23' 16" E
2	Karo River (Upstream)	Surface water	22° 12' 16" N	85° 22' 53" E
3	Near Kali Mandir	Industrial Effluent	22° 12' 16" N	85° 22' 52" E
4	Near Railway Bridge	Domestic Effluent	22° 12' 32" N	85° 22' 59" E

Stations for noise monitoring

Sl. NO.	Locations	Parameters	Latitude	Longitude
1	Near Gua Club	L _{eq}	22° 12' 42.21" N	85° 22' 53.32" E
2	Near Gua Hospital		22° 12' 39.00" N	85° 21' 58.55" E
3	Near Environmental & QC lab		22° 12' 49.39" N	85° 22' 39.42" E
4	Near Mines Canteen		22° 12' 54.15" N	85° 21' 29.64" E

Stations for ground water level monitoring

Sl. NO.	Locations	Type of water	Latitude	Longitude
1	Gua Sai Forest Bungalow	Open well Ground water	22° 12' 40" N	85° 23' 6" E
2	Ghatkuri Village		22° 17' 50" N	85° 23' 59" E
3	Chhotanagra Baihatu		22° 12' 45" N	85° 18' 31" E
4	Baraiburu- Near Pool		22° 8' 37" N	85° 20' 41" E

[Signature]

[Signature]
 कमल भास्कर
 मुख्य महाप्रबंधक (खान)
 सेल-बी०एस०एल०, गुआ अयस्क खान
 Kamal Bhasker
 Chief General Manager (Mines)
 SAIL-BSL, GUA ORE MINES

**LAND USE AND LAND COVER MAPS FOR DUARGUIBURU, JHILLINGBURU I,
JHILLINGBURU II, TOPAILORE MINING LEASES AREA OF GUA ORE MINES**

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

A handwritten signature in blue ink, appearing to read 'V. G. K. Villuri'.

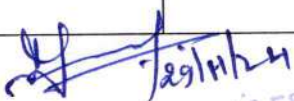
Introduction

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 Gua Ore Mines, Jharkhand have been developed from Linear Imaging Self scanning Sensor (LISS) data obtained from Indian Remote Sensing satellite- Resource sat-2, LISS-IV (2021) and Cartosat 2 (2021) sensor, March. 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 in 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 Gua Ore Mines, Jharkhand 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.


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

		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


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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 Gua Ore 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 Gua Ore Mines.

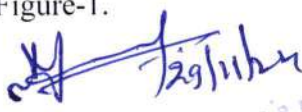
Wasted land or Wet land: Wasted lands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophyte vegetation usually is established, although alluvial and tidal flats may be no vegetated. Wastelands 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. Duarguiburu ore mining lease area land use and land cover:

The Duarguiburu ore mining lease area (1443.756 Ha) was classified for land use and land cover by using supervised classification technique. Five classes are identified over the study area namely dense forest (526.892 Ha), open forest (561.363 Ha), mining (247.371 Ha), barren land/waste land (82.986 Ha) and built-up (25.144 Ha) shown in Figure-1.


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

PLAN SHOWING LAND USE LAND COVER MAP OF DUARGUIBURU MINING LEASE BOUNDARY SUPERIMPOSED ON SATELLITE IMAGERY
(FUSION OF CARTOSAT-2 AND LISS-IV, MARCH 2021) COVERING AN AREA OF 2KM BUFFER ZONE
GUA ORE MINES, JHARKHAND
RAW MATERIALS DIVISION, STEEL AUTHORITY OF INDIA LTD.



Figure: 1. Land use Land cover map of Duarguiburu ore mining lease area

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

2. Jhillingburu I(JH I) ore mining lease area land use and land cover:

JH I ore mining lease area (210.526 Ha) is also classified into the six classes. The distribution of areas is dense forest (97.721 Ha), open forest (77.252 Ha), mining (8.251 Ha), agricultural land and plantation (2.727 Ha), barren land/waste land (14.942 Ha) and built-up (9.633 Ha) shown in Figure-2.

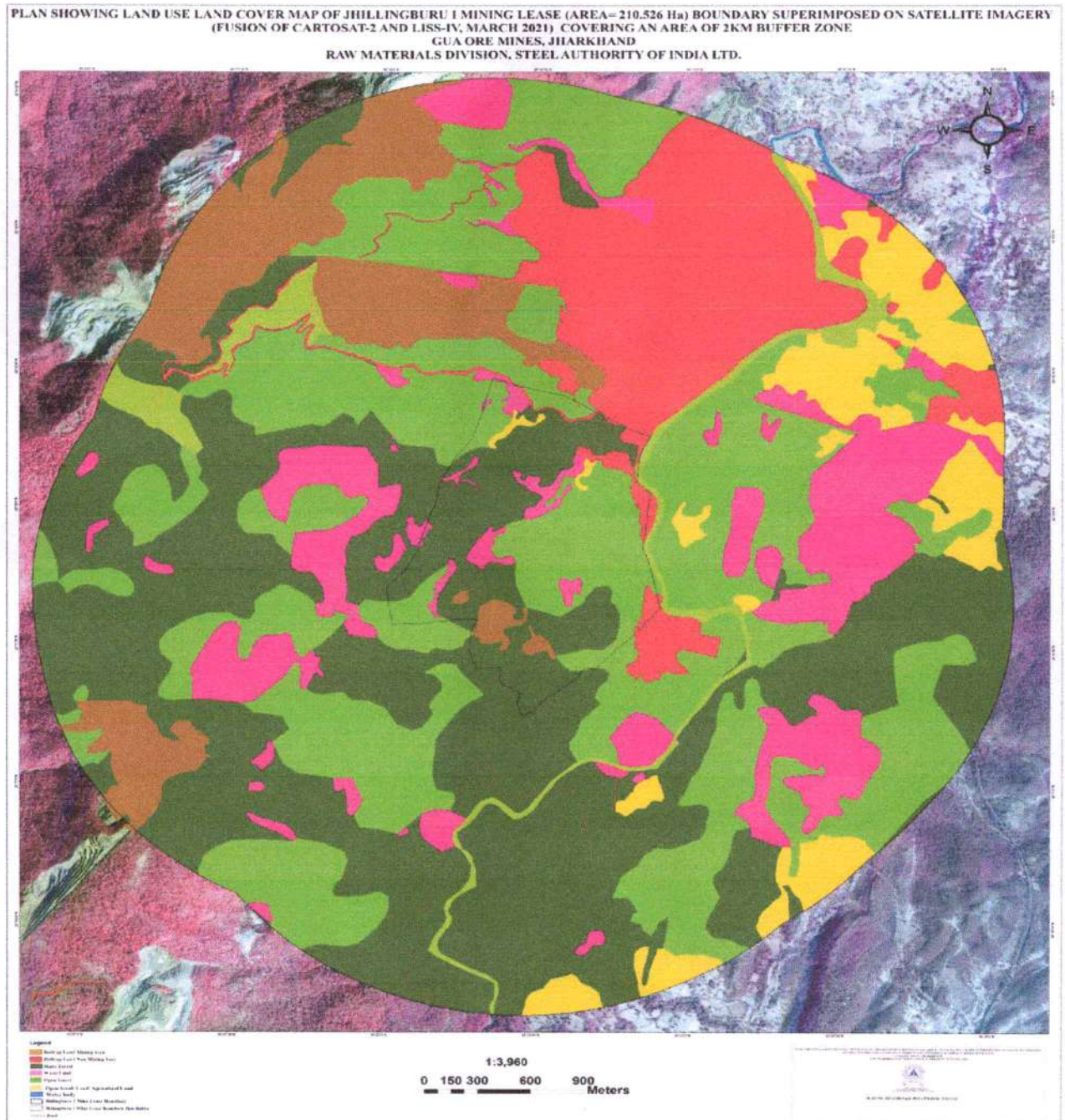


Figure: 2. Land use Land cover map of JH I ore mining lease area

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

3. Jhillingburu II (JH II) mining lease area land use and land cover:

The land use and land cover classification of JH II ore mining lease area (30.43 Ha) revealed three classes, namely dense forest (10.993 Ha), open forest (13.691 Ha) and built-up (5.746 Ha) shown in Figure-3.

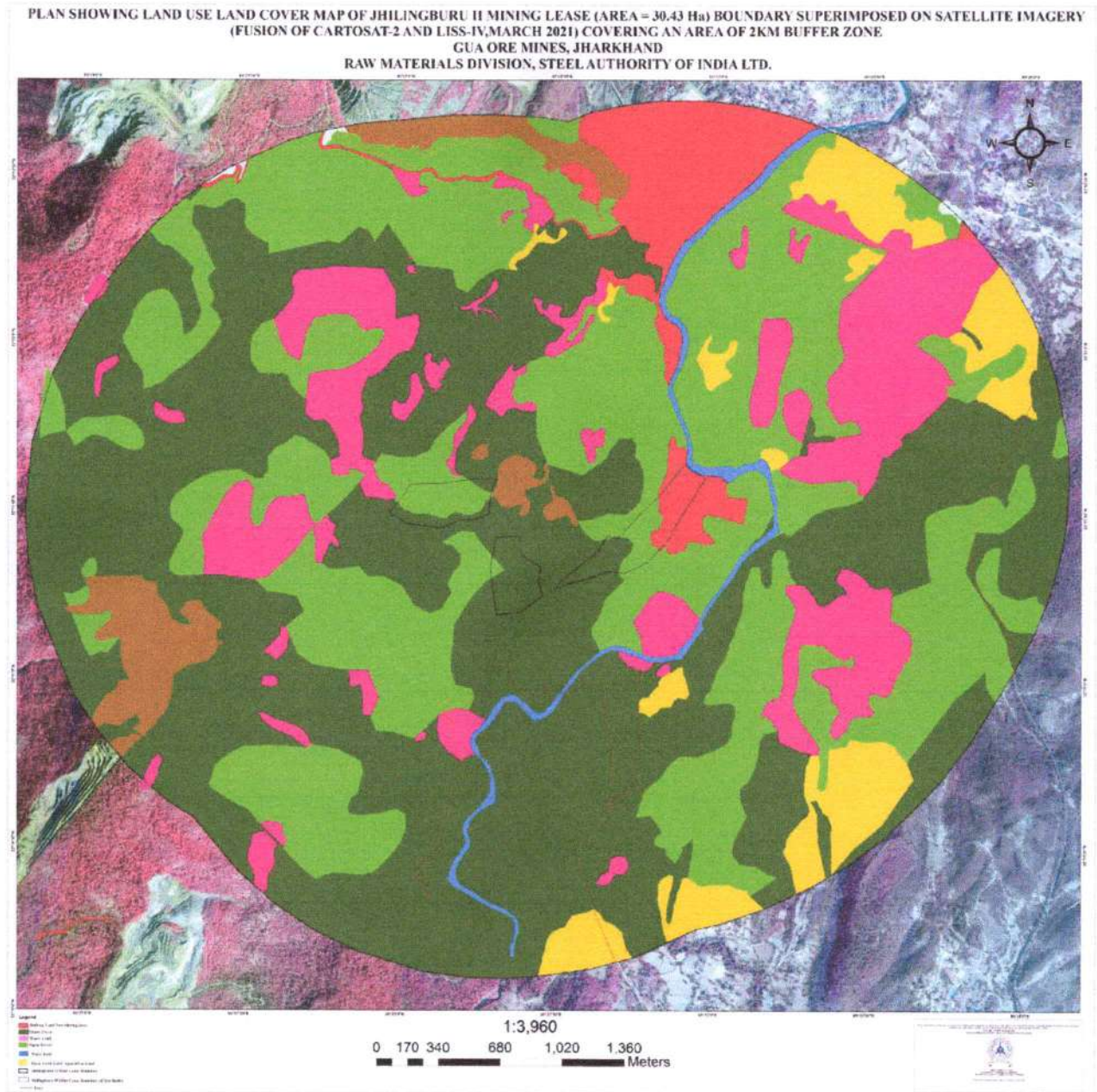


Figure: 3. Land use Land cover map of JH II mining lease area

4. Topailore ore mining lease area land use and land cover:

The classification of Topailore ore mining lease area (14.16 Ha) revealed that there is dense forest (1.066 Ha) and mining (13.094 Ha) shown in Figure-4.

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Figure: 4 Land use Land cover map of Topailore ore mining lease area

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.

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

The summary of the land use land cover classifications is shown in the Table 2. The classification distributions are shown in the Figure 5 to Figure 8.

Table 2: Land use land cover classifications of Gua Mines

LU/LC classes	Duarguiburu Ore mining lease Area (Ha)	JH I Ore mining lease Area (Ha)	JH II ore mining lease Area (Ha)	Topailore Ore mining lease Area (Ha)
Built-up Land	25.144	9.633	5.746	0
Agriculture Land	0	2.727	0	0
Dense forest	526.892	97.721	10.993	1.066
Open Forest	561.363	77.252	13.691	0
Water body	0	0	0	0
Wasted land	82.986	14.942	0	0
Mining	247.371	8.251	0	13.094
Total Area (ha)	1443.756	210.526	30.430	14.160


General Manager (Mines)
SAIL-BSL, Gua Mines

Durgauburu mining lease Area_2021 (Ha)

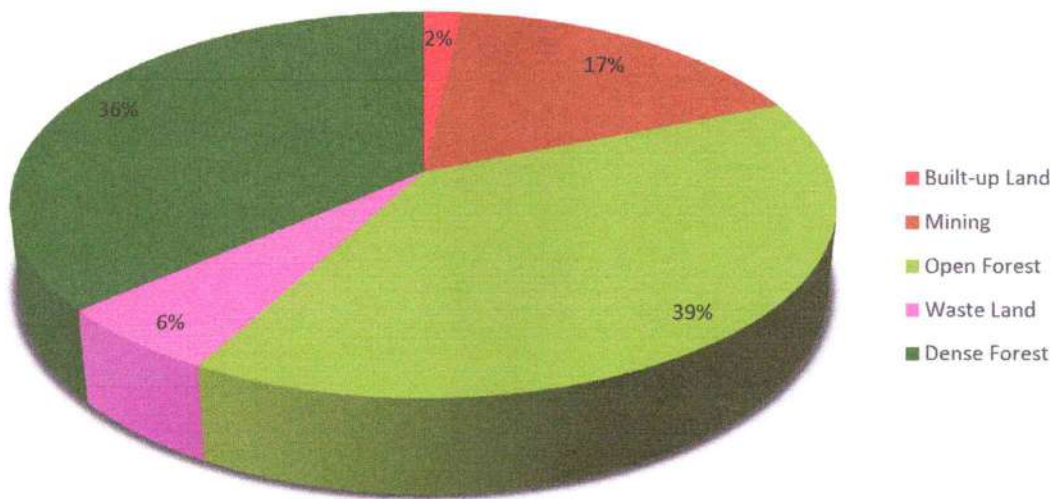


Figure 5: Land use distribution of Duarguiburu lease area

JH1 mining lease Area_2021 (Ha)

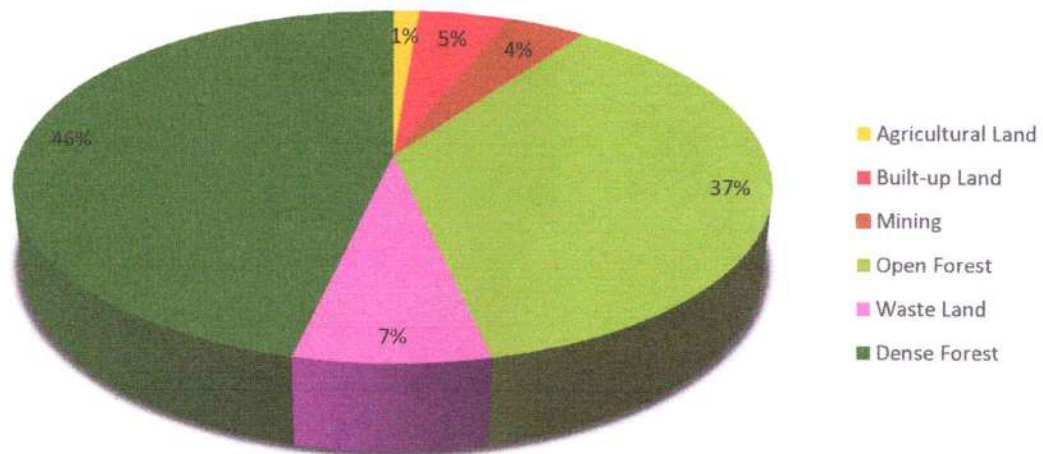


Figure 6: Land use distribution of JH I lease area

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 General Manager (Mines) & E&L
 SAIL-BSL, Gua Ore Mines

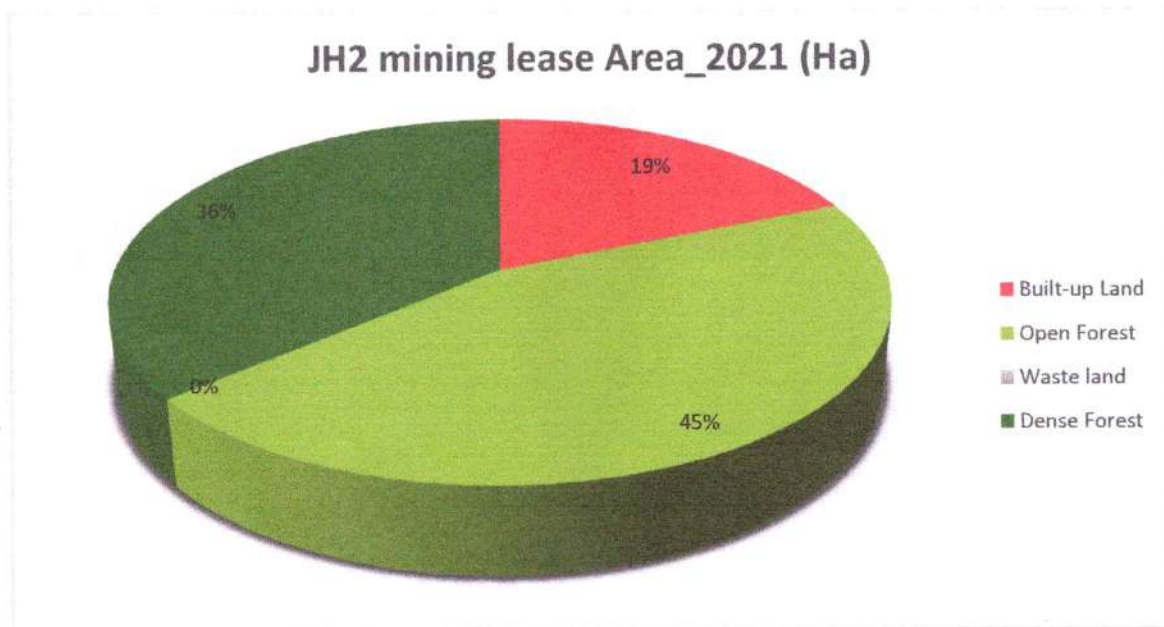


Figure 7: Land use distribution of JH II lease area

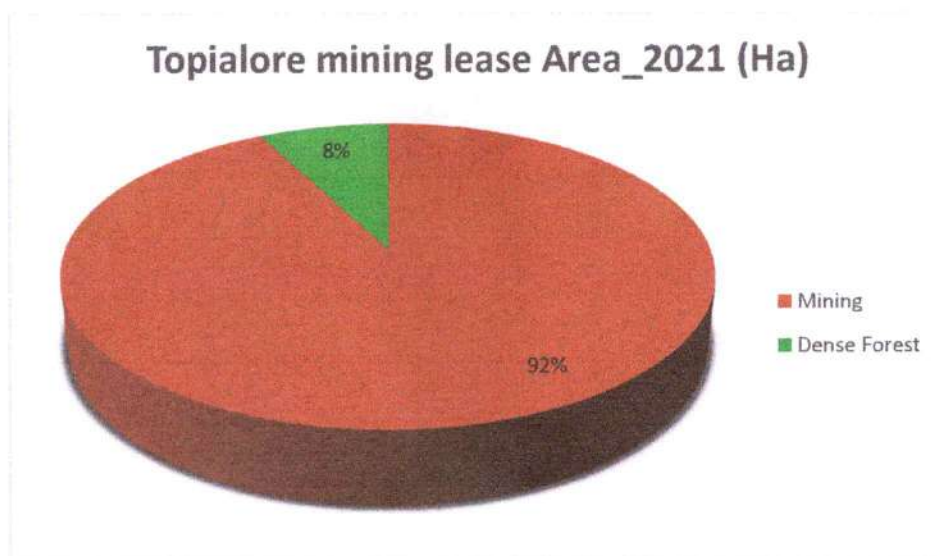
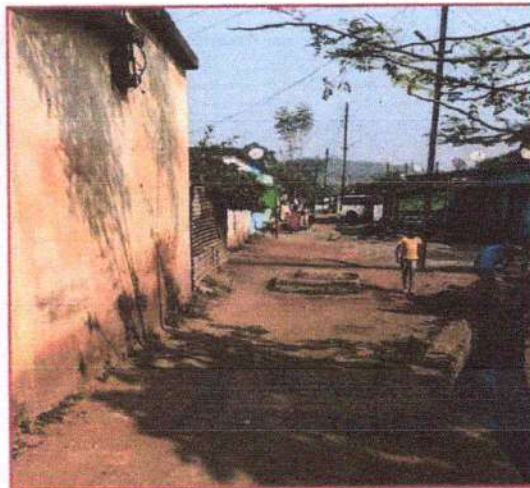


Figure 8: Land use distribution of Topailore lease area


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

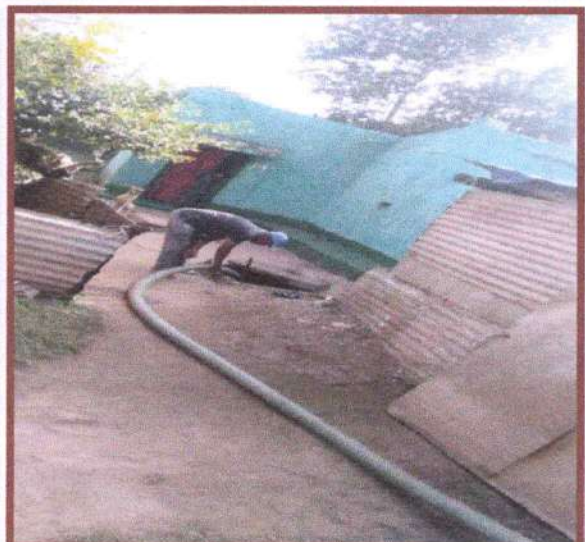
Photographs of Septic Tank and Soak Pit constructed at Gua Ore Mines Township



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[Handwritten signature]
KAMAL BHASKER

मुख्य सहायक (खान) / CGM (Mines)
सेन, बोकारो इस्पात संयंत्र / SAIL - Bokaro Steel Plant
गुआ अयस्क खान / GUA ORE MINES
पि. : गुआ-833213 / पो. : गुआ-833213
जिला/जिल्हा (ग.) झरखंड/Dist.Singbhum (W) Jharkhand



Photographs showing Septic tanks and its cleaning through mechanical mode

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General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure-12

Effluent Treatment Plant (ETP) of capacity 10 KLD has been installed and commissioned for treatment of effluent generated at Gua Ore Mines Hospital and same is in operation since 08.11.2024. The ETP is of modular construction and the treatment process consists of five stages. The process flow diagram of the ETP is given at **Annexure-A** and the analysis report of treated effluent from ETP is given at **Annexure-B**.

Stage-1: Physical Treatment

Screen Chamber, Oil & grease trap, Effluent Collection cum Equalization Tank for stream.

Stage 2: Chemical Treatment

Chemical Reaction Tank fitted with Motorized Agitator, Dosing System and Primary Tube Settler.

Stage 3: Biological Treatment

FAB Reactor with MMBR technology & Secondary Tube Settler.

Stage 4: Advance Treatment

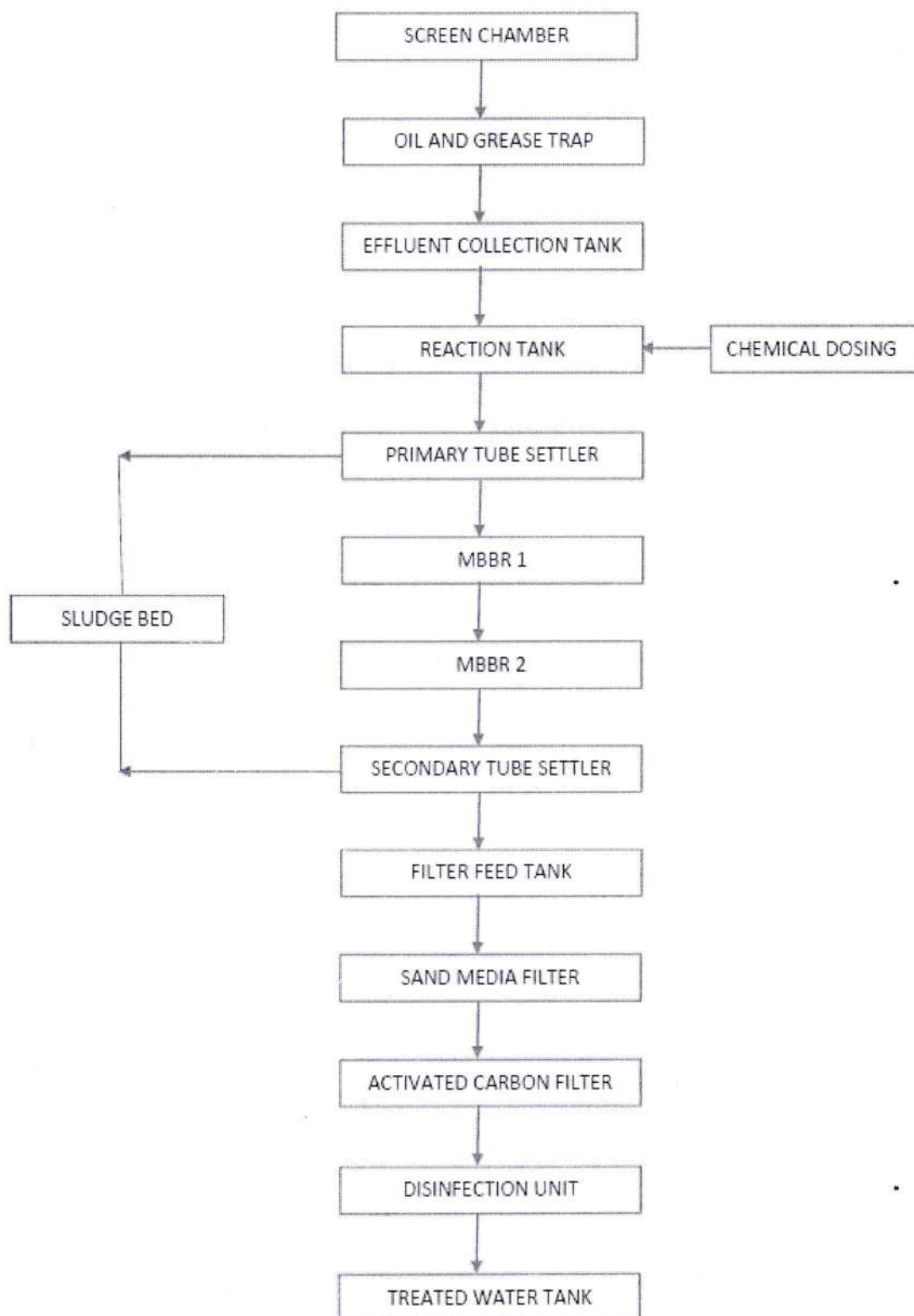
Pressure Sand Filter, Activated Carbon Filter & Hypo Dosing System

Stage 5: Sludge Treatment

Sludge Drying Beds

The photographs of the installed ETP at Gua Ore Mines Hospital are given below:



PROCESS FLOW DIAGRAM 10 KLD EFFLUENT TREATMENT PLANT

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Institute for Environmental Management



Test Report

ULR No.:	T	C	1	1	5	1	5	2	4	0	0	0	0	1	7	5	3
Discipline: Chemical	Group: Pollution & Environment										Sub-Group: Waste Water						
Report Issue Date: 01-11-2024										Test Report No.: RN-241028002WW01							
Sample ID: 241028PE05001										Sample Description: Waste Water							
Challan No./P.O. No.: Telephonic Communication										Challan No./ P.No. Date: 28-10-2024							
Issued to: Steel Authority of India Ltd., JGOM-Bokaro Steel Ltd. GUA Ore Mine P.O. Gua-833213 Dist. West Singhbhum, (Jharkhand)																	
Type of Industry: Ore Mines										Customer Representative: Mr. Ashok Kumar							
Sample Drawn by: IEM Team										Sampling Date: 28-10-2024							
Protocol: CPCB Guideline & IS Method 3025 Series																	
Sampling Location: ETP Outlet																	
Sample Receiving Date: 28-10-2024						Testing Started: 28-10-2024						Testing Ended: 01-11-2024					

---Test Result---

Sl. No.	Tested Parameters	Unit	Method No.	Norms**	Results
1.	pH value at 25°C	----	IS 3025 (Part-11)	--	7.7
2.	Total Suspended Solids (TSS)	mg/l	IS 3025 (Part-17)	--	39
3.	Biological Oxygen Demand (BOD)	mg/l	IS 3025 (Part-44)	--	17.6
4.	Chemical Oxygen Demand (COD)	mg/l	IS 3025 (Part-58)	--	44

---End of Report---

Env. Condition of Lab.	Laboratory is maintaining Temperature $27 \pm 2^\circ\text{C}$ and Relative Humidity $65 \pm 5\%$ in all testing area as per IS 196:1966(C).
Abbreviation	MDL: Minimum Detection Limit, BDL: Below Detection Limit
Norms** is Specified	--
Remark	--

Tested By: Mahendranath Mahto

Sample Drawn By: Customer

Specific Contractual Notes:- 1. The laboratory accepts responsibility for content of this report. 2. This report shall not be reproduced except in full, without written approval of the MD. 3. This report is intended for only guidance and not for legal purpose or for advertisement. 4. Any complaint about this report should be communicated in writing within 7 days of its issue. 5. Total liability of Institute for Environmental Management will be limited to invoiced amount only. 6. In case of feedback/ complaints, please send an email at gm.lemaco@gmail.com	Reviewed by <i>T. Ahmad</i> (Tauqeer Ahmad) Technical Manager	Authorized Signatory <i>S. C. Jain</i> (Dr. S. C. Jain) Director
---	--	---

Page 1 of 2

Corporate office - A-8, Modi Heights, Opp.-All India Radio Station, Ratu Road, Ranchi, Jharkhand - 834001

Laboratory Site - H.No. - A-13, Saket Vihar, Near Sohrai Bhawan, Harmu Housing Colony,
Ranchi-834002, Jharkhand, India

Ph - 8407804253, 8407804251, Email - iem2012@rediffmail.com

[Signature]
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



Institute for Environmental Management



Test Report

Discipline: Chemical		Group: Pollution & Environment		Sub-Group: Waste Water	
Report Issue Date: 01-11-2024			Test Report No.: RN-241028002VW01		
Sample ID: 241028PE05001			Sample Description: Waste Water		
Challan No./P.O. No.: Telephonic Communication			Challan No./ P.No. Date: 28-10-2024		
Issued to: Steel Authority of India Ltd.,JGOM-Bokaro Steel Ltd.GUA Ore Mine P.O. Gua-833213 Dist. West Singhbhum,(Jharkhand)					
Type of Industry: Ore Mines			Customer Representative: Mr. Ashok Kumar		
Sample Drawn by: IEM Team			Sampling Date: 28-10-2024		
Protocol: CPCB Guideline & IS Method 3025 Series					
Sampling Location: ETP Outlet					
Sample Receiving Date: 28-10-2024		Testing Started: 28-10-2024		Testing Ended: 01-11-2024	

---Test Result---

Sl. No.	Tested Parameters	Unit	Method No.	Norms**	Results
5.	Oil & Grease	mg/l	IS 3025 (Part-39)	--	BDL (MDL - 4.0)

---End of Report---

Env. Condition of Lab.	Laboratory is maintaining Temperature $27 \pm 2^\circ\text{C}$ and Relative Humidity $65 \pm 5\%$ in all testing area as per IS 196:1966(C).
Abbreviation	MDL: Minimum Detection Limit, BDL: Below Detection Limit
Norms** is Specified	--
Remark	--

Tested By: Mahendranath Mahto

Sample Drawn By: Customer

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6. In case of feedback/ complaints, please send an email at gm_iemco@gmail.com

On the basis of Quality Checked and Technical data verified by the Authorized signatory, the report is issued by the Director of the Organization.

Reviewed by: Authorized Signatory

T. Ahmed
(Tauqeer Ahmed)
Technical Manager Ranchi

Dr. S. C. Jain
Director

Page 2 of 2 Corporate office - A-8, Modi Heights, Opp.-All India Radio Station, Ratu Road, Ranchi, Jharkhand - 834001

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Ph - 8407804253, 8407804251, Email - iem2012@rediffmail.com

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



STEEL AUTHORITY OF INDIA LTD.
[A Govt. of India Enterprises]
Regd. Office: Ispat Bhawan
Lodhi Road
New Delhi

JHARKHAND GROUP OF MINES, BSL
CONTRACT CELL
P.O: Gua, Dist: West Singhbhum
Jharkhand, 833213
E-Mail: contractcellgua1@gmail.com
GST No: 20AAACS7062FAZJ
Date: 20/11/2024

Ref No: GOM/CC/24-25/WO/116

WORK ORDER

To,
M/s S R Logistics
At/ P.O Gua
Dist: West Singhbhum, Jharkhand: 833213
Bank Account No: 33209683600, SBI, GUA MINES
GST No: 20ABOFS1815N1ZO

Name of Work: De-Siltation of silted material including Excavation, Loading and Transport from dam No5 till RCC check dam at Zero Point Nalla including sedimentation ponds, upstream (u/s) side of Gojapahar Nalla Check Dam, (u/s) side of DB Nallah Check Dam Along with preparation of drains near Upper Dhaura of Gua Ore Mines.

Ref No:
i) NIT No: GOM/CC/24 -25/LTE/052 Date 05/08/2024
ii) Offer received and opened on dtd: 12/09/2024
iii) LOA No: GOM/CC/24-25/LOA/583 Date: 30/09/2024

Dear Sir,

With reference to our aforesaid LOA the Initial Security Deposit (ISD) of Rs. 53,795/- deposited vide Account transfer (voucher no R2800420 dtd 18/11/24). The company is pleased to accept your aforesaid tender for the above work and award the WO (Work Order) on same terms and conditions and rate after negotiation of the tender document and scope of work cum price schedule annexed herewith as Annexure-I subject the following:

- | | |
|--|---|
| 1. <u>Work Order Value (Excl. GST)s</u> | Rs 17,93,168/- (Rupees Seventeen Lakh Ninety Three Thousand One Hundred Sixty Eight Only) |
| 2. <u>Period of Contract</u> | 04 (four) month |
| 3. <u>Date of Commencement</u> | 10 (ten) days from the date of issue of work order or actual date of commencement of work, which ever is earlier. |
| 4. <u>Paying Authority</u> | Head of Finance, Gua Ore Mines |
| 5. <u>Inspecting Authority</u> | Dr. T C Ananda, DGM (Geo)& E&L, Gua Ore Mines |
| 6. <u>Executing Authority</u> | Sri. R K Nandkeolyar, AGM (Mining), Gua Ore Mines |
7. You are requested to acknowledge the receipt of the work order within 07 (seven) days of issued order duly signed in its duplicate copy as a token of your acceptance and you shall mobilize your resources to start the work on receipt of the W.O.
 8. The SAIL- BSL, Gua Ore Mines reserve the right to withdraw the work order and terminate the contract at or without giving any reason what-so-ever.
 9. You shall have to furnish GST registration no and has to clearly show the amount of GST separately in the Tax Invoice raised by you.
 10. All other Terms & Conditions as laid down in our above referred NIT will remain the same and accepted copy of SCC is enclosed herewith.

Thanking You,


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines
Page 1 of 4


GM (CC), GOM

SCOPE OF WORK CUM PRICE SCHEDULE

1. **SCOPE OF WORK:** De-Siltation of silted material including Excavation, Loading and Transport from dam No5 till RCC check dam at Zero Point Nalla including sedimentation ponds, upstream (u/s) side of Gojapahar Nalla Check Dam, (u/s) side of DB Nallah Check Dam Along with preparation of drains near Upper Dhaura of Gua Ore Mines.

- a) Excavation of 38480 Cubic Meter iron ore/silt from from Dam No. 5, sedimentation pond from Dam No.5 till RCC check Dam at Zero Point Nalla, upstream (u/s) side of Gojapahar Nalla Check Dam, u/s side DB nallah check dam and drain at Upper Dhaura area of Gua Ore Mines. The details of excavation is given below:

Location	De-siltation Measurement			De-siltation Volume (m ³)
	Length (m)	Width (m)	Depth (m)	
Dam No.5	110	45	2.5	12375
	95	50	2.5	11875
Sedimentation pit	30	30	2	1800
Up stream of Gojapahar Nalla check dam	20	40	2.5	2000
	20	40	2.5	2000
Preparation of drains near upper dhaura	500	2	1.5	1500
Up stream side of DB Nalla Check dam	77	30	3	6930
Total Volume (cum)				38480

- b) Loading of 26936 Cubic Meter excavated iron ore/silt by Crawler Mounted Hydraulic Excavator with Min. 1.2 Cu.M. bucket capacity to Hyva Tipper for disposal at location as per instruction of executing/ inspecting authority.
- c) 11544 Cu.M. remaining material shall be handled with Crawler Mounted Hydraulic Excavator for construction of berms and related jobs as per instruction of executing/ inspecting authority.
- d) Transportation of 26936 Cubic Meter iron ore/silt by at least two (02) nos. Hyva/tippers with Minimum 10 Cu.M. carrying capacity to location as per instruction of executing/ inspecting authority with an average lead distance of 1.0 km (to and fro).
- e) Unloading of the said de-silted 26936 Cubic Meter iron ore/silt to location as per instruction of executing/ inspecting authority.
- f) Contractor shall deploy the required nos. of manpower (operator, helper/ spotter and supervisor) and machineries to complete the job within the contract period.

2. **INURANCE**

The successful contractor should submit a copy of valid Insurance certificate to the executing/Inspecting Authority for all engaged persons for the whole contract period and should be submitted from the date of commencement of the job.

3. **PRICE VARIATION IN RESPECT TO LABOUR & DESIEL COMPONENT**

The contract rate shall not be subjected to any variation except for labour and diesel component of rate quoted. However, the same will be applied on account of increase or decrease in the applicable rate of minimum wages as per Minimum wages act notified by the Govt. of India or State Govt. of Jharkhand, whichever is higher and market price of diesel at Gua. The rate calculation will be as per the following formulae:

A. LABOUR


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



सेल SAIL

$$CL = \frac{VL}{100} \times R_B \times \frac{W - WB}{WB}$$

Where: V_L = Amount for adjustment in rate for activities under scope of work.

R_B = Contract rate as on base date for activities under scope of work.

W = Revised prevailing wage rate (as per Minimum Wages Act as notified by the Govt.)

for Skilled labour under scope of work.

W_B = Wage rate (as per Minimum Wages Act as notified by the Govt.) on base date for

Skilled labour under scope of work.

C_L = Labour component as mentioned in table under para „C“ below will be applicable separately for scope of work.

The applicable minimum wages as per Minimum Wages Act as notified by the Govt. of India or State Govt of Jharkhand (whichever is higher) for Skilled labourers shall be considered for calculation of rate adjustment. Govt. means Central Govt. of India or State Govt of Jharkhand.

B. DIESEL

$$VD = \frac{DL}{100} \times RB \times \frac{D - DB}{DB}$$

Where: V_D = Amount for adjustment in rate for activities under scope of work.

R_B = Contract rate as on base date for activities under scope of work.

D = Revised prevailing market price of diesel at Gua.

DB = Diesel price on base date at Gua.

D_L = Diesel component (%) as mentioned in table under para „C“ below will be applicable separately for scope of work.


Base date for price variation for Labour & Diesel will be taken as the date of Tender Notice and any escalation/de-escalation on account of labour and diesel will be applicable after this Base date. However, price escalation/de-escalation w.r.t diesel will be calculated once in every month based on diesel price of 1st day of that month and same rate will be applicable for the entire month.

For extension of contract period when granted shall be subject to the condition as under:

“In case the period of contract is extended for execution of the unexecuted quantity, no increase in contract rate on account of diesel & labour will be allowed during the extended period if the reasons for delay in execution are attributable to the contractor. The rates as prevailing on the last day of scheduled contract period will be applicable for execution of unexecuted quantity during the extended period. De-escalations / reductions, if any, which takes place during the extended period, shall have to be passed on to SAIL. Increase/fresh imposition of taxes and duties during the extended period will be to the account of the contractor. Any decrease in taxes and duties during the extended period will be availed of.”

4. PAYMENT TERMS

- There is provision for payment of monthly Running Account (R/A) Bills against Completed Quantities. Monthly RA Bills will be indicating the weighment quantity duly certified by the Executing/ Inspecting authority. Payment against R.A. Bill shall be made to the contractor on submission of R.A. bill with requisite documents.
- 100% payment against bill shall be made to the contractor on submission of Final bills along with requisite documents within 60 days on certification of the Inspecting/Executing Authority.
- The contractor shall disburse statutory payments including PF to his workmen and should obtain Contract Labour Clearance certificate from Personnel dep't for release of payments against bill.

 Page 3 of 4

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines



सेल SAIL


- d) 3% ISD amount shall be released after maintenance/Defect liability period duly certify by Inspecting/Executing Authority.
- e) All taxes & other statutory deduction, if any will be made as per rules.

5. Please contract our Inspecting/ Executing authority and start the work as per his direction.

6. SCOPE OF WORK CUM QUOTED RATE

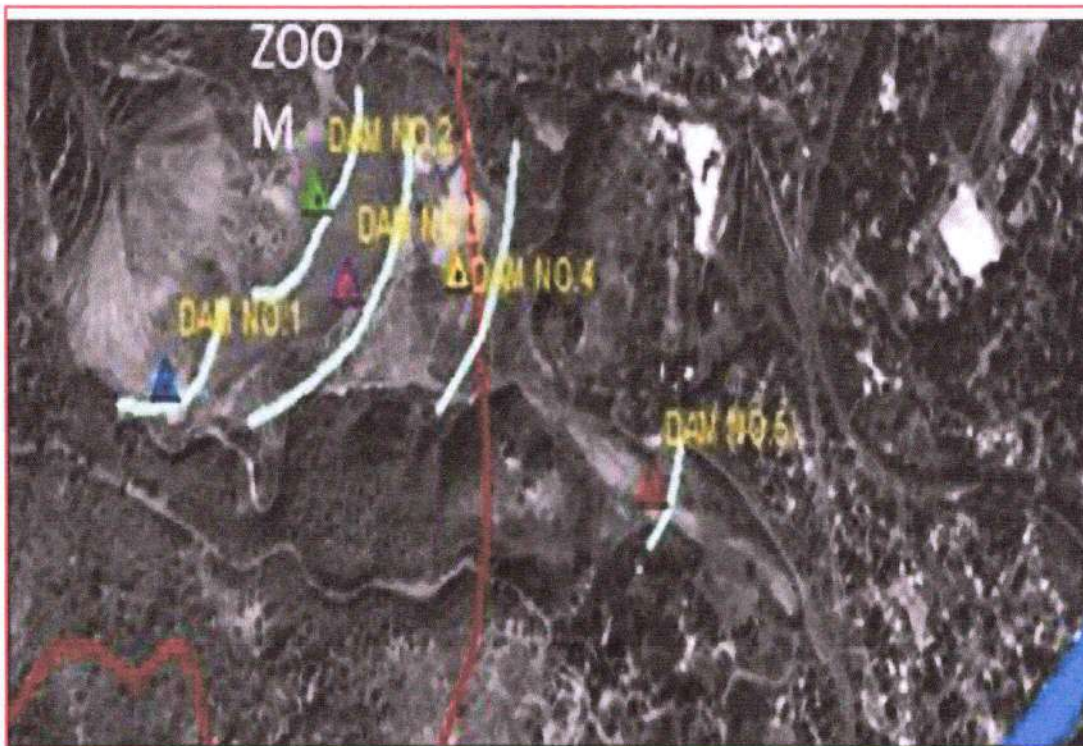
Sl. No.	Description	Unit	Qty	Rate(Rs)	Amount (in Rs)
1	Excavation and loading of Waste by Excavator (1.2 cum bucket capacity or equivalent)	Cu.m	38480	34.00	1308320.00
2	Transportation of excavated silt to DBC substation or nearby surrounding area (Lead Distance 0.5 km (1.0 km To & Fro).	Cu.m	26936	18.00	484848.00
TOTAL VALUE IN Rs					1793168.00
Rupees Seventeen Lakh Ninety Three Thousand One Hundred Sixty Eight Only					

With Regards
For SAIL-BSL, Gua Ore Mines


22/11/24
GM (CC), GOM

CC: GM (F&A)/GM(Mines)/ DGM (Geo)- with a copy of NIT
AGM(Min) - Date of commencement should be intimated to the office of U/s


General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

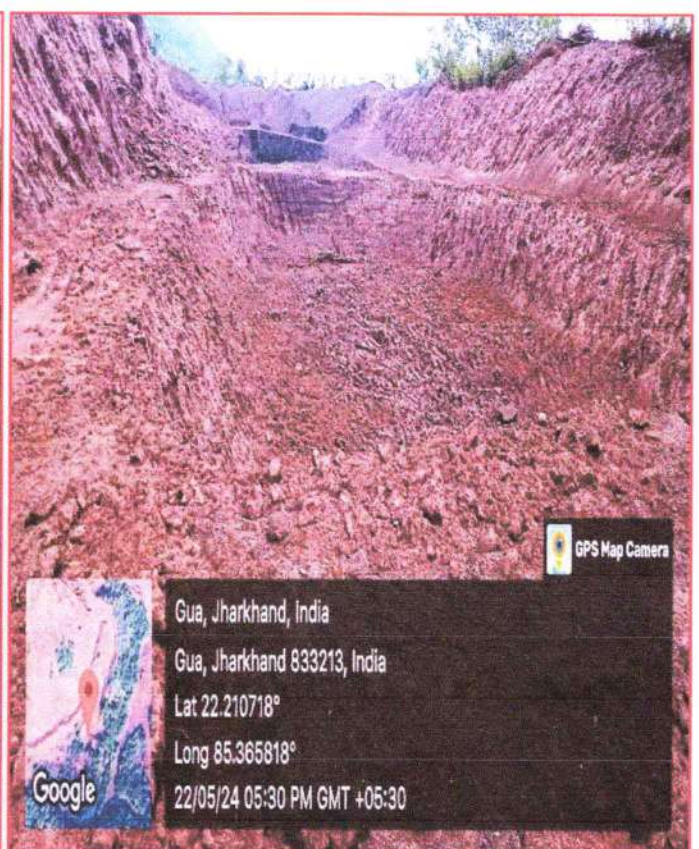
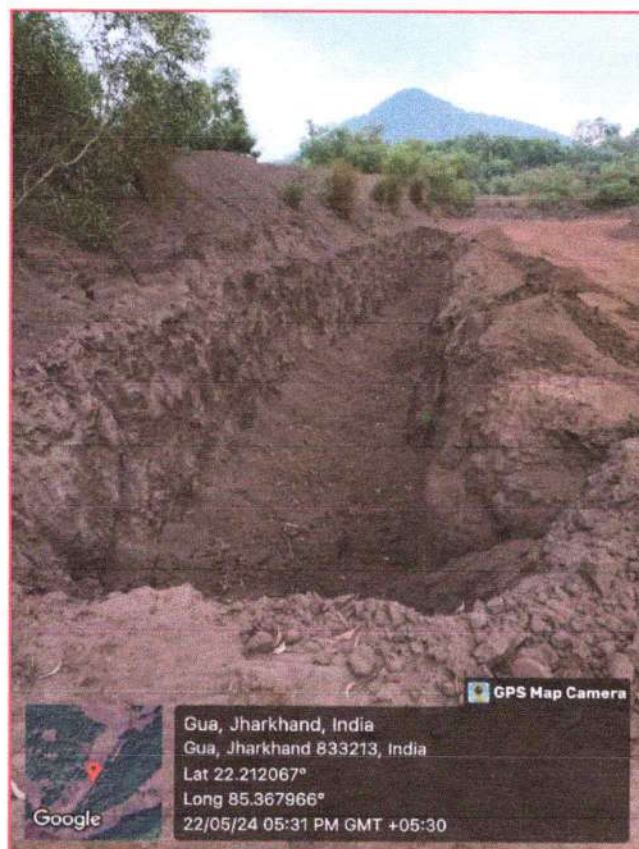
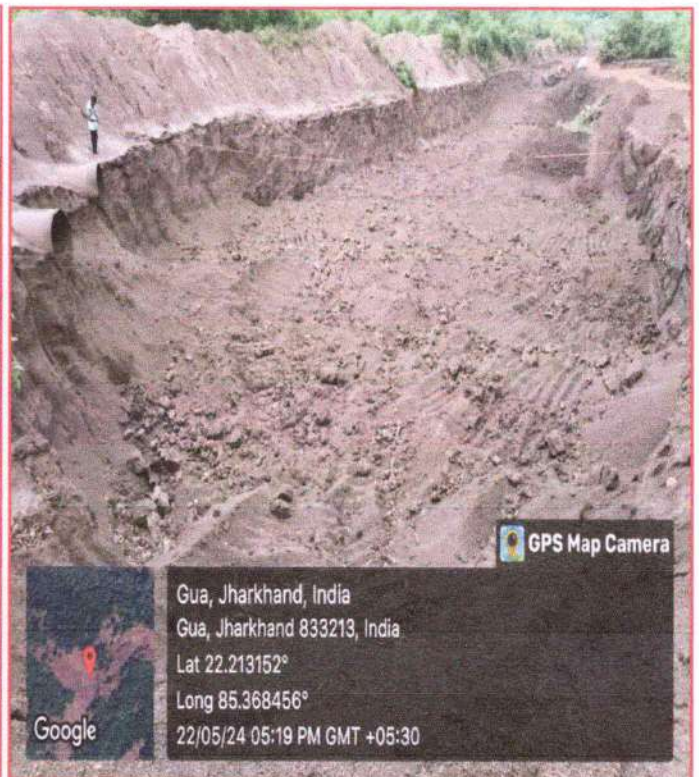
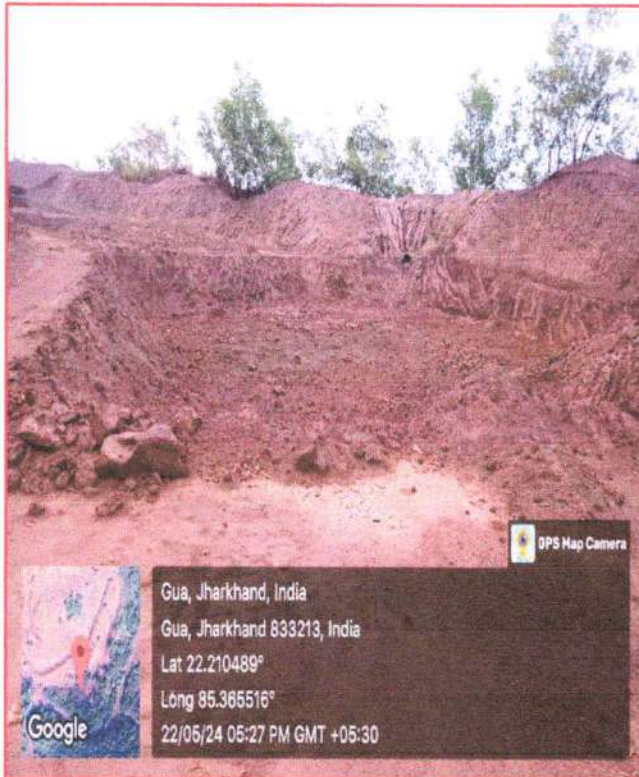
Annexure-14Photographs showing Measures undertaken for Steps to control flow of fines in to the river stream

Photograph 1: Google Earth Image of Check Dams and Sediment Traps constructed for control fines



Photograph 2: Check Dams and Settling Pits / Sediment Traps constructed to control flow of fines

A handwritten signature in blue ink, likely of the General Manager (Mines) & E&I, SAIL-BSL, Gua Ore Mines.



Photographs 3: Settling Pits / Sediment Traps constructed between Dam 1, 2 and 3 to control flow of fines

[Handwritten Signature]

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photographs showing Vetivergrass Plantation on the slopes of Sedimentation Traps**Photograph: Vetiver Plantation to bind the Soil at Slope of Sedimentation Traps**