

State Level Environment Impact Assessment Authority, Jharkhand

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Letter No.- EC/SEIAA/2018-19/2095/2018/597

Ranchi, Date : 26.10.19

To: Sri B. K. Jha
Assistant Vice President (BD)
M/s Rungta Mines Ltd,
Rungta House, Chaibasa,
District – West Singhbhum,
Jharkhand – 833201.

Sub: Environmental Clearance for the project “Parasi Gold Deposit and Beneficiation Plant of M/s Rungta Mines Ltd, Vill. : Parasi, Kothadih, Kutachauli, Tehsil : Tamar, Dist. : Ranchi, Jharkhand (75.273 Ha)”. (Proposal No. SIA/JH/MIN/42166/2018)

Ref: Your application no. 220, dated 23.09.2019.

Sir,

It is in reference to “Parasi Gold Deposit and Beneficiation Plant of M/s Rungta Mines Ltd, Vill. : Parasi, Kothadih, Kutachauli, Tehsil : Tamar, Dist. : Ranchi, Jharkhand (75.273 Ha)” submitted by you for seeking prior Environmental Clearances (EC).

The mine lease is located in Parasi, Kothadih, Kutachauli, Tehsil : Tamar, Dist. : Ranchi. As per Form I they have mentioned a Peak rated capacity of Ore 60006.18 TPA, Beneficiation Plant 200 TPD.

Salient features of the project :

Project name	Parasi Gold Deposit and Beneficiation Plant
Total ML Area	75.273 Ha (186 acres)
Coordinates of the mine	22°59'14.013" to 22°59'43.902" N 85°42'47.251" to 85°43'49.223" E
Elevation of site	Lowest : 240 m RL, Highest : 271.89 mRL
Mineral	Gold ore
Reserves & Resources	111 category- 4.59 million tonnes @1.01 gm/t Au 222 category- 5.09 million tonnes @1.09 gm/t Au 221 category- 0.26 million tonnes @ 1.01 gm/t Au Total – 9.94 million tonnes @ 1.051 gm/t Au
Rated capacity	60,006.18 TPA

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Beneficiation plant	200 TPD
Gold recoverable	188 gm/day
Life of the mine	50 years
Overall Stripping ratio	1: 4.44 (Tonne of ore/m ³ of O.B.)
Overburden	12.8 Mcum & 86,277 Cum intercalated waste
Method of Mining	Fully Mechanized Open-cast
Drilling	By Wagon/ percussion Drill Machine of 150 mm
Blasting	Using Class II explosives
Working days	300 per annum
Manpower	109
Water requirement	461 KLD (drinking - 5 KLD, industrial- 456 KLD)
Source of water	(i) Mine seepage + Karkari nadi /or Kanchi Nadi (ii) Bore wells for drinking purpose (iii) Recycled water from tailing pond
Intersection with water table	About 1.07 m bgl during post monsoon About 5.26 m bgl during pre monsoon
Power requirement	2 MW , Sourced from JSEB
Expected cost of the project	Rs. 13.63 cr.
R&R	Not applicable as no any habitation is present within the ML area. 66 land looser have been identified who will be compensated.
Present Land Use	Forest Land - 11.959 ha (4.407 Ha notified P.F. + 7.552 Ha Jangal-Jhadi) Road - 0.240 Ha Wasteland - 12.958 ha Agricultural Land - 45.872 ha Others - 4.244 ha . (All plots certified by DFO Khunti Department of Forest, Environment and Climate Change, Govt. of Jharkhand vide letter no. 292 (ii) dated 06.06.2018)
Features within 500 m of project	Habitation - Villages Kothadih, Parasi & Kutachauli Dam/ Reservoir - Rainwater checkdam School- Kutachauli School River- Nil Hospital/ PHC - Nil Monument – Nil

	(Certified by CO Tamar vide letter no 95(ii) dated 05.02.2019)
WLS/ NP / ESZ/ Biodiversity area in 10 km radius	Nil (Certified by Divisional Forest Officer(DFO), Khunti Forest Division, Department of Forest, Environment and Climate Change, Govt. of Jharkhand vide letter no. 1669 dated 15.06.2019)

The salient features of the tailing pond and sump is as follow :

Tailing pond	
Area of tailing pond	1 ha
Dimensions	159 m x 64 m
Operational technology	The slurry tailing pond will be divided into two equal chambers of 79.5 m x 64 m. The slurry tailing will be drained / pumped into the 1 st chamber of the tailing pond, where after settling down of the solids, the water will be decanted and drained into the tail water sump and settled solid cake will be hauled to the 2 nd chamber for drying. The dried tailing will then be shifted to the tailing dump.
Location	North west corner of central block
Elevation	248 m (NW corner) – 253 m (SE corner)
Depth	5.5 m below ground level
Freeboard	0.5 m
Type of embankment	No embankment as pond will be dug below ground level. The side slopes will be linked with impervious lining and protected by pitching.
Type of lining	Impervious, concrete with overlain clay or hybrid with HDPE.
Capacity	<ul style="list-style-type: none"> • 1 year, without shifting dried tailing to the tailing • Dump • Life long, with simultaneous shifting of dried tailing to the tailing dump.
Wet tailing generation	600.7 TPD
Water recovery & recycling	200 TPD (or 200 KLD)
Water loss with material	Approx. 30 KLD
Water loss in evaporation	Approx. 170 KLD
Tailing by dry weight	220.7
Sump	

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Area of tailing pond	0.31 ha
Dimensions	95.8 m x 35.5 m
Elevation	249-253 m
Depth	5 m

The Director of Mines, Deptt. of Industries, Mines & Geology, Govt. of Jharkhand has issued Letter of Intent for the grant of mining lease on 03.01.2018 vide letter no. Kha.Ni (Ranchi/Gold)-18/2016/15M and subsequent clarification vide letter no. 1770, dated 09.07.18 & letter no. Kha.Ni (Ranchi/Gold)-18/2016/2221M/Ranchi, dated 27.08.2018 for 75.273 ha and 50 years.

M/s Rungta Mines Ltd has obtained approval of Mining Plan along with Progressive Mine Closure Plan in respect of Parasi Gold deposit over an area of 75.273 ha vide approval letter no. RAN/RNC/Gold/MP-14/2018-19, dated 28.11.2018.

The CO, Tamar, Ranchi vide letter no. 95 (ii), dated - 05.02.19 has mentioned that the khata no. 247 & 280, plot no. 1037, 830, 835, 836, 838, 840, 843, 847 & 1023 of proposed site are recorded as Jangal Jhari & Jangal Paras in R.S Khatiyani. Besides, CO has certified that human habitation, Kuta Chawali School and Seasonal check dam lie within 500 m from the said project site. Moreover, size, population and proximity of habitation likely to be affected, proximity of school & no. of students likely to be affected, as well as location (whether in upstream & downstream), size & submergence area etc.

The DFO, Khunti vide letter no. 2502, dated 14.12.2018 has mentioned that out of the proposed area 10.89 acre and 18.66 acre respectively are notified forest & Jangal Jhari land. However, the said letter has not enlisted all the proposed plot nos. DFO, Khunti vide letter no. 334, dated 01.02.19 has certified some of the plots of khata no. 280 & 247 are 0 (zero) m from notified forest and said plots are not within 10 km of National Park / Sanctuary / Biodiversity and ESZ.

It is further submitted that total mining lease area is 75.273 ha out of which 11.959 ha is forest land including the above mentioned Jangal-Jhari (i.e 4.407 ha notified forest + 7.552 ha Jangal-Jhari forest land). Application for Forest Clearance over an area of 11.959 ha has been submitted vide online proposal no. FP/JH/MIN/37423/2018 seeking prior approval of Central Govt. under Forest (Conservation) Act, 1980.

Total water requirement for mining and beneficiation plant and its allied activities is estimated as 461 KLD which includes 456 KLD industrial water and 5 KLD potable water. Potable water shall be sourced from bore well and industrial / other purpose will be met from mine seepage and Karkari nadi (3.2 km) and / or Kanchi Nadi (17.5 km). Water will be sourced depending upon the permission granted by the competent authorities of the State Govt.

2 MW power will be required for beneficiation as well as allied activities and will be sourced from Jharkhand State Electricity Board. Stand by DG set will also be provided in case of emergency. Diesel will be used in DG set, trucks, dumpers, mining machinery, etc.

Identification of Gold in prospect area and exploration Parasi was carried out by GSI and subsequently by Mineral Exploration Corporation Ltd (MECL). It is estimated that a reserve of 9.94 million tonnes of ore at 1.051 gram / tonnes Au is available. Exploration in Parasi Gold Deposit is almost complete and is of G-1 level upto 155 m RL. It will be an opencast mechanized mining. Mineralization is open down the dip direction. Shear hosted hydrothermal gold deposits are generally deep seated so there is a possibility of extending the deposit below 155 m RL.



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The beneficiation & processing of the ROM is planned based on the Beneficiation Studies carried out by Regional ore dressing laboratory, Bangalore of Indian Bureau of Mines (IBM) on Gold ore samples from Parasi Gold Deposit.

PP & the consultant presented the point wise replies of the ToR conditions. This includes issues in the mining technology to be adopted, process of beneficiation and Gold recovery which is 0.188 gm / day from 200 tons gold ROM. Further the tailing management, cyanidation, arsenite & FES containment, spill over from the tailing pond & on site & off site emergency plan was thoroughly discussed. Regarding the hazon & hazop study PP explain that this study has been undertaken by Chemical Engg. Deptt. of IIT, Kharagpur & the concerned expert explained the details in the meeting. The risk analysis, life cycle studies, health & safety issues, leaching behavior & management plan, status of base line environmental parameters and modelling studies, vegetation and wildlife management plan and status of FC were discussed. The issues of public herein, financial estimates of CER and environmental management were explained.

In this regard an apprehension of slope stability of dump was raised, in which PP replied that a detail theoretical studies related to mines safety, slope stability and blasting technique have been prepared by Deptt. of Mining Engg. IIT, Kharagpur. Wherein analysis of data report and proposed safe guard measures have been provided.

SEAC, Chairman further opines that observations made on basis of presentation for ToR compliance may be considered further while granting EC.

1. PP shall follow International Gold Code provisions in implementation of various activities related to mining and Gold beneficiation.
2. PP shall follow OSHA/EPA or any other best International practices standards for gold beneficiation and mining proposal submitted to combat toxic chemicals like cyanide other toxic chemical uses and shall control the beneficiation process to avoid liberation of further harmful gases.
3. Extensive tree plantation equivalent to at least 10 times of existing plants in mining area shall be undertaken to generate oxygen, dust suppression and wind speed breaking purposes with appropriate species, geometry, canopy cover and density in an around mined out area be undertaken.
4. PP may stagger their blasting operation suitable to protect trees as also to plant new trees in mining area where feasible.
5. To meet serious health emergencies, a full fledged first aid centre equipped with sufficient numbers of oxygen cylinders to meet operational emergencies arising from use of toxic chemicals used in process.
6. PP shall establish linkages with all major entities in area capable of providing emergency supports.
7. All visitors and working personal shall be provided with personal protection devices, PP and face mask and all sort of personal safety needs as per the norms of the safety directorate and other concerned safety departments.
8. PP shall engage qualified doctor(s) and establish first aid centre equipped with adequate oxygen cylinders working on 24X7 accessibility basis to meet emergency eventualities.
9. PP shall adhere to requirements of specific ToR conditions and compliance thereof.
10. The project is subject to due diligence and all legal and statutory compliance any breach of conditions and non-conformance of which may lead to cancellation of granted EC.

The proposal was appraised by State Level Expert Appraisal Committee (SEAC) and recommended for grant of Environmental Clearance in its meeting held on 14th, 15th & 16th October, 2019 in the

light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18.

State Level Environment Level Impact Assessment Authority (SEIAA), Jharkhand in its meeting held on 22nd October, 2019 discussed the project proposal along with recommendations made by SEAC and decided to grant EC to the project.

Following the decision of SEIAA, as mentioned above, Environmental Clearance is hereby issued to **"Parasi Gold Deposit and Beneficiation Plant of M/s Rungta Mines Ltd, Vill. : Parasi, Kothadih, Kutachauli, Tehsil : Tamar, Dist. : Ranchi, Jharkhand (75.273 Ha)"** alongwith the following conditions -

A. Specific Conditions:

1. This Environmental Clearance is valid subject to the following condition below –
That this project has-
 - a. Obtained all legal rights to operate at concerned place.
 - b. Complied with all existing concerned laws of the land and
 - c. Complied with the decisions of SEIAA on the issue of Environmental Clearance till date.
2. This EC letter is subject to Hon'ble NGT order dated : 13.09.2018 and MoEF & CC O.M. dated : 12.12.2018.
 - a. Providing for EIA, EMP and therefore public consultation for all areas from 5 to 25 Ha falling under category B-2 at par with category B-1 by SEIAA/SEAC as well as for cluster situation wherever it is not provided.
 - b. Form-1M be made more comprehensive for areas of 0 to 5 Ha by dispensing with the requirement for public consultation to be evaluated by SEAC for recommendation of grant of EC by SEIAA instead of DEIAA/DEAC.
 - c. If a cluster or an individual lease size exceeds 5 ha the EIA/EMP be made applicable in the process of grant of prior Environmental Clearance.
 - d. EIA and /or EMP be prepared for the entire cluster in terms of recommendations 5 (supra) of the guidelines for the purpose of recommendations 6, 7 and 8 thereof.
 - e. Revise the procedure to also incorporate procedure with respect to annual rate of replenishment and time frame for replenishment after mining closure in an area.
 - f. The MoEF & CC to prepare guidelines for calculation of the cost of restitution of damage caused to mined- out areas along with the Net present value of Ecological services forgone because of illegal or unscientific mining.
3. No mining/activity shall be undertake in the forest land or deemed forest without obtaining requisite prior forestry clearance.
4. This Environmental Clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT, MoEF & CC and any other Court of Law, if any, as may be applicable to this project.
5. Environmental clearance is subject to obtaining prior clearance from forestry and Wildlife angle including clearance from standing committee of NBWL, as may be applicable to this project (in case any fauna occurs / is found in the Project area or if the area involves forest land or Wildlife habitat i.e. core zone of elephant/tiger reserve etc. and or located with in 10 km. of protected area).
6. The project proponent may apply simultaneously for forest and NBWL clearance, in order to complete the formalities without undue delay, which till process on their



respective merits, no rights will vest in or accrue to them unless all clearance are obtained.

B. Additional Conditions:

Management of cyanide in mining and beneficiation plant areas for ore extraction & gold production that emerged during presentation for Specific conditions for EC consideration needs critical considerations as per observations detailed below:

1. International Cyanide Management Code for Gold mining and Beneficiation should be put in practice during transportation & Cyanide uses in various mining and gold extraction operations.
2. Cyanide should be strictly controlled at Mining sites and beneficiation / Gold extraction area with utmost precautionary measures to prevent / limit worker's exposure to Cyanide.
3. PP needs to develop detailed program for cyanide monitoring & surveillance which may consists of identification of the concentration of cyanide compound releases and discharges in course of Mining and Gold extraction processes.
4. PP needs to develop detailed Cyanide containment strategy, Program for action and time bound Action program for implementation of program and strategy backed by adequate financial and other resources for the purpose.
5. PP needs to develop & pre-plan site specific mining and beneficiation plant related activities and stagger operations to prevent passage of chemical solutions entering into surface and sub surface water, avoid conditions of Hydro Cyanide gas formation and subsequent exposure of people / species / birds / habitat of animal kingdom, dispersal of Cyanide solids and its dusts either as pure or absorbed and adsorbed toxic compounds from entering the environment.
6. PP shall formulate and implement enhanced response action plan in the event of an exposure or release under any such occurrence of events.

Minimizing the Impact of Arsenate

7. Phytoremediation or any other cost-effective and environment-friendly Technology for clean – up of Contaminated soils as Sustainable Option for the minimization impacts of arsenate suspected area and other trace metal entering the eco system shall be put in place in time bound manner..
8. At As-polluted sites, suitable plants and other species be planted in sufficient nos., density and of various configurations so that toxic decontamination and containments efforts are controlled, measured and monitored.

Cyanide, Arsenate & Hazardous Chemicals Monitoring and Surveillance

1. Grab sampling plan for Cyanide, Arsenate and other toxic Chemical release at all possible release point and non point spots at Mining and beneficiation plants shall be done using appropriately approved instruments and findings shall be recorded and reported on six monthly basis to RO MOEFCC and SPCB.
2. Monitoring of pH on regular basis and of Oxygen on mining site shall be done as part of accident prevention strategy to avert generation of release of Hydrogen Cyanide gas and its spread. pH papers based work site measurement backed by approved instruments measuring strategy may need to be considered.
3. All accidents reports shall be immediately reported to concerned authorities.



4. Regular Air Quality monitoring shall be conducted as per National Air Quality norms.

Water Management Plan

9. PP shall make all possible endeavours and effectively manage Water uses plan to protect water bodies from Cyanide contamination of water bodies – Surface or sub-surface water using containment and treatment of cyanide and recycling of Tailing Water releases and discharge to bring such releases well within the threshold lowest possible limits of Cyanide releases and discharges that may include:
 - a) Source Contaminant Study
 - b) Site Water Balance, annual Water Audits.
 - c) Review of Water Management System on regular frequency.
 - d) Saline Drainage Prevention and Management Measures.
 - e) Acid Rock Drainage Prevention and Management Measures (if applicable);
 - f) Emergency and Contingency Planning; and
 - g) Monitoring and Review.
 - h) Water budgeting and Annual Water Audit Program shall be undertaken by the project implementation authorities.

Preventive measures to decrease the risk


10. a) To prevent leaching, ground should be properly prepared to ensure that no water should percolate to the underground. Base area of the Tailing pond should be built and covered with impermeable lining material. Proper maintenance should be in place for the environmental control.
- b) Environment Management Plan for leaching in the natural environment arising out of contact of ore and beneficiation products needs to be planned and implemented to detect slow release of gaseous hydrogen Cyanide. A pH measurement based monitoring and control program needs to be developed and adopted to prevent formation of gaseous Hydrogen Cyanide.

PILOT PLANT & OTHER STUDIES:

1. PP needs to intensify Pilot Plant Studies for Bio leaching process study and its commercial application program within their would be ongoing activities used in gold mining and extraction program subject to financial viability considering time of extraction, gold yield and other issues of consideration while publishing the results.
2. In nature, cyanide is present naturally in plants, bamboo shoots, apricots, etc. and does not bio accumulate and a non lethal dose is metabolized in the body but can be acutely toxic to humans, other mammals and aquatic species, as it interferes with oxygen utilization. PP may initiate appropriate study correlating Toxicity and Oxygen supply.
3. Environmental pollution from gold mines, largely associated with the release of harmful elements from the tailings and other mine wastes, results in infiltration of water through tailings piles and ponds, surface and underground workings, waste and development rock leading to leaching of large volumes of metals like Zn^{2+} , Ni^{2+} , Pb^{2+} , As^{2+} , Cu^{2+} and sulphate ions into stream and river ecosystems and needs effective solid waste management plan for containment.
11. PP shall comply with provisions of Hazardous Waste Storage & disposal guidelines in existence and shall follow MOEFCC notification for manufacture, storage & import of Hazardous Chemical Rules, 1989 with subsequent amendments.



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12. The observation and additional conditions recommended shall be subject to due diligence of statutory and regulations.

C. Standard EC Conditions for Mining

I. The EC is subject to obtaining the following clearance and statutory compliance:

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area)
- iv. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- v. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
- vi. The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time

II. Air quality monitoring and preservation:

- i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
- ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986.
- iii. The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM₁₀ and PM_{2.5} in reference to PM emission, and SO₂ and NO_x in reference to SO₂ and NO_x emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions. (case to case basis small plants: Manual; Large plants: Continuous)
- iv. The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC,



Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.

- v. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
- vi. The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
- vii. Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
- viii. Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

III. Water quality monitoring and preservation:

- i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous)
- ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
- iii. The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- iv. The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
- v. Adhere to 'Zero Liquid Discharge'.
- vi. Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
- vii. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
- viii. The project proponent shall practice rainwater harvesting to maximum possible extent.
- ix. The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

IV. Noise monitoring and prevention:

- i. Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
- ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

V. Energy Conservation measures:



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- i. Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
- ii. Provide LED lights in their offices and residential areas.

VI. Waste management:

- i. The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Trans boundary Movement) Rules, 2016.
- ii. Kitchen waste shall be composted or converted to biogas for further use. *(to be decided on case to case basis depending on type and size of plant)*

VII. Green Belt and EMP:

- i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.
- ii. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the program for reduction of the same including carbon sequestration including plantation.

VIII. Public hearing and Human health issues:

- i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
- iii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- iv. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

IX. Corporate Environment Responsibility:

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF & CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly report to the head of the organization.

- a. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- iv. Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- v. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.

X. Miscellaneous:

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectorial parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
 - a. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
 - b. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

- viii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF & CC).
- ix. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- x. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xi. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xii. The Regional Office of this Ministry 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.
- xiii. The Environmental Clearance accorded will be valid for the period of lease of the mine, till the PP does not increase production rate and alter lease area during the validity of Environmental Clearance.
- xiv. The above conditions shall 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, Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act.

XI. Specific Condition:

- i. Implementation of the site specific species conservation plan for Schedule species in the core & buffer zone may be ensured.
- ii. The Project shall follow the International Cyanide Management Code CICMC) for the Manufacture, Transport, and Use of Cyanide in the Production of Gold for Safe-guards for handling of cyanide. Regular Training to workers for handling of cyanide should be arranged.
- iii. Names of trained personal should be displayed who will be involved in the rescue operation during handling of such chemicals. Monitoring of the management of Cyanide on a regular basis by the Regional Office, MoEF will be done.
- iv. Monitoring of PH shall be done by piezoelectric system as per International Cyanide Management Code. There shall not be any cyanide contamination during beneficiation process.
- v. No effluent shall be discharged outside the mine lease area.
- vi. Continuous monitoring of radioactive elements such as Radon (Rn) shall be undertaken till entire mine is dewatered and reported to MoEF Regional Office. Periodic monitoring of radon exhalation of worker shall be included in the Occupational Health Monitoring programme.

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- vii. Implementation of Environment Management Policy of the Company w.r.t. judicious use of Mineral resources for growth & development synchronizing' mining & environment with prosperity shall be ensured.
- viii. The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUCC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Water sprinkling should be Increased at loading and unloading points & transfer point to reduce fugitive emissions.
- ix. There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis in consultation with Regional Director, Central Groundwater Board with effective implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.
- x. Monitoring of Ambient Air Quality will be carried out as per NAAQ Notification, as amended from time to time by the Central Pollution Control Board.
- xi. For upliftment of scheduled caste/scheduled tribe population, specific programmes shall be implemented specially with respect to education, health care, livelihood generation, infrastructure development & promotion of sports & culture for SC/ST population and that these will be intensified in.
- xii. The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.
- xiii. The top soil, if any, 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. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not exceed 8m and width 20 m and overall slope of the dumps shall be maintained to 45°. The OB dumps should 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. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
- xiv. Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the 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 monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into the 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.



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- xv. Dimension of the retaining wall at the toe of over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.
- xvi. 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.
- xvii. Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment and Forests, its Regional Office, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
- xviii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year - pre- monsoon (April-May monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment and Forests and Its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board.
- xix. 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. Drills shall either be operated with dust extractors or equipped with water injection system.
- xx. 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.
- xxi. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary fund allocation for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office.
- xxii. 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.
- xxiii. The proponent shall complete all the tasks as per the action plan submitted with the budgetary provisions during the public hearing, as per schedule.
- xxiv. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forests and Climate Change 5 years in advance of final mine closure for approval.



XII. General Conditions:

- i. No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forests and Climate Change.
- ii. No change in the calendar plan including excavation, quantum of mineral gold ore and waste should be made.
- iii. Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO₂ & 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.
- iv. Data on ambient air quality (PM10, PM2.5, SO₂ & NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- v. The critical parameters such as PM10 (size less than 10 micro meter), PM2.5 (size less than 2.5 micro meter), SO_x 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 [(TDS, DO, pH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain.
- vi. Fugitive dust emissions from all the sources should be controlled and monitored regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- vii. 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.
- viii. Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, reclaimed areal around water body, along the 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. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.
- ix. Industrial waste water (workshop and waste water from the mine) should be properly collected and 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.
- x. 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.
- xi. 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.
- xii. A separate environmental management cell with qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- xiii. The funds earmarked for environmental protection measures shall be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office.

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- xiv. The project authorities should inform to the Regional regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- xv. The Regional Office of this Ministry 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.
- xvi. The project proponent shall upload six monthly report on the status of the implementation of the stipulated environmental safeguards at the website of the company regularly.
- xvii. The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest & Climate Change, its regional office & State Pollution Control Board.
- xviii. A copy of clearance letter will be marked to concerned Panchayat / local NGO, If any, from whom suggestion / representation has been received while processing the proposal.
- xix. State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.
- xx. The project authorities should advertise at least in two local newspapers 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, Forests and Climate Change at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.
- xxi. **Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.**
- xxii. **It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.), Ranchi/SEIAA/CPCB.**
- xxiii. **The SEIAA, Jharkhand or any other competent Authority may alter modify the above conditions or stipulate any further condition in the interest of Environment Protection.**

XIII. Other Conditions:

- i. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- ii. Concealing factual data or submission of false/fabricated data and 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.
- iii. 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 / NGT, High Court of Jharkhand and any other Court of Law relating to the subject matter.


Sd/-
Member Secretary
State Level Environment Impact
Assessment Authority, Jharkhand.

Memo No.- EC/SEIAA/2018-19/2095/2018/ 597

Dated : 26.10.19

Copy to:

1. Additional Chief Secretary, Department of Forests, Environment & Climate Change, Govt. of Jharkhand.
2. Deputy Commissioner, District - Khunti, Jharkhand.
3. Divisional Forest Officer, Khunti Forest Division, Khunti, Jharkhand.
4. Divisional Forest Officer, Wildlife Division, Ranchi, Jharkhand.
5. Director IA Division, Monitoring Cell, MoEF and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, Aliganj, New Delhi – 110003.
6. Ministry of Environment, Forest and Climate Change, Regional Office, Bunglow No. A-2, Shyamli Colony, Ranchi – 834002.
7. District Mining Officer, Khunti, Jharkhand.
8. Member Secretary, Jharkhand State Pollution Control Board, Ranchi.
9. Member Secretary, Jharkhand State Expert Appraisal Committee, Ranchi.
10. Website.
11. Guard file.


Member Secretary
State Level Environment Impact
Assessment Authority, Jharkhand
