

MINING PLAN

(Submitted under Rule 16(1) of MCR 2016)

&

PROGRESSIVE MINE CLOSURE PLAN

(Submitted under Rule 23 of MCDR 2017)

For

PARASI GOLD DEPOSIT

Period of Lease: 50 Years from the date of Grant/ Execution
of Mining Lease

For Applied area - 75.273 Ha.

Village	Private Land (Ha)	Government Non-Forest Land (Ha)	Forest Land (Ha)			Total Area (Ha)
			P.F.	R.F.	Unclassified (Notified/ Jungle Jhari)	
Parasi	32.096	8.466	-	-	11.959	52.521
Kothadih	9.466	6.726	-	-	-	16.192
Kutachauli	4.609	1.951	-	-	-	6.560
Total	46.171	17.143	-	-	11.959	75.273

Category of Mining : 'A' Category, Fully Mechanised,
At Parasi Village, Tamar Taluk, Ranchi District, Jharkhand.
OF

M/S RUNGTA MINES LIMITED

Rungta House, Sadar Bazar, Chaibasa-833 201,

Singbhum West District, Jharkhand

Mobile : +91 95725 25361; Fax: +91 6582-257521;

E-mail: rmlbd@rungtamines.com

Prepared by

DR. S. K. MYAGERI

M.Sc., (Appl. Geol.), Ph.D., F.G.S., M.E.A.I.

Consulting Geologist & Qualified Person

"Sri Mata" Shivanand Nagar, Kalasapur Road, Gadag - 582 103, Karnataka

Mobile: +91-94481-35768; Tele-Fax: +91-8372-235768

e-mail: skmyageri@gmail.com



अनुमोदित
APPROVED

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Parasi	32.896	8.466	-	-	11.959	52.521
Kothadih	9.464	6.726	-	-	-	16.192
Kutachauli	6.609	1.951	-	-	-	8.560
Total	46.171	17.143	-	-	11.959	75.273

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e-mail: skmyageri@gmail.com

28/11/2018
 संकेत प्राप्त किया
 रक्तवाण्डा जिलाधिकारी के निवास
 प. रीतिका बजार पुरा
 जिला कार्यालय, राँची जिला

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

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Dr. S. K. Myagari
 Qualified Person

"Gold is where you find it" so the saying goes, and the gold was first discovered in its natural state in streams all over the world. Over centuries and millennia, gold has become an inseparable part of the Indian Society and fused in to the psyche of the Indian. Having passed through the fire in its process of evolution it is seen as symbol of purity, the seed of Agni, the God of fire. Perhaps this is why it is a must at every religious functions of India. The insatiable urge for man's most fascinated of all metals, the gold, has led to ever increasing demand for it in India. Hence, it was felt necessary to look for occurrence of gold in around areas where gold mining has been done in the past. Such an area is Parasi in Tamar Taluk, Ranchi District, Jharkhand.

The field season investigation by GSI during 1999-2001 and 2002-2004 had identified the occurrence of gold mineralization within the ductile shear zone over the strike length of about 2.5km. 12 lodes have been identified with varying thickness of 1.0m to 15.78m over 700m strike length in ENE-WSW trend.

Identification of prospect area and preliminary exploration in Parasi was carried out by GSI in phases and the entire prospect area has been divided into three separate contiguous blocks, viz. Parasi East, Central and West Blocks. Exploration was carried out separately in each block. Subsequently MECL carried out detailed exploration in all the three contiguous blocks separately, keeping the block boundaries same as GSI.

The Parasi (East) block is bounded by: Latitude: N 22° 59' 26.5" - N 22° 59' 43.9" and Longitude: E 85° 43' 27.2" - E 85° 43' 49.2". The Parasi (Central) block is bounded by Latitude N 22° 59' 17.5"-N 22° 59' 41.2" and Longitude E 85° 43' 05.4" - E 85° 43' 31.8", and Parasi (West) block by Latitude : N 22° 59' 14" - N 22° 59' 33" ; Longitude : E 85° 42' 47.2" - E 85° 43' 10".

In the present Mining Plan, Mining operations will be concentrated in the Parasi East Block.

The Seasonal Nala will be proposed for realignment between Parasi (Central) Block and Parasi (West) Block after due permission from competent authorities. After realignment of the Nala, the Central Block of Parasi can also be mined with Parasi (East) Block.

The lease hold area involves 11.959 Ha of Forest land. Necessary Clearance under Forest Conservation Act, 1980 shall be obtained before starting the Mining operations.

In all, GSI has drilled 25 holes with 4025.95 (data is for 13 holes only) meters and MECL has drilled 54 holes with 9525.90 meters in more or less 56m X 50m grid considering GSI holes in between with a total of 13551.85 meters.

Dr. S. K. Myageri
Qualified Person

28/11/2018
Regional Controller of Mines
Jharkhand
Indian Bureau of Mines

S. K. Myageri
Dr. S. K. Myageri
Qualified Person

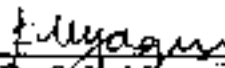
**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

The Parasi Gold Deposit is about 12 km south of Tamar, from where it can be approached by fair weather road. Tamar is a block head quarters under Khunti/Bundu Subdivision of Ranchi district, of Jharkhand State and situated 55 km from Ranchi on NH-33. Ranchi Railway station on the South Eastern Railway is the nearest rail-head. The area falls on the Survey of India Toposheet No. 73 F/9.

In pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 ("the Act") and the Mineral (Auction) Rules, 2015, and subsequent amendments, issued the notice inviting tender dated 12th August, 2017 to commence the auction process for grant of Mining Lease for Parasi Gold Deposit located in District Ranchi, Jharkhand. The e-auction process was conducted on 01-11-2017 in accordance with the tender document for the said mineral block and based on the highest final price offer M/s Rungta Mines Ltd, Rungta House, Sodar Bazar, Chaibasa-833 201, Singhbhum West District, Jharkhand has been declared as the 'Preferred Bidder' for the Parasi Gold Deposit.

The 'Preferred Bidder' shall be considered to be the "Successful Bidder". The 'Preferred Bidder' shall make online payment as per the conditions imposed by the Govt. and obtain approval of Mining Plan, Environment Clearance, Forest Clearance, Consent for Operation and all the statutory Clearances with approvals, permits, no-objections and the like as may be required under applicable law for commencement of Mining Operations.(Annexure IA). Hence, Mining Plan is being submitted under rule 13 of MCR 2016 and Progressive Mine Closure Plan under Rule 23 of MCDR 2017 to mine Gold. Boundary Pillars are fixed by DGPS and co-ordinates of all the boundary pillars are given on Surface Plan Plate No. IIA.

The proposed mining lease area has been surveyed by the State Govt. by DGPS method and the report was provided to the participating bidders as a part of the Tender Document, a copy of which is enclosed with the Mining Plan as Annexure VI.


Dr. S. K. Mhargeri
Qualified Person

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

a) Name of the Applicant / Lessee / Rule 45 Registration No :

M/s Rungta Mines Limited
Address : Rungta House, Sadar Bazar, Chaibasa-833 201,
Singbhum West District, Jharkhand
Mobile : +91 95725 25361;
Fax: +91 6582-257521;
E-mail: rmlbd@runtamines.com

IBM Registration No of M/s Rungta Mines Ltd. : IBM / 4562 / 2011

b) Status of Applicant / Lessee:

Private Individual, Co-operative Association, Private Company, Public limited Company, Public Sector Undertaking, Joint Sector Undertaking, Other (Please specify):

The lessee is a Limited company and is engaged in mining business of Iron, Manganese, Limestone and Pyrophyllite Ore/Minerals. The Certificate of Incorporation and List of Directors is enclosed as Annexure IIA.

The address, phone no, email id of nominated owner is given below:

Name : Shri M. D. Rustagi

Address : Rungta Mines Ltd,
Main road,
At/Po: Barbil,
District: Keonjhar
State: Odisha
Pin Code: 758035

Phone No.- 06767 - 275221, 277481, 276441

Fax: 06767-276161

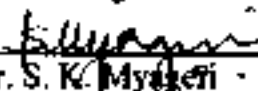
e-mail id - rungta_bbl@yahoo.co.in

c) Mineral(s) which is / are included in the prospecting license (For Fresh grant)

Not Applicable

d) Mineral(s) which is / are included in the letter of Intent / Lease deed:

Letter of Intent has been issued to M/s Rungta Mines Limited for mining of Gold ore.


Dr. S. K. Myerji
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

e) Mineral(s) which is the applicant / Lessee intends to mine:

Gold ore.

f) Name of Recognized Person under rule 15 of MCR, 2016 or a Person employed under clause (c) of Sub rule (1) of rule 55 of MCDR, 2017 (Applicable for Scheme of Mining only) preparing Mining Plan :

Dr. S. K. Myageri

Address: "Srinata" 3rd main, Shivanad Nagar,

Kalasapur Road, Gadag – 58210, Karnataka

Phone: +91 8372 235768,

Fax : +91 8372 235768,

Email : skmyageri@gmail.com

Mobile No.: +91 94481 35768.


Dr. S. K. Myageri
Qualified Person

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

2.0 LOCATION AND ACCESSIBILITY

a) Lease Details (Existing Mine):

The lease area of Parasi Gold Deposit has not been granted yet, however ~~Letter of Intent~~ Intent (LOI) has been issued to M/s Rungta Mines Limited for the grant of mining lease for Gold ore. The details of location and accessibility of the Parasi Gold Deposit are as below:

Name of mine : Parasi Gold Deposit

Lat/ long of any boundary point :

WB1 (Boundary Pillar), Latitude : N 22°59'25.822", Longitude : E 85°42'47.211"

Date of grant of lease : Rungta Mines Limited was declared "Preferred Bidder" as per Rule 9.4(b)(iii) of Mineral (Auction) Rules, 2015 after the "Forward e-auction" conducted on 01.11.2017 for Parasi Gold Block, in District Ranchi vide letter no. Kha. Ni. (Ranchi/Gold)-18/2016-2543/M, Ranchi dated 13.11.2017 and subsequently, Letter of Intent (Loi) vide letter no. Kha. Ni. (Ranchi/Gold)-18/2016/15M dated 03.01.2018 was issued by the Director of Mines, Govt. of Jharkhand for the Grant of Mining Lease, copy of which is enclosed as Annexure - I.

Period/ Expiry Date : 50 Years from the date of Grant Order/Execution of Mining Lease.

Name of leaseholder : M/s Rungta Mines Ltd.

Postal Address : Rungta House,

Sadar Bazar, Chaibasa

Dist. - West Singhbhum,

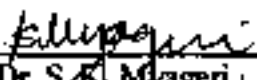
Jharkhand

Pin - 833201

Telephone : (06582) 256861, 256661

Fax : 91 - 6582 - 256442

e mail id : rungtas@rungtamines.com,
rmlbd@rungtamines.com


Dr. S.K. Myageri
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

b) Details of applied /lease area with location map (fresh area /mine)

Forest	Non-forest	Area (ha)	Total Area (ha)
Forest (specify) 11.959 Ha	(i) Waste land,	12.958	75.273 Ha
	(ii) Grazing land	-	
	(iii) Agriculture land,	45.872	
	(iv) Others(specify)	4.484	

महसुदा

The Land Schedule of the Lease area has been certified by the Circle Officer (Tamar), Ranchi. As per the certified Land Schedule, the detail of the village wise Classification of Land is tabulated below.

Village	Private Land (Ha)	Government Non-Forest Land (Ha)	Reserve Forest (Ha)	Protected Forest (Ha)	Forest Land (Jungle/Jaung Jharri/Jungle Paras/Unclassified Forest (Ha)	Total Area (Ha)
Parasi	32.096	8.466	-	-	11.959	52.521
Kothadih	9.466	6.726	-	-	-	16.192
Kutachauli	4.609	1.951	-	-	-	6.560
Total	46.171	17.143	-	-	11.959	75.273

The above classification of land has been computed in the Certified Land Schedule based on the Notification of Forest Department vide no C/F 17049/55-2865R dated 15.09.1955 for the notified Forest Plots of Parasi Village, along with other forest plots recorded as Jungle Jhari, Jungle Paras etc. Three no. of Plots viz. 844(P), 854 and 3373(P) lies within the proposed Lease area of Parasi Gold Deposit are Notified Forest comprising area of 4.96 Ac, 5.88Ac and 0.05Ac respectively. The Certified Land Schedule and Forest Notification are enclosed as **Annexure IID**.

The location map of the leasehold area is shown on toposheet and is enclosed as Key Plan Plate No. IA and lease plan is enclosed as Plate No. IB.

Total lease area /applied area:

75.273 Ha. in villages Parasi, Kutachuali and Kothadih covering Forest Land, Government Land & Private Land. (**Annexure-IID**)

District & State : District: Ranchi, State: Jharkhand.

Taluka : Tamar,

Village: Parasi, Kutachuali & Kothadih

Number of other leases held by the Applicant:

7 only; details of all these 7 leases are tabulated below:


 Dr. S. K. Myer
 Qualified Person

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

State : Jharkhand

Sl No	Lease Ref. No. & Date	Name of Mine	Mineral	Area (Ha)	Postal Address Location	Validity of Mines
1	Ref No: (Renewal Grant Order No) 3/BM-4/20/98/1252 Date - 01.10.2004 (Supplementary lease deed executed on 14.06.2017 for extension of validity period as per the provision u/s 8A of MMDR Amendment Act, 2015)	Ghatkuri Iron Mines	Iron	138.848	At/PO: Ghatkuri Dist - Singhbhum West Jharkhand	Valid up to 21.02.2020 APPROVED
2	Ref No: (Renewal Grant Order No) BM - 6-1026-4558- M Date - 16.06.1976 (Supplementary lease deed executed on 14.07.2015 for extension of validity period as per the provision u/s 8A of MMDR Amendment Act, 2015)	Merelgora - Barabaijori Iron & Manganese Mines	Iron & Manganese	115.220	At/PO: Merelgora Dist - Singhbhum West, Jharkhand	Valid up to 31.03.2020
3	Ref No: (Grant Order No) B/M6-1058/83 2078/M, Date - 21.03.1986 (Supplementary lease deed executed on 11.04.2017 for extension of validity period as per the provisions u/s 8A of MMDR Amendment Act, 2015)	Guira Limestone Mines	Limestone	12.978	At/PO: Guira Dist. Singhbhum West, Jharkhand	Valid up to 29.07.2036
4	Ref No: (Grant Order No) 3/BM-4-01/97-1933/M Date - 01.09.2003	Rangamatia Pyrophyllite Mines	Pyrophyllite	8.866	At/PO: Rangamatia Dist: Seraikela Kharswan Jharkhand	Valid up to 23.12.2023

S. K. Myagari
Dr. S. K. Myagari
Qualified Person

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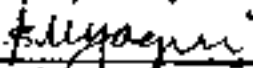
State : Odisha

Sl. No	Lease Ref. No. & Date	Name of Mine	Mineral	Area (Ha)	Postal Address /Location	Validity of Mines
1	Ref No: (Renewal Grant Order No) III(A)SM-2/99-8158/SM Date - 03.07.2001 (Supplementary lease deed executed on 09.12.2016 for extension of validity period as per the provision u/s 8A of MMDR Amendment Act, 2015)	Jajang Iron & Manganese Mines	Iron & Manganese	666.150	At/PO: Jajang Dist - Keonjhar Odisha	Valid up to 31.03.2020
2	Ref No: (Renewal Grant Order No) 13418/MG Date - 15.12.1981 (Supplementary lease deed executed on 02.05.2015 for extension of validity period as per the provision u/s 8A of MMDR Amendment Act, 2015)	Kolmog Manganese Mines	Manganese	218.530	At: Kolmog Dist - Sundargarh Odisha	Valid up to 31.03.2020
3	Ref No: (Renewal Grant Order No) 13418/MG Date - 15.12.1981 (Supplementary lease deed executed on 02.05.2015 for extension of validity period as per the provision u/s 8A of MMDR Amendment Act, 2015)	Kanther Koira Manganese Mines	Manganese	73.653	At: Kanther Koira Dist - Sundargarh Odisha	Valid up to 31.03.2020

Whether the area falls under Coastal Regulation Zone(CRZ)? If yes, details thereof:

Not Applicable.

Existence of public road/railway line, if any nearby and approximate distance:


 Dr. S. K. Myagari
 Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : MA RUNGTA MINES LIMITED

The Parasi Gold Deposit is about 12 km South of Tamar, from where it can be approached by fair weather road. Tamar is a Development Block head quarter under Ranchi district, Jharkhand and is situated at 55 km from Ranchi on NH-33. The Lease area is connected with the NH 33 by a motorable all weather road at a distance of around 5.5 km at north east side.

Chandil Railway Station on SE Rail Division is the nearest Rail Head at a distance of around 35km at NE direction. Ranchi Railway station is the nearest Major Rail Station and also the nearest Airport. There is no wild life sanctuary within 10 kms radius from the said Mining Lease area.

Toposheet No. with latitude & longitude of all corner boundary point/pillar:

Toposheet No. 73 F/9

DGPS co-ordinates of all the boundary pillars are given on Surface plan Plate No.II A.

Details are as below:

MAP DATUM : WGS-84

Boundary Pillar	Latitude	Longitude	Boundary Pillar	Latitude	Longitude
West Block			Central Block		
WB1	N22°59'25.822"	E85°42'47.251"	CB1	N22°59'33.052"	E85°43'05.418"
WB2	N22°59'30.742"	E85°43'03.838"	CB2	N22°59'34.612"	E85°43'06.468"
WB3	N22°59'33.052"	E85°43'05.418"	CB3	N22°59'35.322"	E85°43'10.408"
WB4	N22°59'18.363"	E85°43'10.018"	CB4	N22°59'37.102"	E85°43'15.857"
WB5	N22°59'19.743"	E85°43'07.298"	CB5	N22°59'38.062"	E85°43'20.486"
WB6	N22°59'14.013"	E85°42'50.950"	CB6	N22°59'39.022"	E85°43'22.226"
East Block			CB7	N22°59'39.022"	E85°43'22.226"
EB1	N22°59'41.192"	E85°43'27.325"	CB8	N22°59'38.752"	E85°43'23.936"
EB2	N22°59'41.372"	E85°43'27.525"	CB9	N22°59'41.192"	E85°43'27.235"
EB2a	N22°59'39.652"	E85°43'28.835"	CB10	N22°59'26.553"	E85°43'31.815"

S. K. Mylgeri
 Dr. S. K. Mylgeri
 Qualified Person

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LESSEE : M/s RUNGTA MINES LIMITED

EB3	N22°59'43.902"	E85°43'45.013"	CB11	N22°59'17.513"	E85°43'11.698"
EB4	N22°59'30.453"	E85°43'49.223"	CB12	N22°59'18.363"	E85°43'10.018"
EB5	N22°59'26.553"	E85°43'33.895"			
EB6	N22°59'26.713"	E85°43'32.085"			
EB7	N22°59'26.553"	E85°43'31.815"			

c) Attach a general location map showing area and access routes. It is preferred that the area be marked on a Survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map.

The lease area is marked on Survey of India Topo-Sheet No. 73 F/9 in a scale of 1: 50,000 and is enclosed as Plate No. 1A.


 Dr. S. K. Myagert
 Qualified Person

**MINING PLAN
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LESSEE : M/s RUNGTA MINES LIMITED**

3.1 Date and reference of earlier approved MP/SOM:

Not Applicable.

3.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification.:

Not Applicable.

3.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.:

Not Applicable.

3.4 Give status of compliance of violations pointed out by IBM:

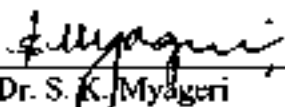
Not Applicable being afresh proposal of proposed Mining Project namely Parasi Gold Deposit.

3.5 Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any rule or Court of law:

Not Applicable being afresh proposal of proposed Mining Project namely Parasi Gold Deposit.

3.6 In case the MP/SOM is submitted under rules 9 and 10 of the MCDR'88 or under rule 22(6) of the MCR'1960 for approval of modification, specify reason and justification for modification under these rules.:

Not Applicable.


Dr. S. K. Myageri
Qualified Person

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**



PART-A

a) Briefly describe the topography, drainage pattern, vegetation, climate, rainfall data of the area applied/mining lease area.

(i) Topography:

The proposed area is a combination of Waste, Agriculture and Forest lands. The applied area is a peneplain terrain, with undulating topography, lying between Ranchi Plateau in the north and Dalma hill ranges in the south. General elevation of the plain is 250 m. and that of the hill ranges is 300 m. Parasi (~488 m) is the highest point located to the north of the area. The area is mostly covered by soil, sometimes the soil thickness extends up to 12m.

No human settlements within the Applied M.L. area. There is a seasonal nallah flowing from south to north between Central and East block within the Applied area.

ii) Drainage pattern:

The main drainage is controlled by Karkari Nadi, which is a tributary of Subarnarekha River. In the area under investigation, majority of the nalas flow in the northern direction and merges with Karkari Nadi, which is flowing towards east. The drainage pattern varies from reticulate to dendritic.

No perennial nalla or streams are seen within the lease area.

There are no natural springs in the area.

The water table is generally about 18 m below the ground level.

iii) Vegetation

The area has a varied assemblage of Flora and Fauna owing to diversity of physical features. The prominent forest trees are Sal (*Shorea Robusta*), Kendu (*Piosphyra Melanoxylon*), Neem (*Melia Indica*), Mahua (*Bassialalitolia*), Mango (*Magifora Indica*), Shisham (*Dalbergia latitolia*). Among Bushes and Shrubs Ber (*Zizypus jujuba*) and Lantana (*Americana & Camara*) etc. are very common. Rain fed one crop agriculture work is seen in the area involving production of rice, maize, arhar and tomato. The poor vegetation is observed along the gold mineralization zone.

Wild animals are not common in the area because of high density of human population. Among domestic animals, cow, buffalo and goats are very common.

Dr. S. K. Aiyagari
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED



v) **Climate & Rain fall:**

The climate is typical tropic; the summer heat is tremendous and search with maximum temperature hover around 41.2^oc whereas the winter season falls between October February, which is pleasant and chilly. The rainy season spreads from mid of June to September with an average rain fall of around 1397.7 mm.

अनुमोदित

b) **Brief descriptions of Regional Geology with reference to location/lease/applied area:**

APPROVED

The area falls in the Singhbhum Proterozoic Fold Belt (SPFB) sandwiched between Singhbhum Craton to the south and Chhotanagpur Gneissic Complex (CGC) to the north.

Parasi area forms the northern part of Sonapat anticline, within the Iron Ore Series. The stratigraphic succession, as observed in the area under review is given below (After Sharan et al., 2000):

Singhbhum Super Group	Intrusives	Alluvium Laterite Quartz vein Dolerite Schistose amphibolites, Metagabbro, ultramafics
	Dalma Group	Tuff/Tuffaceous quartzo-feldspathic phyllite ± buff grey quartzite Black (carbonaceous) phyllite ± intercalated grey(carbon) quartzite Talc-tremolite-actinolite-chlorite tuffaceous rock
	Dalbhum Group	Magnetite-quartz-biotite-sericite phyllite (± intercalated quartzite)
	Chaibasa Group	Banded magnetite quartzite, micaceous quartzite and amphibole quartzite Magnetite-biotite-quartz-sericite schist, garnetiferous mica schist and hornblende schist
----- Base not seen ----- (Singhbhum granitic ?) -----		

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**MINING PLAN
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- c) Detailed description of geology of the lease area such as shape and size mineral/ore deposit, disposition various litho-units indicating structural features any etc. (Applicable for Mining Plan for grant & renewal and not for Scheme of Mining / Modifications in the approved mining plan/scheme of Mining).

Geology of the Area:

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The Parasi prospect is bounded by Chhotanagpur Gneissic Complex north and Dalma hill ranges in the south. Major rock types found in the area include magnetite-biotite-quartz-sericite schist, ferruginous quartzite, tuffaceous quartzose phyllite with intercalated schistose quartzite, carbon phyllite, ±grey quartzite, acid tuff, rhyolite, tremolite-actinolite bearing ultramafite and amphibolite, vein quartz and quartz/carbonate veins.

The geological succession for the area (based on lithology and adopting regional stratigraphy) is as follows:

Intrusives	{	Soil/alluvium
		Quartz vein & Quartz-carbonate veins
		Metabasics
		Ultramafics
Dalma Group quartzite/buff grey	{	Acid tuff, acidic volcanic breccia and rhyolite
		Tuffaceous phyllite with intercalated (schistose)
		quartzite
Dalbhum Group	{	Carbon phyllite ± grey(carbonaceous) quartzite
		----- Shale contact -----
		Magnetite-quartz-biotite-sericite phyllite
Chaibasa Group ferruginous		Magnetite-biotite-quartz-sericite schist and intercalated quartzite
Base is not seen.		

Geological Structure:

The primary bedding plane (S_0) is noticed in the banded litho-units in the area, as compositional or colour bandings. The strike of the bedding plane is NW-SE to WNW-ESE, with low (10° to 20°) amount of dips towards southerly direction.

The strike of the foliation is, in general, WNW-ESE with steep (70° to 85°) amount

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of dips towards southerly direction. Another set of foliation is trending NW-SE and is vertical to sub-vertical. The rocks of the area have been affected by at least three generations of folds; of which the F_2 -folds are most pervasive.

Evidences of shearing are marked by silicification, brecciation, carbonatisation, mylonites and inter-mixed/inter-fingered litho-units in the area. Shear zone has been ascribed to be of ductile type. Micro-folds, best exhibited in the mic-schist, show low (10° to 15°) amount of plunge towards WNW direction.

Process of Mineralisation:

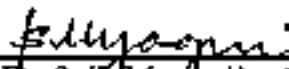
Ancient working / zone of subsidence forms the surface manifestation of gold mineralisation. Limonitisation is quite distinct as found in quartz veins and other lithounits. The major ore forming mineral assemblage includes pyrrhotite, arsenopyrite, magnetite, sphene, ilmenite, pyrite and chalcopryite. Sphalerite and gold occur as accessory minerals where as pentlandite and gold is found in traces. The mineragraphic studies reveal that pyrrhotite is the most abundant mineral present in the area. Arsenopyrite, sphene, pyrite chalcopryite and ilmenite are the other major minerals present in order of abundance.

The auriferous mineralisation is found as disseminations, specks, streaks, fracture fillings etc. It is found mostly in quartzite, tuff and quite pronounced when arsenopyrites are finer; they are always parallel to foliation. The gold seems to occur as occluded grains. The depth of oxidation/zone of weathering varies between 15-20m.

The arsenopyrite is found to occur along the plane of schistosity; sensu-stricto, it follows the carbonate veins which filled the fractures of the schistose host rock. At times, the arsenopyrite occurs along with pyrite. Gold specks also occur along the shear planes in the quartz-chlorite schist.

Gold is said to associate with the later quartz veins (MacLaren, 1904) but may not be always the case.

Along with auriferous quartz reefs a poor association of few other minerals are also available as base metal sulphides, supergene iron and manganese ore bodies in lateritoid country, pockety bauxite and nickel, cobalt lateritoids, PGM in association with sulphides, graphite lenses, porphyry deposits of copper, molybdenum, and tin, pyrite, pyrrhotite bodies .


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Structural Control on Mineralisation:

Gold mineralisation is structurally controlled and this zone is represented by tuffaceous quartzose phyllite with intercalated quartzite. This unit is characterized by strong foliation (S_1) and stretching lineation. The rock formation of the deposit generally trends ENE-WSW with steep dips on either side and occasionally to NE-SW with 65° - 75° southeasterly dip. The shear follows the similar trend. Lineations and crenulations were observed. The plunge direction is $N80-85^\circ W$ with the average pitch of 48° west-northwesterly. Microscopic studies indicated that microcline grains attained a round shape due to rotation. Stretching of quartz grains led to the formation of quartz ribbons. In quartzose part, very fine polygonal quartz grains are present and quartz ribbons are recrystallised.

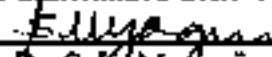
Petromineralographic studies:

It indicates that fine to medium size aggregate of arsenopyrite grains occur along the schistosity. At places arsenopyrite occurs along with pyrite and they have experienced late fracturing together with the introduction of carbonate veins containing native gold. Gold occurs as free phase mainly in association with arsenopyrite. Thick gold veins occur along shear planes in chlorite-quartz schist.

Potential mineralized zones:

The mineralized zone occurs in a wide shear zone (100m-150m) hosted by varied rock types represented mainly by quartzite and tuff. The mineralized zone is represented by wall rock alteration i.e. silicification, sulphidisation and carbonatisation. Silicification is manifested by quartz stringers, veinlets and veins distributed within the alteration zone. Sulphides occur as disseminations, stringers and fracture filling type. Carbonates are represented by disseminations and stringers. The above mentioned mineral assemblages do not occur uniformly within the mineralized zone. Sulphide concentration within the mineralized zone varies widely exhibiting grain size variation. Gold occur as disseminations associated with sulphides, carbonates and silicate minerals. Gold grains are mainly occluded in sulphides as inclusions. Most of the gold is free milling type, size of gold is generally small.

Within the mineralized zone, gold values are not uniformly distributed. In major portion of mineralized zone, gold values are around 0.1 g/t to 0.4 g/t. All these low value bearing areas are part of mineralized zone but they do not form part of Ore


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Zone (Lode Zone). Lode Zones/ Ore Zones are zones which have been artificially demarcated based on assay cut-off (0.5 g/t Au) with minimum 1.0 m stopping width separated from each other with at least 3.0m partings. The lode/ore zones demarcated by assay cut off will be impossible to physically demarcate from the mineralized zone which is characterized by alteration. This type of low grade discontinuous mineralisation should be handled in totality instead of considering a number of discontinuous narrow and separate ore zones/lode zones. The concept of ore zone/lode zone within mineralized zone is totally dependent on assay value, not on any physical parameter of mineralization. However, in the reports a number of lode zones/ ore zones have been shown by the exploration agencies, those have been numbered and attempts have been made to correlate them. It has been observed that the artificially created lode zones are both correlatable and not correlatable having varied dimension along strike and dip.

Occurrence of Gold in the area:

Gold occurs as disseminations, stringers, and specks in different host rocks. On the surface, grains and nuggets of gold are recovered at places. As such gold mineralization occurs over a wide shear zone with enrichment in patches, both along strike and dip. Within wide mineralized zone, gold concentration is selectively enriched with barren patches or low concentration in between. As the gold concentration is demarcated by assay contact, visually it is not possible to demarcate the barren or patches of low concentration.

Surface indication of mineralization has been recorded by visible grains of gold during stream sediment and soil sampling. Presence of gold in the area is further confirmed by suspected old pits (ancient workings) in the north of village Kutachauli and another large pit bounded by ferruginous quartzite and ultramafics in Parasi. In general, limonitisation with quartz veins and other rock types defining oxidation of sulphides have better concentration of gold. As the area is covered by soil it is not possible to demarcate the mineralized zone on the surface. However, the presence of mineralized zone on the surface has been established by extensive trenching and soil/bedrock sampling. Some of the boreholes have shown visible gold in drill cores occurring as disseminations. Size of gold is small ranging in size from 5 micron to 45 micron.


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d) (i) Name of prospecting / exploration agency:

Geological Survey of India (GSI) and Mineral Exploration Corporation (MECL)

e) Details of prospecting/exploration already carried out :

i) Number of pits and trenches indicating dimensions, spacing etc. along and across the strike/foliation with reference to geological plan:

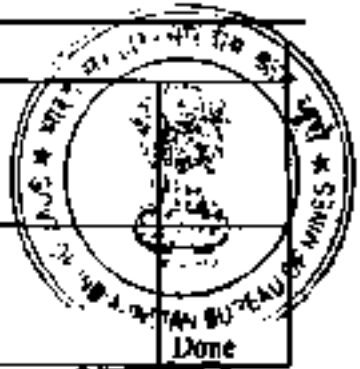
Summary of Exploration Work and other studies by GSI and MECL in Parasi Area

	Detailed Mapping 1:1000	Surface Geochemical Study	Surface Geophysical study	Drilling	Core Sampling	Compos (ie/ Check samples	Sp. gr	Beneficiation	Geotec. study
Parasi Central Block (700 m strike length)									
GSI	1 sq. km	Soil, bedrock, stream sed, channel from trench	2 sq km, mag. IP, SP, Resistivity	13 nos 2098 m	Primary Au, W, As	Data not given	Done	-	-
MECL (Phase-1)	Update of GSI map	-	-	17 nos. 2806 m	Primary Au, Ag	Au, Ag and trace element	Done	Done	Done
MECL (Phase-2)	-do-	-	-	8 nos. 1963 m	Primary Au, Ag	-do-	Done		
Parasi East Block (500m strike length)									
GSI	0.50 sq. km.	Soil/ bedrock/ channels		6 nos	Primary Au, W, As	Not known	Done		
MECL	Update of GSI Map	-		19 nos 3193 m	Au, Ag	Au, Ag and trace element	Done		Done

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Parasi West Block (500m strike length)								
GSI	0.50 sq. km	Soil/ bedrock/ channels		6 nos	Primary Au		Done	
MECL	Updation of GSI Map			10 nos. 1564m	Au, Ag	Au, Ag and trace elements	Done	Done



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- ii) Number of boreholes indicating type (Core/RC/DTH), diameter, inclination, Collar level, depth etc with standard borehole logs duly marking on geological plan/sections:

In all GSI has drilled 25 holes with 4023.95 (data is for 13 holes only) meters and MECL has drilled 54 holes with 9525.90 meters in more or less 56m X 50m grid considering GSI holes in between with a total of 13551.85 meters.

The details are given Geological Reports copy of which is enclosed as Annexure III.

Location of Drill holes are as under

S No	Bore Hole No	LONGITUDE	LATITUDE
1	LPS-1	85° 43' 21.9566" E	22° 59' 26.2038" N
2	LPS-10	85° 43' 13.4172" E	22° 59' 28.5460" N
3	LPS-11	85° 43' 11.6688" E	22° 59' 27.7352" N
4	LPS-12	85° 43' 8.3092" E	22° 59' 26.4725" N
5	LPS-13A	85° 43' 19.5012" E	22° 59' 31.3914" N
6	LPS-15	85° 43' 28.0842" E	22° 59' 35.5542" N
7	LPS-17	85° 43' 32.3795" E	22° 59' 34.5814" N
8	LPS-18(1W)	85° 43' 6.2002" E	22° 59' 21.8183" N
9	LPS-19	85° 43' 29.5078" E	22° 59' 30.7378" N
10	LPS-2	85° 43' 27.9173" E	22° 59' 29.2718" N
11	LPS-22(2W)	85° 43' 3.9093" E	22° 59' 21.5152" N
12	LPS-24(3W)	85° 43' 1.3798" E	22° 59' 23.8351" N
13	LPS-25	85° 43' 34.9620" E	22° 59' 37.2599" N
14	LPS-29	85° 43' 36.5495" E	22° 59' 38.0051" N
15	LPS-3	85° 43' 18.6775" E	22° 59' 25.6296" N
16	LPS-30(4W)	85° 42' 58.2231" E	22° 59' 22.7458" N
17	LPS-31	85° 43' 39.5979" E	22° 59' 39.5679" N
18	LPS-32(5W)	85° 42' 55.9229" E	22° 59' 18.9818" N
19	LPS-33	85° 43' 44.2650" E	22° 59' 37.1126" N
20	LPS-34(6W)	85° 42' 52.6450" E	22° 59' 18.2266" N
21	LPS-4	85° 43' 16.5520" E	22° 59' 25.7100" N

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(Signature)

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22	LPS-5	85° 43' 20.0773" E	22° 59' 25.6444" N
23	LPS-6	85° 43' 23.5437" E	22° 59' 31.0013" N
24	LPS-7	85° 43' 21.9338" E	22° 59' 30.4030" N
25	LPS-8	85° 43' 25.1916" E	22° 59' 31.6331" N
26	LPS-9	85° 43' 28.2316" E	22° 59' 33.4312" N
27	MPEG-1	85° 43' 30.4203" E	22° 59' 34.6937" N
28	MPEG-10	85° 43' 41.1029" E	22° 59' 35.9921" N
29	MPEG-11	85° 43' 35.9944" E	22° 59' 39.4541" N
30	MPEG-12	85° 43' 44.7274" E	22° 59' 36.1261" N
31	MPEG-13	85° 43' 43.8817" E	22° 59' 38.0999" N
32	MPEG-14	85° 43' 42.1495" E	22° 59' 37.8775" N
33	MPEG-15	85° 43' 42.8330" E	22° 59' 36.2054" N
34	MPEG-16	85° 43' 34.4344" E	22° 59' 34.1159" N
35	MPEG-17	85° 43' 29.5616" E	22° 59' 36.7905" N
36	MPEG-18	85° 43' 37.6886" E	22° 59' 39.6315" N
37	MPEG-19	85° 43' 38.8567" E	22° 59' 41.4776" N
38	MPEG-2	85° 43' 33.4884" E	22° 59' 36.4056" N
39	MPEG-3	85° 43' 31.4937" E	22° 59' 36.7724" N
40	MPEG-4	85° 43' 33.0967" E	22° 59' 32.8107" N
41	MPEG-5	85° 43' 31.5361" E	22° 59' 31.9070" N
42	MPEG-6	85° 43' 37.6797" E	22° 59' 35.3369" N
43	MPEG-7	85° 43' 35.9588" E	22° 59' 34.8943" N
44	MPEG-8	85° 43' 34.4606" E	22° 59' 38.5419" N
45	MPEG-9	85° 43' 38.3347" E	22° 59' 38.1399" N
46	MPG-1	85° 43' 17.9774" E	22° 59' 27.3573" N
47	MPG-10	85° 43' 26.5336" E	22° 59' 32.5574" N
48	MPG-11	85° 43' 25.8870" E	22° 59' 34.1471" N
49	MPG-12	85° 43' 18.9224" E	22° 59' 25.0187" N
50	MPG-13	85° 43' 24.0431" E	22° 59' 29.8055" N
51	MPG-14	85° 43' 9.2481" E	22° 59' 29.1398" N
52	MPG-15	85° 43' 12.2024" E	22° 59' 31.5552" N
53	MPG-16	85° 43' 9.8469" E	22° 59' 27.6441" N
54	MPG-17	85° 43' 7.8229" E	22° 59' 27.6902" N
55	MPG-18	85° 43' 18.1239" E	22° 59' 34.0734" N
56	MPG-19	85° 43' 20.3587" E	22° 59' 34.3630" N
57	MPG-2	85° 43' 21.1032" E	22° 59' 27.4573" N
58	MPG-20	85° 43' 8.7889" E	22° 59' 30.2715" N
59	MPG-21	85° 43' 20.9287" E	22° 59' 37.3819" N
60	MPG-22	85° 43' 17.7179" E	22° 59' 31.9053" N
61	MPG-23	85° 43' 24.7507" E	22° 59' 32.6579" N
62	MPG-24	85° 43' 15.7565" E	22° 59' 32.8292" N
63	MPG-25	85° 43' 28.6096" E	22° 59' 32.0557" N



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 Qualified Person

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64	MPG-3	85° 43' 18.6065" E	22° 59' 29.7779" N
65	MPG-4	85° 43' 18.7286" E	22° 59' 33.2550" N
66	MPG-5	85° 43' 21.3372" E	22° 59' 31.8890" N
67	MPG-6	85° 43' 22.3013" E	22° 59' 34.1014" N
68	MPG-7	85° 43' 11.0766" E	22° 59' 29.2684" N
69	MPG-8	85° 43' 16.1922" E	22° 59' 26.6211" N
70	MPG-9	85° 43' 17.1040" E	22° 59' 24.9042" N
71	MPWG-1	85° 42' 56.4277" E	22° 59' 18.2144" N
72	MPWG-10	85° 42' 52.1759" E	22° 59' 19.6061" N
73	MPWG-2	85° 42' 54.9537" E	22° 59' 20.6635" N
74	MPWG-3	85° 42' 56.7087" E	22° 59' 22.3129" N
75	MPWG-4	85° 42' 57.3103" E	22° 59' 20.8327" N
76	MPWG-5	85° 42' 53.5227" E	22° 59' 20.8922" N
77	MPWG-6	85° 42' 54.1692" E	22° 59' 19.3005" N
78	MPWG-7	85° 42' 53.2802" E	22° 59' 16.9082" N
79	MPWG-9	85° 42' 58.7343" E	22° 59' 22.5234" N



1.3.10/2017
 1.1.10/2017

- iii) *Details of samples analysis indicating type of sample (surface/sub-surface from pits/trenches/borehole etc) Complete chemical analysis for entire strata for all radicals may be undertaken for selected samples from a NABL accredited Laboratory or Government laboratory or equivalent. Entire mineralized area may be analyzed meter wise with 10% of check samples. (At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited/other government laboratory).:*

GSI has analysed 2,191 Core Drill samples and MECL has analysed 6,429 Core Drill samples from all the 3 blocks. Primary sample analysis for 240 samples for 6 radicals and Spectroscopic analysis for 57 samples undertaken.

- iv) *Expenditure incurred in various prospecting operations:*

Done by GSI & MECL. The Copy of Geological Report prepared by GSI & MECL is provided as a part of Tender Documents for Auction Process to the participating enterprises and are enclosed as Annexure III in 03 separate volumes.

- f) *The surface plan of the lease area may be prepared on a scale of 1: 1000 or 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 32(1)(a) of MCDR 2017.:*

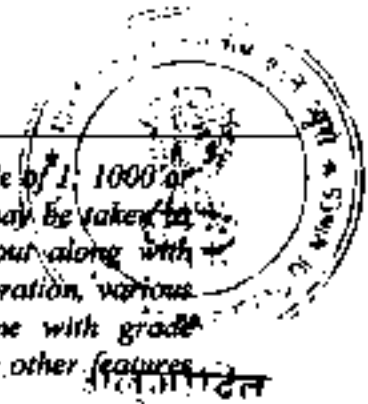
The precise area plan of the Applied area was prepared by GSI and updated by MECL has been used as base map for DGPS Survey and preparation of the Topographical Plan on which we have incorporated the surface features to draw Surface Plan with contour lines at 1m interval.

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Qualified Person

S. K. Myageri

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- g) *For preparation of geological plan, surface plan prepared on a scale of 1:1000 or 1:2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various litho units along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 32(1)(b) of MCDR 2017.*

The precise area plan of the Applied area was prepared by GSI and updated by MECL has been used as base map for DGPS Survey and preparation of the Topographical Plan on which we have incorporated the surface features to draw Surface Plan with contour lines at 1m interval.

The Geological plan of the area was prepared on a scale of 1:1000 scale by GSI and updated by MECL taking into consideration details of exploration already carried out along with supporting data for existence of mineral, various litho units along with structural features, mineralized/ore zone etc. Presently, the Geological plan showing all the explored boreholes and proposed boreholes have been prepared on scale of 1:2000 and is enclosed as (Plate No. - IIB).

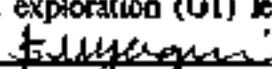
- h) *Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary.*

Geological sections are prepared at 50m interval on 1:2000 scale and are attached as Plate No. IICa, IICb & IICc.

- i) *Broadly indicate the future programme of exploration with due justification(duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation programme planned in next five years as in table below:*

Exploration in Parasi Gold Deposit is almost complete and is of G-1 level up to 155m RL from Section SW1 to SW 6A, Section S-1 to S12 and Section SE1 to SE-6 covering the West, Central and Eastern Blocks. Total 79 boreholes were drilled by GSI and MECL to cover the whole leasehold area in a 50m x 50m grid. The Western Block has been well covered with drilling and has been proved to be barren with negligible mineable resource.

However, considerable part of the resource remains below the open pit level (155 mRL) which needs to be ascertained for its depth continuity & nature of loads at depth up to 0 m RL and to comply with the provisions of Rule 12(3) of MCDR, 2017 i.e. to carry out detailed exploration (G1) level over the entire potentially


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mineralized area under the mining lease within a period of 5 years from the date of opening of the mine after execution of such mining lease. Accordingly, proposal for exploration is planned as described below.

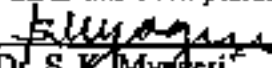
There are few positive Geological aspects also calling for further exploration as follows :

- i. Mineralization remains open down the dip along all the sections of ~~Continuity~~ Eastern Blocks.
- ii. Shear hosted hydrothermal gold deposits are generally deep seated and there is high probability of continuity of mineralization down the depth.

Hence, to establish the continuity & nature of loads at depth up to 6 m RL and to cater the feasibility study for underground mining, few boreholes are to be drilled in the East and Central block along with the following studies.

- The core from the inclined exploratory bore holes will also be used for Geotechnical studies. The Geotechnical study will determine the Rock Mass Classification and subdivide the proposed underground mine area into geotechnical domains and assess the stability of the underground workings excavations (development and production excavations) to make recommendations pertaining to stope dimensions and reinforcement.
- Directional measurement of structures and Rock Quality Determination (RQD) measurement without inflicting human induced cracks and fractures by hammering drill rods to pull out cores.
- After using requisite length of drill core for Geotechnical measurement like Field Point Load Testing (PLT), unconfined compressive strength (UCS), indirect tensile strength test or Brazilian test (BT), Triaxial test (TT) and direct shear tests (DST), the core will be sent for assaying.
- Requisite number of exploration drill holes will be sealed after completion of the holes and piezometer will be installed for periodic water pressure measurement which will help in developing a hydrological model.

After critical analysis of the provided exploration data and Ore Body modeling by GEMCOM Software, potential area for exploration to prove the mineralization beyond the open pit limit of 155 mRL has been planned.


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The exploration program has been planned yearly for this plan period as indicated here under. Total 19 boreholes (PBH 1 to PBH 19) are proposed to be drilled in the Eastern & Central Blocks of the proposed area covering a tentative total length of 4598 m. The Location of Boreholes are shown in the Geological Map (Plate No. II B) and details of the planned 19 no Bore Holes are tabulated below:

1	SE-04A	PBH-01	5749.02	5410.94	246.67	160	-55	227
2	SE-04	PBH-02	5703.56	5389.68	245.60	160	-55	270
3	SE-03	PBH-03	5657.22	5370.80	244.10	160	-55	285
4	SE-02	PBH-04	5565.23	5331.18	243.69	160	-45	275
5	SE-01A	PBH-05	5540.71	5252.68	244.65	160	-50	230
6	SE-01	PBH-06	5468.94	5303.33	243.63	160	-60	178
7	S-12	PBH-7	5459.44	5230.62	240.17	160	-50	204
8	S-11	PBH-8	5394.34	5263.06	242.18	160	-55	284
9	S-10	PBH-9	5360.18	5210.91	244.36	160	-55	205
10	S-08	PBH-10	5229.79	5276.23	249.46	160	-50	295
11	S-07	PBH-11	5185.91	5250.65	251.80	160	-55	306
12	S-06A	PBH-12	5155.67	5187.78	251.34	160	-50	190
13	S-06	PBH-13	5096.42	5204.21	250.33	160	-55	296
14	S-05	PBH-14	5108.74	5025.02	265.30	160	-55	175
15	S-04	PBH-15	5002.53	5169.79	249.71	160	-50	280
16	S-03	PBH-16	4976.22	5096.17	250.87	160	-55	240
17	S-02	PBH-17	4907.97	5137.21	250.97	160	-47	320
18	S-01	PBH-18	4887.18	5048.49	251.83	160	-50	160
19	S-01A	PBH-19	4848.03	5009.99	252.76	160	-50	178
Total								4598

The Year wise programme for proposed exploration is summarized as below:

Year	No of Boreholes (Core/RC/DTH)	Bore Hole No	Grid Interval	Total Metrage	No. of Pits, Dimension and volume	No. of Trenches, Dimension and volume
I	Nil	--	--	--	Nil	Nil
II	04	PBH 01 to PBH 04	50m x 50 m	1057m	Nil	Nil
III	05	PBH 05 to PBH 09	50m x 50 m	1101m	Nil	Nil
IV	05	PBH 10 to PBH 14	50m x 50 m	1262m	Nil	Nil
V	05	PBH 15 to PBH 19	50m x 50 m	1174m	Nil	Nil

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Core Sampling and Chemical Analysis:

Primary Sample :

Since the deposit parameters are primarily based on the primary assays of the drill cores, core sampling has been given utmost importance during the course of exploration.

Based on the detailed core logging the mineralised zones will be demarcated. Depending on the concentration of mineralisation and lithological parameters, individual samples will be drawn. The identified samples will be split into two equal halves with the help of hydraulic core splitter. One half of split core samples will be kept for future reference and other half will be powdered to -100 mesh. The bulk of sample will be reduced by progressive coning and quartering to about 1000 gm. About 100g. of powdered sample material will be obtained by progressive coning and quartering and will be sent for analysis. The remaining portion will be preserved for use / reference in future.

The sample length will be kept around 0.50m in mineralised zones, the sample length have to be increased or decreased depending upon the change in lithology and concentration of ore forming minerals. The sample length in country rock/ foot wall/hanging wall where ever sampled, have been kept as 1.00m. or less depending on lithological variations.

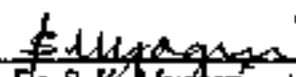
Check Sample :

In order to ascertain the reliability of assaying, eliminating the error while handling of sample at various levels and to attain the reproducibility in assaying, check sampling and analysis will be done. Check samples, around 5% of primary sample have to be prepared from the duplicate powder sample of (-)100 mesh by through mixing, coning and quartering.

Chemical Analysis :

Samples will be collected and prepared from proposed 19 boreholes drilled in the area. Samples will be analysed in chemical laboratory for their gold content by fire assay method and cross checked samples will be sent to NABL certified chemical laboratory.

Composite samples will be drawn by equal weight of powdered primary samples per unit length of core samples. The samples will be analysed for gold and silver by fire assay method along with assaying for possible associated elements of important six radicals i.e. As, Sb, W, Co, Ni & Mo.


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Composite samples will also be subjected to emission spectroscopic analysis for various radicals, i.e. Cu, Pb, Sn, As, Sb, Mo, Ga, V, Zn, Zr, Cr, Ti, W & Mn.

Petrographic and Mineragraphic Studies :

Samples will be collected and studied for their petrographic characteristics. Detailed description of rocks will be incorporated in petrological report. Samples will be collected and studied for their mineragraphic characteristics. Detailed description of rocks will be given in mineragraphic report.

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Composite samples will also be subjected to XRD studies for constituent Mineral Phase determination.

Physical Analysis for determination of Specific Gravity/Bulk Density:

Rock specimens will be subjected for specific gravity determination. The average specific gravity of the rocks of ore zone as determined by GSI & MECL is 2.80.

- j) *Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below: (Area explored under different level of exploration is marked on the geological plan and UNFC code for area considered for different categories of reserve/resources estimation is also be marked on geological cross sections).*

Submit a feasibility/ pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guidelines may be incorporated.

Estimation of Gold Ore was made by GSI and MECL by Cross sections and LV Sections, for all the 3 blocks with comparison.

Comparison of Resources estimated by GSI and MECL of Parasi West Block:

Exploration Agency	Cut-off grade (g/t)	Proved Resources		Indicated Resources		Inferred Resources		Total Resources	
		Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)
GSI	0.50	—	—	0.38	1.74	0.37	1.74	0.75	1.74
MECL		0.336	1.641	0.029	1.87	—	—	0.365	1.664
GSI	1.00	—	—	0.28	2.12	0.29	2.12	0.57	2.12
MECL		1.169	2.631	0.012	2.84	—	—	1.181	2.644

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Comparison of Resources estimated by GSI and MECL of Parasi Central Block:

Exploration Agency	Cut-off grade(g/t)	Indicated Resources		Inferred Resources		Total Tonnage	
		Million Tonnes	Average Grade(g/t)	Million Tonnes	Average Grade(g/t)	Million Tonnes	Average Grade(g/t)
GSI	0.50	1.19	1.26	1.20	1.24	2.390	1.25
MECL		2.732	1.07	1.742	0.97	4.475	1.02
GSI	1.00	0.554	2.44	0.484	2.51	1.028	2.47
MECL		1.182	1.84	0.767	1.61	1.950	1.73
GSI	3.00	0.137	6.04	0.121	6.30	0.258	6.16

The total recommended net reserves of all categories are 7.467 million tonnes with an average grade of 0.98 g/t and the average thickness of lode is 9.27m.

It is to be noted that MECL reporting of resources has increased 2-3 times that of GSI resources in both 0.5 and 1.0 g/t cut offs, however, the average grade has fallen more than 25-50%. Resources above 3 g/t have not been reported by MECL.

Comparison of Resources estimated by GSI and MECL of Parasi East Block:

Exploration Agency	Cut-off grade(g/t)	Indicated Resources		Inferred Resources		Total Tonnage	
		Million Tonnes	Average Grade(g/t)	Million Tonnes	Average Grade(g/t)	Million Tonnes	Average Grade(g/t)
GSI	0.50	0.661	1.55	1.319	1.55	1.981	1.55
MECL		1.41	1.26	0.655	1.26	2.069	1.26
GSI	1.00	0.509	3.08	1.018	3.08	1.527	3.08
MECL		0.734	1.89	0.323	1.89	1.057	1.89

An attempt has been to compute resources by LV section method. The total resources estimated in the block is 1.926 million tonnes with 1.26 g/t at 0.50 g/t cut off and to those of 1.00 g/t Au are to the tune of 1.05 million tonnes with 1.95 g/t Au. The results thus obtained are in good comparison with cross section and level plan method.

Noticeably, the resources in 1.0 g/t cut off has decreased when compared to resource estimated by GSI- in contrary, the grade has also fallen from 3.08 to 1.89 g/t. In the following Table, the Reserves/Resources as estimated by MECL & GSI is Summarized for brevity:

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Proved Resources (G1 category)		Indicated Resources (G2 category)		Inferred Resources (G3 category)		Total Resources (G1+G2+G3 category)	
Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)	Million Tonnes	Average Grade (g/t)
4.619	1.106	4.045	1.022	1.23	0.969	9.894	1.053

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i) **Reserve estimation for Gold ore:**

The reserve estimation for Gold ore in total has been done afresh in terms of detailed Exploration carried out by both GSI & MECL. Gold occurs as disseminations, stringers, and specks in different host rocks. On the surface, grains and nuggets of gold are recovered at places. As such gold mineralization occurs over a wide shear zone with enrichment in patches, both along strike and dip. Within wide mineralized zone, gold concentration is selectively enriched with barren patches or low concentration in between. As the gold concentration is demarcated by assay contact, visually it is not possible to demarcate the barren or patches of low concentration. While Mining, only auriferous lode cannot be mined and in between waste has to be considered as ore. Hence, Mineable reserves are calculated including the intercalated waste.

In all GSI has drilled 25 holes with 4025.95 (data is for 13 holes only) meters and MECL has drilled 54 holes with 9525.90 meters in more or less 56m X 50m grid considering GSI holes in between with a total of 13551.85 meters.

The details of Litholog and Chemical Analysis are given in Annexure III.

Location of Drill holes are as under:

S No	Bore Hole No	LONGITUDE	LATITUDE
1	LPS-1	85° 43' 21.9566" E	22° 59' 26.2038" N
2	LPS-10	85° 43' 13.4172" E	22° 59' 28.5460" N
3	LPS-11	85° 43' 11.6688" E	22° 59' 27.7352" N
4	LPS-12	85° 43' 8.3092" E	22° 59' 26.4725" N
5	LPS-13A	85° 43' 19.5012" E	22° 59' 31.3914" N
6	LPS-15	85° 43' 28.0842" E	22° 59' 35.5542" N
7	LPS-17	85° 43' 32.3795" E	22° 59' 34.5814" N
8	LPS-18(IW)	85° 43' 6.2002" E	22° 59' 21.8183" N
9	LPS-19	85° 43' 29.5078" E	22° 59' 30.7378" N
10	LPS-2	85° 43' 27.9173" E	22° 59' 29.2718" N

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11	LPS-22(2W)	85° 43' 3.9093" E	22° 59' 21.5152" N
12	LPS-24(3W)	85° 43' 1.3798" E	22° 59' 23.8351" N
13	LPS-25	85° 43' 34.9620" E	22° 59' 37.2599" N
14	LPS-29	85° 43' 36.5495" E	22° 59' 38.0051" N
15	LPS-3	85° 43' 18.6775" E	22° 59' 25.6296" N
16	LPS-30(4W)	85° 42' 58.2231" E	22° 59' 22.7458" N
17	LPS-31	85° 43' 39.5979" E	22° 59' 39.5679" N
18	LPS-32(5W)	85° 42' 55.9229" E	22° 59' 18.9818" N
19	LPS-33	85° 43' 44.2650" E	22° 59' 37.1126" N
20	LPS-34(6W)	85° 42' 52.6450" E	22° 59' 18.2266" N
21	LPS-4	85° 43' 16.5520" E	22° 59' 25.7100" N
22	LPS-5	85° 43' 20.0773" E	22° 59' 25.6444" N
23	LPS-6	85° 43' 23.5437" E	22° 59' 31.0013" N
24	LPS-7	85° 43' 21.9338" E	22° 59' 30.4030" N
25	LPS-8	85° 43' 25.1916" E	22° 59' 31.6331" N
26	LPS-9	85° 43' 28.2316" E	22° 59' 33.4312" N
27	MPEG-1	85° 43' 30.4203" E	22° 59' 34.6937" N
28	MPEG-10	85° 43' 41.1029" E	22° 59' 35.9921" N
29	MPEG-11	85° 43' 35.9944" E	22° 59' 39.4541" N
30	MPEG-12	85° 43' 44.7274" E	22° 59' 36.1261" N
31	MPEG-13	85° 43' 43.8817" E	22° 59' 38.0999" N
32	MPEG-14	85° 43' 42.1495" E	22° 59' 37.8775" N
33	MPEG-15	85° 43' 42.8330" E	22° 59' 36.2054" N
34	MPEG-16	85° 43' 34.4344" E	22° 59' 34.1159" N
35	MPEG-17	85° 43' 29.5616" E	22° 59' 36.7905" N
36	MPEG-18	85° 43' 37.6886" E	22° 59' 39.6315" N
37	MPEG-19	85° 43' 38.8567" E	22° 59' 41.4776" N
38	MPEG-2	85° 43' 33.4884" E	22° 59' 36.4056" N
39	MPEG-3	85° 43' 31.4937" E	22° 59' 36.7724" N
40	MPEG-4	85° 43' 33.0967" E	22° 59' 32.8107" N
41	MPEG-5	85° 43' 31.5361" E	22° 59' 31.9070" N
42	MPEG-6	85° 43' 37.6797" E	22° 59' 35.3369" N
43	MPEG-7	85° 43' 35.9588" E	22° 59' 34.8943" N
44	MPEG-8	85° 43' 34.4606" E	22° 59' 38.5419" N
45	MPEG-9	85° 43' 38.3347" E	22° 59' 38.1399" N
46	MPG-1	85° 43' 17.9774" E	22° 59' 27.3573" N
47	MPG-10	85° 43' 26.5336" E	22° 59' 32.5574" N
48	MPG-11	85° 43' 25.8870" E	22° 59' 34.1471" N
49	MPG-12	85° 43' 18.9224" E	22° 59' 25.0187" N
50	MPG-13	85° 43' 24.0431" E	22° 59' 29.8055" N
51	MPG-14	85° 43' 9.2481" E	22° 59' 29.1398" N
52	MPG-15	85° 43' 12.2024" E	22° 59' 31.5552" N



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53	MPG-16	85° 43' 9.8469" E	22° 59' 27.6441" N
54	MPG-17	85° 43' 7.8229" E	22° 59' 27.6902" N
55	MPG-18	85° 43' 18.1239" E	22° 59' 34.0734" N
56	MPG-19	85° 43' 20.3587" E	22° 59' 34.3630" N
57	MPG-2	85° 43' 21.1032" E	22° 59' 27.4573" N
58	MPG-20	85° 43' 8.7889" E	22° 59' 30.2715" N
59	MPG-21	85° 43' 20.9287" E	22° 59' 37.3819" N
60	MPG-22	85° 43' 17.7179" E	22° 59' 31.9053" N
61	MPG-23	85° 43' 24.7507" E	22° 59' 32.6579" N
62	MPG-24	85° 43' 15.7565" E	22° 59' 32.8292" N
63	MPG-25	85° 43' 28.6096" E	22° 59' 32.0557" N
64	MPG-3	85° 43' 18.6065" E	22° 59' 29.7779" N
65	MPG-4	85° 43' 18.7286" E	22° 59' 33.2550" N
66	MPG-5	85° 43' 21.3372" E	22° 59' 31.8890" N
67	MPG-6	85° 43' 22.3013" E	22° 59' 34.1014" N
68	MPG-7	85° 43' 11.0766" E	22° 59' 29.2684" N
69	MPG-8	85° 43' 16.1922" E	22° 59' 26.6211" N
70	MPG-9	85° 43' 17.1040" E	22° 59' 24.9042" N
71	MPWG-1	85° 42' 56.4277" E	22° 59' 18.2144" N
72	MPWG-10	85° 42' 52.1759" E	22° 59' 19.6061" N
73	MPWG-2	85° 42' 54.9537" E	22° 59' 20.6635" N
74	MPWG-3	85° 42' 56.7087" E	22° 59' 22.3129" N
75	MPWG-4	85° 42' 57.3103" E	22° 59' 20.8327" N
76	MPWG-5	85° 42' 53.5227" E	22° 59' 20.8922" N
77	MPWG-6	85° 42' 54.1692" E	22° 59' 19.3005" N
78	MPWG-7	85° 42' 53.2802" E	22° 59' 16.9082" N
79	MPWG-9	85° 42' 58.7343" E	22° 59' 22.5234" N



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ii) Sampling:

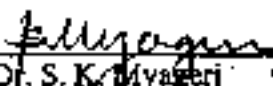
GSI has analysed 2,191 Core Drill samples and MECL has analysed 6,429 Core Drill samples from all the 3 blocks. The analyses reports are enclosed as Annexure III.

iii) The bulk density, recovery percentage and Mineralogy

Bulk density for Gold ore is determined after studying 150 samples from all the 3 blocks. Samples were collected from mineralized zones, Hanging wall and Foot wall sides taken as 2.80.

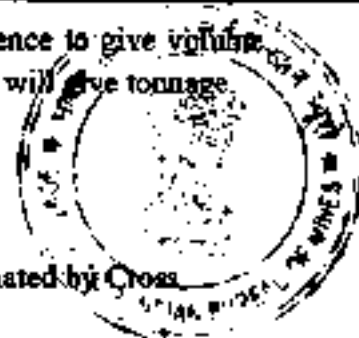
Recovery tests: The recovery percentage considered is 95%

Mineralogical tests: Minerographic and Petrographic studies conducted on 140 samples.


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- iv) The Sectional Area of deposit is multiplied by sectional influence to give volume.
 Volume is multiplied by Bulk density with recovery percentage will give tonnage.
 The bulk density is found to be 2.80t/cum for Gold ore
 The recovery factor is found to be 95% for Gold ore
 (Ref. Plate No. IIB & IIC, IICa, IICb, IICc; Table-I & II).
 Based on the above parameters, reserves/resource has been estimated by Cross sectional method.



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Justification of Geological (G), Feasibility (F) and Economic (E) Aspects (VFE)

UNFC

Based on the "EXPLORATION NORMS FOR DIFFERENT TYPES OF DEPOSITS" given in PART III of Minerals (Evidence of Mineral Contents) Rules, 2015 the deposit can be classified under Category II. Lenticular Bodies of All Dimensions Including Bodies Occurring en echelon, Silicified Linear Zones of Composite Veins, Lenses, pockets, stock-works; irregular shaped modest to small sized bodies type of deposits of principal minerals.

Characteristics of Deposits

- Gradual and abrupt change in thickness and grade along strike and dip direction; bounding surfaces of mineralized bodies often, but in sulphides mostly, defined by assay contacts;
- (a) Massive bodies with irregular shape and grade-homogeneous to inhomogeneous distribution of metal values as in replacement and disseminated type bodies - shapes interpretative;
- (b) Steeply dipping narrow bodies with or without pitch, pinch and swell type, with or without bifurcations, partings etc.

GEOLOGICAL AXIS

G 1 (Detailed Exploration)	Status
1. Geological survey: (i) Mapping-1:1000 or larger scale; (ii) Preparation of detailed topographical cum geological map including all surface geological features, extent of deposit, structure, location of pits/trenches/boreholes, assay plan and sections of exploratory mine development and borehole	1. Geological survey: i) Mapping: Detailed mapping on 1:1000 scale is done by GSI and improved by MECL ii) Detailed topographical cum geological map prepared including all surface geological features, extent of deposit, structure, location of

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data. 2. Geochemical survey: (i) Detailed litho-geochemical channel sampling from fresh rock exposures/ trenches, pits; (ii) Analysis of geochemical data for potential utilisation. 3. Geophysical survey: (i) Borehole geophysical survey ; (ii) Special geophysical traverses for problem solving , if required. 4. Technological: (i) Pitting/trenching for helping surface and subsurface correlation of mineralised zones; (ii) Drilling: closer-spaced than that for G-2 and upto the depth of 100-50 m. below the oxidation zone - depending on the necessity it may be brought down to 50 m. or less especially for precious metals; a few probe points for deeper intersections; (iii) Sampling- detailed core sampling, bulk	boreholes, and sections of exploratory mine development and borehole data. ore body identified and reserves estimated 2. Geochemical survey: i) GSI has analysed 2,191 Core Drill samples and MECL has analysed 6,429 Core Drill samples from all the 3 blocks. ii) Geochemical sampling was carried out on 100m x 25/50m by GSI. A total of 1.0 sq. km area was covered. The analytical results show anomalous gold values ranging from 50ppb to 10.27 ppm. Primary sample analysis for 240 samples for 6 radicals and Spectroscopic analysis for 57 samples undertaken. 3. Geophysical survey: i) Borehole geophysical survey not conducted. ii) Geophysical techniques for assessing the mineralization potential of the area include Self Potential(SP), Induced Polarization(IP) com Resistivity, Magnetic Survey. Totally about 2.5 sq.km area was covered. 4. Technological: (i) Pitting and trenching is done by GSI. (ii) 79 Core Drill holes on 56 m x 50 m grid with more than of 100.0 m depth have been drilled by GSI and MECL. With total of 13551.85m. (iii) GSI has analysed 2,191 Core Drill
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sampling for testing of processing technology on laboratory/pilot plant scale; (iv) Collection of abiotic geo-environmental parameters. 5. Petrographic: Detailed study of data on the petrographic character of rocks including study of grain size, texture, liberation characteristics and further refining of data. 6) Geostatistical analysis of borehole data (thickness of ore, waste encountered in holes, assay values) if considered necessary.	samples and MECL has analysed 6,429 Core Drill samples from all the blocks. (iv) Collection of abiotic geo-environmental data is not done. 5. Petrographic: Minerographic and Petrographic studies conducted on 140 samples. 6) Geostatistical analysis Geo-statistical analysis has been made.
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FEASIBILITY AXIS

F I (Feasibility study)	Status
1. Geology: Geology of area and project, detailed exploration, closed spaced drilling, exploratory mining upto 2nd level and underground boreholes, channel/groove sampling (50-100 cm), ore body modelling, bulk samples for beneficiation, geotechnical and ground & surface waters studies. However for coal beneficiation studies to be carried out depending upon coal qualities.	1. Geology: Geology of area and project: The Parasi prospect is bounded by Chhotanagpur Gneissic Complex (CGC) in the north and Dalma hill ranges in the south (Plate I). Major rocks types found in the area include magnetite-biotite-quartz-sericite schist, ferruginous quartzite, tuffaceous quartzose phyllite with intercalated schistose quartzite, carbon phyllite, grey quartzite, acid tuff, rhyolite, tremolite-actinolite bearing ultramafite and amphibolite, vein quartz and quartz/carbonate veins. The rock formation of the deposit generally trends ENE-WSW with steep dips on either side and occasionally to NE-SW with 65°-75° southeasterly dip. The shear follows the similar trend. Lineations and crenulations were observed. The plunge direction is N80-85° W with the average pitch of 48° west - northwesterly. Detailed exploration, closed spaced

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2.Mining: Mining plan, mine recoveries and efficiencies, man power requirements. 3.Environment: ELA/EMP including socio-economic impact, rehabilitation of project affected persons, waste disposal/ reclamation, detailed land use data. 4.Processing: Details of proven pilot plant /industrial scale investigations, appended with plant layout, design, equipment list, manpower, fuel/power consumption, environmental considerations, disposal of tailings, effluents and future/present remedial measures. 5. Infrastructure and services and construction activities: Full details. 6. Costing: Details of break up of capital and operating costs and working capital.	drilling, 79 Core Drilling holes on 50 m x 50 m grid with more than at 100.0 m depth have been drilled by GSI and MSEC. With total of 13551.85m. ore body modeling, bulk samples for beneficiation, geotechnical and surface waters studies. 2.Mining: Details of Mine planning, recovery and selection of equipment are furnished Chapter 2.0 -Mining. Man power details are furnished Chapter 7.0(b) -Others . 75 persons will be utilized for mining activities. 3.Environment: (i).ELA and EMP studies have not yet been conducted in mining area and surrounding areas including socioeconomic impacts. No hazards reported. 4.Processing: Waste and Tailings disposal is discussed in Chapter 4.0. Reclamation discussed in Chapter 8.3. Detail land use data is given in Para 8.2 & 8.3 of PMCP. 5. Infrastructure and services and construction activities Infrastructure and services necessary for mining activities are provided like rest room, first aid room, drinking water, etc. Parashi Gold prospect is about 12 km south of Tamar, from where it can be approached by fair weather road. Tamar is a block head quarters under Bandu Subdivision of Ranchi district, Jharkhand and situated 55 km from Ranchi on NH-33. Ranchi Railway station on the South Eastern Railway is the nearest rail-head. There is no wild life sanctuary within 10 kms radius from the Lease area. 6. Costing: Detail of capital and operating costs and details of working capital are
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Dr. S. K. Mydgeri
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MINING PLAN
PARASI GOLD DEPOSIT (75.173 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

7. Marketing: Overview, specific marketing aspects.

8. Economic viability: Cash flow forecasts, inflation effects, sensitivity studies.

9. Other factors: Statutory provisions relating to land, labour, mining, taxation, etc.

given in Table-I & Table-II

7. Marketing: Detail of marketing overview & specific market aspects are given in Table-III.

8. Economic viability: Economic viability is given below

9. Other factors: All the statutory provisions such as labour, land, mining, taxation, etc are complied as per existing laws

Table-I
CAPITAL COST

Description	As at the beginning of the year	Additions during the year	Sold or discarded during the year	Depreciation during the year	Net closing balance	Estimated market value Rs
1	2	3	4	5	6	7
i) Land						2,23,20,000
ii) Building	Office					10,00,000
Industrial	Beneficiation Plant					5,00,00,000
Forest	CA Land NPV					118,20,000 111,21,800
Exploration	Core Drilling of 4598m during the Plan period					400,00,000
iii) Machinery including transport equipment	Excavators(3)* * Dumpers(9) Compressors(1) Rock Breaker(1) Water Tanker(1) Jeep(1)					--
Total						13,62,61,870

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 Qualified Person

S. K. Myageri

MINING PLAN
PARASHI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

* Funds will be allocated partly from internal accruals of the company & partly borrowed from Nationalized Banks and Financial Institutions.

** Machineries will be hired and used.

Table-II
OPERATING COST

Cost per metric tonne of Gold Ore	Rupees	
1) Direct cost	Rs.	
a. Exploration	Rs.	5.00
b. Mining drilling, Blasting, Overburden removal	Rs.	80.00
c. Screening, Crushing	Rs.	
d. Beneficiation	Rs.	400.00
2) Overhead cost/Transport to Ex-plot, Stock yard	Rs.	10.00
3) Depreciation (Effective from 3 rd year)	Rs.	5.00
4) Royalty	Rs.	110.50*
5) District Mineral Foundation(DMF) (10% of Royalty)	Rs.	11.25
6) National Mineral Exploration Trust(NEMT) (2% of Royalty)	Rs.	2.25
7) Surface rent	Rs.	5.00
8) Bid Price committed in Auction (17% of sale price of the grade of mineral produced & despatched as published by IBM for the state for the concerned month).	Rs.	470.00
9) Wages	Rs.	5.00
10) Salary	Rs.	80.00
11) Tailing Dump Management	Rs.	30.00
12) Environment cost	Rs.	35.00
13) Safety and Security	Rs.	05.00
Total	Rs.	1260.00

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**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**



*Gold rate is considered at Rs.2,762/gram as on 14th March 2018(London Price) and royalty rate has been considered as 4% of London Bullion Market Association Price chargeable on the gold metal in ore produced.

MARKETING OVERVIEW & SPECIFIC MARKETING ASPECTS

Marketing overview and specific marketing aspects are not required as Gold produced will be sold directly.

NPV & IRR has been evaluated as under:

NPV : Rs. 123,00,00,000/- on 10% discounted basis

IRR: 33.53%

The detail NPV/IRR calculation sheets have been enclosed with the Feasibility Study report as Annexure IIIA. The capital cost, production & transportation costs, royalty & other taxes, the availability of financing indicate that the mine is technically and economically viable under foreseeable operating scenario.

H. S. Modi
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ECONOMIC AXIS:

E 1 (Economic)	Status
1. Detailed exploration.	1..Detailed exploration, closed spaced drilling; 79 Core Drill holes on 56 m x 50 m grid with more than of 100.0 m depth have been drilled by GSI and MECL. With total of 13551.85m.
2. Mining report/mining plan/ working mines.	2. Mining report/mining plan are being regularly prepared and submitted. Mine is being worked systematically
3. Specific end-use grades of reserves (above economic cut-off grade).	3. Specific end-use grades of reserves (above economic cut-off grade): Gold is the end product.
4. Specific knowledge of forest/non-forest and other land use data.	4. The Lease area has 11.959 Ha forest area, Waste land-12.958 Ha, Agricultural land-45.872 Ha and Others Land - 4.484 Ha. As per the Certified Land Schedule the classification of land is as below: Forest Land = 11.959 Ha Non-Forest (Govt.) Land. = 17.143 Ha Private Land = 46.171 Ha

Combining the three axis as per UNFC i.e., Geological axis, Feasibility axis and Economic axis, the Mineral reserves are categorized under G-1 Axis with UNFC Code 111. Since, some quantity of deposit is bound to be blocked in the statutory

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S. K. Myageri

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**



barrier of 7.5 m width, to maintain ultimate pit limit with a slope of 35° (ref. Plate No. IIB) the remaining resources are computed by leaving the deposit lying within the 7.5m safety barrier zone, for monitoring pit slope angle of 35° .

The Remaining Resources are categorized under G-I Axis with UNFC Code 221. No Inferred Mineral Resources are calculated as Proved Mineral Reserves are Calculated up to 155 mRL considering the lease boundary limit. The Mineral resource beyond the RL of 155m, has also been calculated. Since, method of mining, feasibility and economics of exploiting the resource beyond 155mRL could not yet been finalized because for proper evaluation of switching over to Under Ground Mining Method, certain information (like Geotechnical data are required for Vertical Shaft Sinking etc.) need to be gathered during proposed exploration to be carried out during the Plan Period, hence Mineral resource beyond the RL of 155m is categorized under UNFC Code of 222. Experience gained in this type of deposits shall also be utilized for taking the said decision.

Cross sectional method has been used to calculate the reserves for Gold Ore. Cross-sections have been drawn with an interval of 50m. Cross sections have been drawn through the entire area (ref. Plate No. IIB & IICa, IICb, IICc).

The cross sectional area of deposits is multiplied by sectional interval to give Volume. These volumes are multiplied by the bulk density of 2.80t/cum for Gold Ore.

Considering 95% recovery, the reserves are computed and tabulated. The Proved Mineral reserves for Gold Ore are of the order of 46,71,887 tonnes and which are shown in Table-I to Table-IV.

The Ultimate Pit Limit (UPL) is considered up to 155 mRL for wining of Gold ore by Open cast Mining. Accordingly the horizontal UPL has been drawn to excavate a total area of 31.6 Ha at the conceptual period of Open cast Mining.

Since, some quantity of deposit is bound to be blocked in the statutory barrier of 7.5 m width, to maintain ultimate pit limit with a slope of 35° (ref. Plate No. IIB & IICa, IICb, IICc) the remaining resources are computed by leaving the deposit laying within the 7.5m statutory barrier, for monitoring pit slope angle of 35° .

Details of category wise Total Mineral Resources & Proved Mineral Reserves Calculated as explained above, are in Table-I to Table-V, are given below as on 01-04-2018.


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED



k) Furnish detailed calculation of reserves/resources section wise (When the mine is fully mechanized and deposit is of complex nature with variation of size, shape, mineralized zones, grade due to intrusion within ore zone etc. an attempt may be made to estimate reserves/resources by slice plan method). In case of deposits where underground mining is proposed, reserve/resources may be estimated by slice plan method, as applicable, as per the proposed mining parameters.

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Table-I
TOTAL MINERAL RESOURCES CALCULATION: GOLD ORE
EASTERN BLOCK

UNFC Category	Section Line	Sectional Influence (m)	Sectional Area (m ²)	Volume of Ore (m ³)	Qty. at 95% @ 2.80 t/mbd (t)	Grade g/t
GI Mineral Resources	SE-1	37	88	3,256	8,661	
		37	214	7,918	21,062	
		37	46	1,702	4,527	
			Sub-Total	12,876	34,250	0.70
	SE-1A	50.5	478	24,139	64,210	
		50.5	2,102	1,06,151	2,82,362	
		50.5	676	34,138	90,807	
		50.5	331	16,715	44,462	
			Sub-Total	1,81,143	4,81,841	0.90
	SE-2	50	278	13,900	36,974	
		50	48	2,400	6,384	
		50	837	41,850	1,11,321	
		50	2,367	1,18,350	3,14,811	
			Sub-Total	1,76,500	4,69,490	0.91
	SE-2A	50.5	77	3,889	10,345	
		50.5	315	15,908	42,315	
		50.5	1,884	95,142	2,53,078	
			Sub-Total	1,14,939	3,05,738	0.94
	SE-3	49.5	61	3,020	8,033	
		49.5	37	1,832	4,873	
		49.5	975	48,263	1,28,380	
			Sub-Total	53,115	1,41,286	1.29
	SE-4	48	67	3,216	8,555	
		48	56	2,688	7,150	
		48	157	7,536	20,046	
		48	2,315	1,12,080	2,98,133	
			Sub-Total	1,23,520	3,33,883	1.41
	SE-4A	50.5	369	18,635	49,569	
			Sub-Total	18,635	49,569	0.78
	SE-5	50.9	1,036	52,732	1,40,267	
		50.9	541	27,537	73,248	

Dr. S. K. Myagari
 Qualified Person

S. K. Myagari

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

		50.9	73	3,716	9,888	
			Sub Total	83,989	2,33,400	1.04
			Total	7,66,713	10,39,457	1.04

**** mbd = Mean Bulk Density**

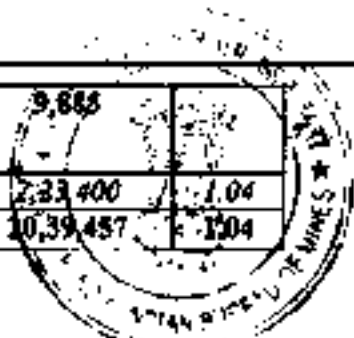


Table-II
TOTAL MINERAL RESOURCES CALCULATION: GOLD ORE (IVE)
CENTRAL BLOCK

UNFC Category	Section Line	Sectional Influence (m)	Sectional Area (m ²)	Volume of Ore (m ³)	Qty. at 95% @ 2.80 t/mbd (t)	Grade g/t
G1 Mineral Resources	S-1	53	190	10,070	26,786	
		53	309	16,377	43,563	
		53	109	5,777	15,367	
			Sub-Total	32,224	85,716	0.64
	S-2	52	137	7,124	18,950	
			Sub-Total	7,124	18,950	0.97
	S-3	53	138	7,314	19,455	
		53	1,053	55,809	1,48,452	
			Sub-Total	63,123	1,67,907	1.33
	S-4	55	921	50,655	1,34,742	
		55	190	10,450	27,797	
			Sub-Total	61,105	1,62,539	0.87
	S-5	55	1,414	77,770	2,06,868	
		55	67	3,685	9,802	
			Sub-Total	81,455	2,16,670	0.39
	S-6	50	464	23,200	61,712	
		50	378	18,900	50,274	
			Sub-Total	42,100	1,11,986	0.62
	S-6A	43	148	6,364	16,928	
		43	480	20,640	54,902	
		43	192	8,256	21,961	
		43	131	5,633	14,984	
			Sub-Total	40,893	1,08,775	1.52
	S-7	48	103	4,944	13,151	
		48	128	6,144	16,343	
		48	79	3,792	10,087	
		48	332	15,936	42,390	
		48	125	6,000	15,960	
		48	166	7,968	21,195	

Dr. S. K. Myageri
 Qualified Person

(Signature)

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

		48	261	12,528	33,324	
		48	101	4,848	12,806	
		48	576	27,648	73,504	
		48	731	35,088	93,304	
		48	78	3,744	9,955	
			Sub-Total	1,28,640	3,42,183	1.72
	S-8	52	800	41,600	1,10,656	
		52	1004	52,208	1,38,873	
		52	279	14,508	38,591	
		52	38	1,976	5,256	
			Sub-Total	1,10,292	2,93,376	0.88
	S-9	50.5	85	4,293	11,419	
		50.5	614	31,007	82,479	
		50.5	1,315	66,408	1,76,645	
			Sub-Total	1,01,708	2,70,543	1.72
	S-10	49.5	1,290	63,855	1,69,854	
		49.5	344	17,028	45,294	
		49.5	203	10,049	26,730	
				90,932	2,41,878	0.73
	S-11	51	2,991	1,52,541	4,05,759	
			Sub-Total	1,52,541	4,05,759	0.93
	S-12	38	193	7,334	19,508	
		38	1,784	67,792	1,80,327	
		38	91	3,458	9,198	
		38	193	7,334	19,508	
		38	1,409	53,542	1,42,422	
		38	129	4,902	13,039	
			Sub-Total	1,44,362	3,84,002	0.95
			Total	10,56,449	28,10,284	0.99

ESTIMATED MINERAL RESOURCES FOR EAST & CENTRAL BLOCK	Volume (m3)	Qty. at 95% @ 2.80 t/mbd (t)	Grade g/t
EAST BLOCK TOTAL	7,66,713	20,39,457	1.04
CENTRAL BLOCK TOTAL	10,56,449	28,10,284	0.99
GRAND TOTAL	18,23,162	48,49,741	1.01

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MINING PLAN
PARASI GOLD DEPOSIT (75,273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED



Table-III
MINERAL RESERVE CALCULATION: GOLD ORE
EASTERN BLOCK

UNFC Category	Section Line	Sectional Influence (m)	Sectional Area (m ²)	Volume of Ore (m ³)	Qty. at 95% grade 2.80 t/mbd (t)	Grade (g/t)
G1 Mineral Reserves	SE-1	37	75	2,775	7,382	0.70
		37	194	7,178	19,093	
		37	46	1,702	4,527	
			Sub-Total	11,655	31,002	
	SE-1A	50.5	478	24,139	64,210	
		50.5	2,102	1,06,151	2,82,362	
		50.5	676	34,138	90,805	
		50.5	331	16,715	44,462	
			Sub-Total	1,81,143	4,81,840	0.90
	SE-2	50	105	5,250	13,965	
		50	48	2,400	6,384	
		50	837	41,850	1,11,321	
		50	2,367	1,18,350	3,14,811	
			Sub-Total	1,67,850	4,46,481	0.91
	SE-2A	50.5	40	2,020	5,373	
		50.5	315	15,908	42,314	
		50.5	1,884	95,142	2,53,078	
			Sub-Total	1,13,070	3,00,765	0.94
	SE-3	49.5	61	3,019.5	8,032	
		49.5	37	1,831.5	4,872	
		49.5	975	48,262.5	1,28,378	
			Sub-Total	53,113.5	1,41,282	1.29
	SE-4	48	10	480	1,277	
		48	56	2,688	7,150	
		48	157	7,536	20,046	
		48	2,321	1,11,408	2,96,345	
			Sub-Total	1,22,112	3,24,818	1.41
	SE-4A	50.5	369	18,634.5	49,568	
			Sub-Total	18,634.5	49,568	0.78
	SE-5	50.9	20	1,018	2,708	
		50.9	541	27,536.9	73,248	
		50.9	73	3,715.7	9,884	
			Sub-Total	32,271	85,841	1.04
Total				6,99,848.6	18,61,597	1.04

[Signature]
Dr. S. K. Myagari
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75,273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED



Table-IV
MINERAL RESERVE CALCULATION: GOLD ORE
CENTAL BLOCK

UNFC Category	Section Line	Sectional Influence (m)	Sectional Area (m ²)	Volume of Ore (m ³)	Qty. at 930 g/t 2.80 t/mbd (t)	Grade g/t
G1 Mineral Reserves	S-1	53	26.8	1420.4	3778.0	
			<i>Sub-Total</i>	<i>1420.4</i>	<i>3778.0</i>	<i>0.64</i>
	S-2	52	137	7,124	18,950	
			<i>Sub-Total</i>	<i>7,124</i>	<i>18,950</i>	<i>0.97</i>
	S-3	53	138	7,314	19,455	
		53	1,053	55,809	1,48,452	
			<i>Sub-Total</i>	<i>63,123</i>	<i>1,67,907</i>	<i>1.35</i>
	S-4	55	921	50,655	1,34,742	
		55	190	10,450	27,797	
			<i>Sub-Total</i>	<i>61,105</i>	<i>1,62,539</i>	<i>0.87</i>
	S-5	55	1,414	77,770	2,06,868	
		55	67	3,685	9,802	
			<i>Sub-Total</i>	<i>81,455</i>	<i>2,16,670</i>	<i>0.39</i>
	S-6	50	464	23,200	61,712	
		50	378	18,900	50,274	
			<i>Sub-Total</i>	<i>42,100</i>	<i>1,11,986</i>	<i>0.62</i>
	S-6A	43	148	6,364	16,928	
		43	480	20,640	54,902	
		43	192	8,256	21,961	
		43	131	5,633	14,984	
			<i>Sub-Total</i>	<i>40,893</i>	<i>1,08,775</i>	<i>1.52</i>
	S-7	48	101	4848	12895	
		48	125	6000	15960	
		48	79	3,792	10,087	
		48	283	13,584	36,133	
		48	125	6,000	15,960	
		48	166	7,968	21,195	
		48	261	12,528	33,324	
		48	101	4,848	12,896	
		48	576	27,648	73,544	
		48	731	35,088	93,334	
		48	133	6384	16981	
			<i>Sub-Total</i>	<i>1,28,688</i>	<i>3,42,310</i>	<i>1.12</i>
	S-8	52	800	41,600	1,10,656	
		52	1004	52,208	1,38,873	

Dr. S. K. Myageri
 Qualified Person

S. K. Myageri

Mining Plan
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

		52	279	14,508	38,591	
		52	37	1,924	5,256	
			<i>Sub-Total</i>	<i>1,10,240</i>	<i>2,93,238</i>	<i>0.88</i>
S-9		50.5	85	4,293	11,419	
		50.5	614	31,007	82,479	
		50.5	1,315	66,407	1,76,642	
			<i>Sub-Total</i>	<i>1,01,707</i>	<i>2,70,541</i>	<i>1.72</i>
S-10		49.5	1,290	63,855	1,69,854	
		49.5	344	17,028	45,294	
		49.5	203	10,048.5	26,729	
				<i>90,932</i>	<i>2,41,878</i>	<i>0.73</i>
S-11		51	2,991	1,52,541	4,05,759	
			<i>Sub-Total</i>	<i>1,52,541</i>	<i>4,05,759</i>	<i>0.93</i>
S-12		38	193	7,334	19,508	
		38	1,784	67,792	1,80,327	
		38	91	3,458	9,198	
		38	193	7,334	19,508	
		38	1,409	53,542	1,42,422	
		38	129	4,902	13,039	
			<i>Sub-Total</i>	<i>1,44,362</i>	<i>3,84,003</i>	<i>0.95</i>
Total				1025689.9	2728335.0	0.99

ESTIMATED MINERAL RESOURCES FOR EAST & CENTRAL BLOCK	Volume (m³)	Qty. (t)	Grade g/t
EAST BLOCK TOTAL	6,99,848.6	18,61,597.0	1.04
CENTRAL BLOCK TOTAL	1025689.9	27,28,335.0	0.99
MINERAL RESERVE FOR EAST & CENTRAL BLOCK GRAND TOTAL	17,25538.5	45,89,932.0	1.01

Table-V
MINERAL RESOURCE CALCULATION: GOLD ORE (BEYOND 155mRL)

UNRC Category	Section line	Sectional Influence (m)	Sectional Area (m2)	Volume of Ore (m3)	Qty. at 95% @ 2.80 U/mt (t)	Grade (g/t)
G2 Mineral Reserve	SE1	37	38.3	1417.1	3769.486	
			96.9	3585.3	9536.898	
			31.2	1154.4	3070.704	
	Sub-Total			6156.8	16377.088	0.7

Dr. S. K. Myageri
 Qualified Person

S. Myageri

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : MA RUNCTA MINES LIMITED

SE1A	50.5	96.7	4883.35	12989.711	
		251.9	12720.95	33837.727	
		905.3	45717.65	121608.949	
		193.6	9776.8	26006.288	
		71.7	3620.85	9631.461	
Sub-Total			76719.5	204074.136	0.9
SE2	50	1329.7	66485	176850.1	0.91
Sub-Total			66485	176850.1	
SE3	49.5	164.6	8147.7	21672.882	
		25.3	1252.35	3231.251	
		400.6	19829.7	52747.002	
		196.6	9731.7	25886.322	
Sub-Total			38961.45	103637.457	1.29
SE4	48	848.7	40737.6	108362.016	
		42.8	2054.4	5464.704	
Sub-Total			42792	113826.72	1.41
SE4A	50.5	341.8	17260.9	45913.994	
		172.4	8706.2	23154.492	
Sub-Total			25967.1	69072.486	0.78
SE5	50.9	52	2646.8	7040.488	
		310.4	15799.36	42026.2976	
Sub-Total			18446.16	49066.7856	1.04
S1	53	230.6	12221.8	32509.988	
		284.8	15094.4	40151.104	
		152.15	8063.95	21450.107	
Sub-Total			35380.15	94111.199	0.64
S2	52	610.4	31740.8	84430.528	
		437.7	22760.4	60542.664	
Sub-Total			54501.2	144973.192	0.97
S3	53	453.1	24014.3	63878.038	
		2405.3	127480.9	339099.194	
Sub-Total			151495.2	402977.232	1.35
S4	55	25.6	1408	3745.28	
		2190.3	120466.5	320440.89	
Sub-Total			121874.5	324186.17	0.87
S5	55	208.3	11456.5	30474.29	
		93.4	5137	13664.42	
Sub-Total			16593.5	41138.71	0.39
S6	50	194.9	9745	25921.7	
		1522.5	76125	202492.5	
		433.4	21670	57642.2	
		388.4	19420	51657.2	

Dr. S. K. Myageri
 Qualified Person

S. K. Myageri

MINING PLAN
PARASI GOLD DEPOSIT (75.173 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

		469.8	23490	62433.4	
	Sub-Total		150450	400197	0.62
S6A	43	224.2	9640.6	25643.996	
		603.2	25937.6	68994.016	
	Sub-Total		35578.2	94638.012	1.52
S7	48	18	864	2298.24	
		1547.1	74260.8	197533.728	
		813	39024	103803.84	
		1570.7	75393.6	200546.976	
		1116.4	53587.2	142541.952	
	Sub-Total		243129.6	646724.736	1.32
S8	52	979.4	50928.8	135470.608	
		327.4	17024.8	45285.968	
		1129.3	58723.6	156204.776	
		327.5	17030	45299.8	
		150.5	7826	20817.16	
	Sub-Total		151533.2	403078.312	0.88
S9	50.5	924.4	46682.2	124174.652	
		1780.7	89925.35	239201.431	
		1231.7	62200.85	165454.261	
		2013.5	101681.75	270473.455	
		66.6	3363.3	8946.378	
		339.2	17129.6	45564.736	
	Sub-Total		320983.05	853814.913	1.72
S10	49.5	1532.3	75848.85	201757.941	
		424.4	21007.8	55880.748	
	Sub-Total		96856.65	257638.689	0.73
S11	51	949	48399	128741.34	
		270.7	13805.7	36723.162	
		1810.6	92340.6	245625.996	
	Sub-Total		154545.3	411090.498	0.93
S12	38	24.6	934.8	2486.568	
		719.9	27356.2	72767.492	
		164.3	6243.4	16607.444	
		1590.4	60435.2	160757.632	
		259.6	9864.8	26240.368	
	Sub-Total		104834.4	278859.504	0.95
	Total		1913283.86	5089332.94	1.095

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MINDING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

1) Mineral Reserves/Resources:

Mineral Resources: (Mineral resources may be estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM)

Level of Exploration	Reserve in tons Gold Ore	Resources in tons Gold Ore	Grade Gold Ore(g/t)
G1 - Detailed exploration	48,49,741.00	--	1.010
G2 - General Exploration	--	50,89,332.94	1.095
G3 - Prospecting	--	--	--
G4 - Reconnaissance	--	--	--

Resources and Reserves within the lease are arrived after applying results of economic evaluation of deposit based on various factors such as:

- Mining method, Recovery factor, mining losses, processing loss etc.*
- Cut off grade, Ultimate pit depth proposed*
- Mineral/ ore blocked dues to benches, barriers, pillars, road, nala, and other statutory barriers etc, under forest, sanctuaries etc. where necessary permissions are not available.*

	UNFC Code	Quantity in tons	Grade (g/t)
A. Total Mineral Reserve			
Proved Mineral Reserve 111	111	45,89,932.00	1.01
Probable mineral Reserve 121 and 122	--	--	--
B. Total Remaining Resources	--	--	--
Feasibility mineral Resource 211	--	--	--
Prefeasibility mineral resource 221 & 222	221	2,59,809.00	1.01
Prefeasibility mineral resource 221 & 222	222	50,89,332.94	1.09
Measured mineral resource 331	--	--	--
Indicated mineral resource 332	--	--	--
Inferred mineral resource 333	--	--	--
Reconnaissance mineral resource 334	--	--	--
Total Reserves + Resources		99,39,073.94	1.051

Note: It may not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus tonnages arrived are tentative

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PART-A

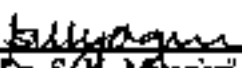
A. OPEN CAST MINING:

- a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections.

The Parasi area is a peneplain terrain, with undulating topography, the deposit is wide enough for opening along the strike.

In view of closely spaced lodes along the entire strike length of 500 m with average cumulative thickness of all lodes within the ore shoot of about 28.33 m. with having 1.36 g/t Au grade up to a vertical depth of 155m in Eastern Block of Parasi Gold Deposit and the average thickness of lode of 9.27m with an average grade of 0.98 g/t over the entire strike length of 706 m in Central Block of this Deposit up to a vertical depth of 155m makes this Deposit suitable for Open Cast Mining Method. The important Geological aspects of the Parasi Gold Deposit which makes it amenable for Open Cast Mining Method are summarized as under:

1. Near surface mineralization. Very low strip (1 : 4.44) ratio favors Open Cast mining.
2. Stable host rock, hanging wall and foot wall rocks (quartz-chlorite-muscovite, quartz-magnetite-biotite-sericite schist, ferruginous quartzite, tremolite-actinolite-hornblende schist, tuffaceous quartzose phyllite intercalated with schistose quartzite, grey quartzite, acid tuff, vein quartz and carbonate veins) which should allow us to take the pit slope to 50 degree or higher. However, we shall carry out more Geotechnical work to arrive at a safe pit slope.
3. Very little chance of pit slope failure.
4. Hydrological conditions favorable for Open Cast mining.
5. Even if we consider the entire geological resource as mineable, 9.894 million tons of ore with gold content of 1.055 g/t Au is very small to sustain the high CAPEX of Under Ground mining because the current rate of Shaft sinking of 6m diameter is about 15000 USD per meter (i.e. about Rs. 10,50,000/m).
6. The lodes are thin and will necessitate narrow vein mining with controlled blasting which can be handled well in Open Pit mining than UG mining.
7. The average grade of Parasi deposit is low for a UG mine.
8. However, as we have discussed in the Conceptual Plan, if the gold lodes consolidates at depth to form thicker lodes, the gold grades increases marginally and the company goes cash positive from its OC operation over a period of time then UG mining at a later date cannot be ruled out and UG mining can be taken


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**MINING PLAN
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up at later part of the life of the mine to exploit deeper reserves below 155m RL leaving a crown pillar of safe thickness.

Thus, it is prudent to adopt Open Cast Fully Mechanised Mining Method to operate the Parasi Gold Deposit.

Moreover, the Geological Report on Detailed Exploration for Gold of ~~Parasi Gold~~ Deposit prepared by Mineral Exploration Corporation Limited also ~~states~~ **recommends** Open Cast Mining Method to be suitable in its "CONCLUSIONS AND RECOMMENDATIONS" Chapter.

An Open Cast, Fully Mechanised Mining Method will be adopted to operate the area.

The annual production is 60,006.18 tonnes of Gold ore (maximum in 5th Year of Plan Period) with a total production of 1,20,023.65 MT during this first 5 years plan period.

The mining of ore is proposed to be carried out during the 5 years plan period in the eastern block of the Mining lease.

Ancillary activities like dumping of OB waste, setting up of beneficiation plant, tailing pond, tailing dump, mineral storage yard etc. has been proposed in the Western Block and temporary soil dump at SW part of Central Block. The entire proposed mining lease area of Parasi Gold Deposit is already explored by GSI & MECL by putting 79 boreholes to cover the whole leasehold area in a 50m x 50m grid. Exploration in Parasi Gold Deposit is complete and is of G-1 level up to 155m RL from Section SW1 to SW 6A, Section S-1 to S12 and Section SE1 to SE-6 covering the West, Central and Eastern Blocks. The ground selected for dumping of Overburden, Waste material, Tailings, mineral storage yard etc. are already proved for absence of underlying mineral deposits.

During the initial 2 years of the plan period preparatory works like land acquisition, Test drillings for Geotechnical evaluations for construction activities for beneficiation plant, Machinery Ordering, obtaining statutory clearances, Face development works, ground preparation for waste dumping, temporary soil dump, haul roads, excavation of Top soil & OB waste and installation of beneficiation plant, will be executed. Exploitation of Gold ore will start from 3rd year onwards.

The year wise details for the top soil, OB and Ore excavation is given below:

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Mining Plan
PARASI GOLD DEPOSIT (75.273 Ha)
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1st Year :

During the 1st year of the proposed plan period, the quarry development is proposed to be started from Central Southern part of the East Block with a dimension of 132m x 122m with 02 no of benches for Soil & OB Waste excavation. The Bench height and width will be maximum of 9m & 12 m respectively. The proposed development is tabulated below:

APPROVED

Section	Bottom RL (m)	Sectional area (m ²)		Length of incline (m.)	Volume of Soil (m ³)	Volume of waste (OB+IB+SB) (m ³)	Volume of Ore after recovery (95%) (m ³)	Volume of intercalated waste (0.05%) (m ³)	Tonnage of Ore (BD 1.5)
		Top soil	Waste						
SE-4-4'	240.1	785.90	344.60	48.0	37723.20	16540.80	0	0	0
	231.4	0.00	932.30	48.0	0.00	44750.40	0	0	0
SE-4A-4A'	240.1	962.40	0.00	50.5	48601.20	0.00	0	0	0
	231.4	436.50	463.50	50.5	22043.25	23406.75	0	0	0
Total					108367.65	84697.95	0	0	0

Top soil - 108367.65 m³

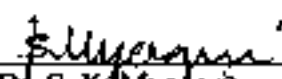
O.B. Waste - 84697.95 m³

The soil is proposed to be dumped temporarily at the south west part of the central block and part of which will be used for spreading over the area of safety zone to facilitate plantation. The OB waste will be dumped at the dumping site located at the Northern part of the East Block covering an area of 2.31 Ha with 3.70m height. Parapet wall (400m) and garland drain (400m) with a settling tank in series is proposed to be constructed along the toe of the waste dump to arrest the surface run off during the rainy season.

All the proposals for 1st year is shown in *Plate no. IIIA*

2nd Year :

The working of the 1st year is proposed to be developed at further west ward by another 110m. Advancement of quarry will continue with digging of soil and waste by developing 02 no of benches with maximum 10m height and 12m width. Bottom RL of benches and section wise calculation for volume of Soil & OB is tabulated below and shown in plans & section in *Plate No. IIIB*


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

Section	Bottom RL (m)	Sectional area (m ²)		Length of influence (m.)	Volume of Soil (m ³)	Volume of waste (OB+HB+SB) (m ³)	Volume of Ore after recovery (95%) (m ³)	Volume of intercalated waste (0.65%) (m ³)	Tonnage of Ore (BD 1.95)
		Top soil	Waste						
SE2A-	240.1	938.30	233.25	50.5	47394.25	11779.12	0	0	0
SE2A'	231.4	0.00	938.20	50.5	0.00	47379.10	0	0	0
SE3-	240.4	531.20	267.75	49.5	26294.40	13253.63	0	0	0
SE3'	231.4	0.00	942.50	49.5	0.00	46653.75	0	0	0
Total					73688.65	119065.60	0	0	0

Top soil -- 73688.65m³

O.B. Waste - 119065.60m³

In the proposed 2nd year, the soil will be removed and stacked separately at the designated temporary dump and will be used partially for dump along safety zone on which plantation will be made. The generated waste will be transported from the quarry and will be unloaded over the 1st year dump to reach the height of the dump for another 5.20m. Dump RL will be 258.90m.

During this year plantation (2056 nos) will be done along 7.5m. safety zone in the part of North, West and South side of West Block covering a total area of 8225 m² and further 500 no of saplings are proposed to be planted along the approach roads.

3rd Year :

During 3rd year of this plan period, it is proposed to work within the already broken area for mining. Exploitation of ore is also planned to be started in this year by developing the 1st year working area further down by one more bench so as to reach at 222.8m of bottom RL. No soil is proposed to be excavated during this period. Only overburden and side burden waste and intercalated waste will be generated. Calculation of Ore, OB generation is given in the table below and shown in plans & section in Plate No. IIC:

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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

Section	Bottom RL (m)	Sectional area (m ²)		Length of influence (m)	Volume of Soil (m ³)	Volume of waste (OB+IB+S B) (m ³)	Volume of Ore after recovery (95%) (m ³)	Volume of intercalated waste (m ³)	Tonnage of Ore (MT)
		Waste	Ore						
SE4-SP4'	222.8	490.5	219.75	48	0	23544.00	10020.6	527.40	28057.68
SE4A-SE4A'	222.8	632.6	14.50	50.5	0	31946.30	695.64	36.61	1947.79
Total					0	55490.30		564.01	30005.47

Top soil – 00 m³

Waste – 55490.30 m³

Gold Ore – 30005.47MT

Intercalated Waste – 564.01 m³

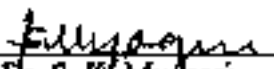
Tailing Waste – 13638.85 m³

The generated total waste is proposed to be dumped over the same dumping site with a increase in height of 2.40m so as to reach top RL of 261.30m. The Gold ore is proposed to be excavated and will be sent to the beneficiation plant for extraction of Gold and tailings are proposed to be disposed off in proposed Tailing Pond. As soon as slurry tailing will be dried up, will be shifted to the tailing dump at the NW corner of the lease area with a height of 1.36m. Parapet wall (300m) and Garland drain (400m) with settling tank is proposed to be constructed along the tailing dump.

During this year plantation (2056 nos) will be done along 7.5m. safety zone in the Southern part of the Central Block covering a total area of 8225m² along with another 500 no of plants at the approach roads. The Working proposals along with planning for ancillary activities are shown in Plate no. IIIC

4th Year :

During 4th year, the working is proposed to continue within the same developed quarry, particularly in the 2nd year working area by developing another one bench downward up to the bottom RL of 225.8m. No soil and overburden is proposed to be generated during this year. The generated side burden waste is proposed to be dumped in the designated dumping site. The summary of side burden waste and ore excavation is tabulated below and shown in plans & section in Plate No. IIID :


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
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Section	Bottom RL (m)	Sectional area (m ²)		Length of Influence (m)	Volume of Soil (m ³)	Volume of waste (OB+IB+S B) (m ³)	Volume of Ore after recovery (95%) (m ³)	Volume of intercalated waste (0.85%) (m ³)	Tonnage of Ore (BD 2.8)
		Waste	Ore						
SE2A-SE2A'	225.8	312.15	147.70	50.5	0	15763.58	7085.91	372.94	19840.50
SE3-SE3'	225.8	383.55	77.25	49.5	0	18985.72	3632.67	191.20	10817.50
Total					0	34749.30		564.14	30012.00

Top soil – 00 m³

Waste – 34749.30 m³

Gold Ore – 300012.00MT

Intercalated Waste – 564.14 m³

Tailing Waste – 13641.80 m³



The amount of generated waste is proposed to dump over the same dumping site. The height of the dump will increase by 1.50m with the top RL of 262.80m. The Tailings from the beneficiation plant will be shifted to the Tailing pond and dried up tailings will be removed from the pond and dumped as tailing dump covering an area of 1.0 ha with 1.36 m height.

During this year also top soil will be spread along the safety zone for plantation (2056 nos) in the South, East and Northern side of the East Block covering a total area of 8225m². Plantation of another 500 no of plants is also proposed to be carried out along the approach roads.

5th Year :

In this year also, no extra piece of land is proposed to be broken. The working will be confined in the same developed area only with deepening the pit by another one bench along with working in the same bench of 3rd and 4th year. The production capacity is proposed to reach at its apex by 60,006.18 MT. With nil generation of soil and OB, some amount of side burden waste will be generated and is planned to be unloaded in the same dump so as to reach the height by another 2.40m. The ultimate dump height will be 15.2m and top RL of the dump will be 265.20m

The details of section wise calculation for generation of waste and ore are tabulated here under and shown in plans & section in Plate No. IIIE:

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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
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Section	Bottom RL (m)	Sectional area		Length of influence (m)	Volume of Soil (m ³)	Volume of waste (OB+IB+S) (m ³)	Volume of Ore after recovery (95%) (m ³)	Volume of intercalated waste (0.05%) (m ³)	Tailing Waste (m ³)
		Waste	Ore						
SE4-SE4'	221.4	65.50	51.5	48.0	0	3144.00	2348.40	123.8	3775.80
	218.0	77.25	124.7	35.5	0	2742.38	4205.51	221.34	11775.43
SE4A-SE4A'	221.4	96.00	6.0	50.5	0	4848.00	287.85	15.15	805.98
	218.0	160.50	165.5	50.5	0	8105.25	791.39	41.66	2216.45
SE3-SE3'	221.4	285.30	57.0	49.5	0	14122.35	2680.43	141.07	7505.20
	218.0	131.40	42.2	49.5	0	6504.30	1934.46	104.44	5556.49
SE2A-SE2A'	221.4	219.50	153.5	50.5	0	11084.75	7364.16	387.59	20619.65
	218.0	130.80	63.1	29.5	0	3858.60	1768.38	93.07	4951.46
Total					0	54409.63	21438.78	1127.94	60006.18

Top soil – 00 m³

Waste – 54409.63m³.

Gold Ore – 60006.18MT

Intercalated Waste – 1127.94 m³

Tailing Waste – 27275.5 m³

Dumping of waste will be continued in the same dumping yard and tailing disposal in tailing pond followed by tailing dump to increase the height of tailing dump by another 2.73m.

Spreading of Top soil from the temporary dump along the safety zone for plantation with 2056 no of saplings covering an area of 8225 m² is also proposed to be carried out in the northern side of the Central Block.

10 tonne capacity Tippers, 1.2cum capacity Excavators / front end loaders will be used for mining. Rock breakers will be used for breaking of oversize boulders. Wagon/percussion drill machine with compressor will be engaged for carrying out blast holes. Thus mining operation has become Fully Mechanized Mining, Category A.

Mining plan for production and development is shown in Plate No. IIIA-E. A bench of maximum 10 m height and a minimum bench width of 12 m will be maintained with due permission from Directorate of Mines Safety (DGMS).

There is sufficient length of the faces will be provided with 12 m width of the bench for different works i.e., drilling, blasting, loading, breaking, sizing and transportation.

[Signature]
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It is proposed to work in maximum 4 levels with a maximum depth of excavation 32.2m during the plan period. Bench will be advanced by removing soil separately which has thickness varies between 0.2m to 12.0m. There is 1,82,056.3m³ of topsoil in the plan period. The top soil will be excavated separately and is proposed to dump temporarily; Part of which will be used year wise, progressively for bund/spreading along the safety zone for developing green belt.

Road from excavated pit to dumping yard, beneficiation plant, tailing pond etc. will be made and is shown in development plan.

Gold Ore mining during the plan period is proposed to be carried-out along section SE2A-SE2A' to SE4A-SE4A'.

The year wise location and RL of working pit will be as follows :

Year	No of Benches	RL of Benches(m)	Location
1	2	240.1, 231.4	E 369415-E369574 & N2543204 -N2543344
2	2	240.1, 231.4	E 369318-E369456 & N2543144- N2543315
3	1	222.8	F 369424-E369543 & N2543230- N2543319
4	1	225.8	E369349-E369452 & N2543175- N2543306
5	2	221.4, 218.0	E369349-E369543 & N2543176- N2543318

Advanced from Central south part of the East block towards West to East and slope angle of 35° will be maintained.

At the end of the plan period, the dimension of the Pit will be 230m x 132.5m with maximum depth of 32.2 m from surface; bottom most RL to be 218.0m.

The Operations involved are drilling and blasting, by using Wagon/percussion with compatible Compressor, for drilling of blast holes of 10.5 m. Blasting will be done using slurry, in conjunction with detonators and safety fuse. The blasted material will be loaded by excavators and transported by tippers.

a) & b) Broad blasting parameters & type of explosives to be used:

Considering the fact the Gold Ore is involved and that class II explosives are to be used, the powder factor can be estimated to be 8.82 tonnes /Kg. of explosives.

The maximum explosive required per annum at a powder factor of 8.82 tonnes/ kg will be


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2,61,944.32 / 8.82/kg = 29,699 kg. It is proposed to use slurry explosive and Ammonium Nitrate Explosive.

The charge per hole will be around 35 Kgs; Nonel technique of blasting will be practiced by using SMS with booster and for initiation of booster, DTH of 475-500 millisecond and TLD of 25 millisecond will be used. Requirement of booster will be 5kg for 100 kgs of SMS explosive. DTH will be required 12m per hole and TLD of 5m per hole. TLD will be initiated by electric detonator and will be blasted by connecting with exploder.

Since, Nonel Technique with delay method and electric detonator is proposed to be used, ground vibration and fly rock is expected to be minimum.

However, since the area is surrounded by an agricultural land, if required, sand bags/ mud bags will be kept on holes and will be muffled.

c) Powder factor :

The detailed calculations showing the powder factor in this area is as follows.

Spacing	3.5 m
Burden	3.0 m
Depth of the hole	10.5 m
Bulk Density	2.80 t/Cum

Therefore, each hole gives us = $3.5\text{m} \times 3.0\text{m} \times 10.5\text{m} \times 2.80 \text{ t/Cum}$
= 308.7 tonnes / hole

Therefore, the powder factor = $308.7 / 35$

For 1 Kg Explosives: = 8.82 t/Kg

The maximum material to be handled during this plan period is

119065.60 cum / Year = 261944.32 MT/Year

No. of holes required for 261944.32 tpa will be $261944.32 / 308.7 \text{ tonnes/hole}$
= 849 Nos

Total drilling required will be $849 \times 10.5 \text{ m} = 8914.5 \text{ m}$

One Wagon/percussion drill machine with compressor can give 45,000 m/ annum.

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PARASI GOLD DEPOSIT (75.273 Ha)
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Thus 1 no Wagon/percussion Drilling Machine with compressor is more than adequate for the proposed production.



- b) Indicate year-wise tentative Excavation in Cubic Meters indicating development ROM, pit wise as in table below.

I. Insitu Tentative Excavation

- * Tentative tonnage of the ore may be arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series.

GOLD ORE

Year	Pit No	Total tentative Excavation (Cum)	Top Soil (Cum)	OR & SB/IB (Cum)	ROM (Cum) @ 95% recovery			Intercalated Waste @ 5% (m ³)	ROM Waste Ratio (cum./cum) $\frac{(4+5+8)}{6a}$
					Ore (Cum)	Ore @ BD - 2.8 (MT)	Mineral reject (Cum)		
1	2	3	4	5	6a	6b	7	8	9
1 st	1	193065.60	108367.65	84697.95	0	0	-	-	-
2 nd	1	192754.25	73688.65	119065.60	0	0	-	-	-
3 rd	1	66770.55	0	55490.30	10716.24	30005.47	-	564.01	1 : 5.23
4 th	1	46032.01	0	34749.30	10718.57	30012.00	-	564.14	1 : 3.29
5 th	1	76968.35	0	54409.63	21430.78	60006.18	-	1127.94	1 : 2.59
Total		575590.76	182056.30	348412.78	42865.59	120023.65	-	2256.09	1 : 12.43

Stripping Ratio for Parasi Gold Deposit during the plan period is tabulated below:

Year	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year	Total
Stripping Ratio (Cum/MT)	-	-	1 : 1.87	1 : 1.18	1 : 0.93	1 : 4.44

- II. Dump re-handling (for the purpose of recovery of mineral):

NA

- c) Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc in case of 'A' category mines.

Year wise development plans and development sections showing pit layouts, temporary top soil dump, waste dumps, tailing dump and tailing pond are shown in the Production and Development Plan (Plate - III A to III E).

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25/11/2018
Regional Controller of Mines
M/s Rungta Mines Limited

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : MA RUNGTA MINES LIMITED



d) Describe briefly giving salient features of the proposed method of working indicating
Category of mine.

An Open Cast Fully Mechanized Mining Method will be adopted to operate the area during the plan period. Necessary clearances will be taken, like Consent to Establish and Consent to Operate from State Pollution Control Board, MoEF Clearance & EC Clearances after the approval of Mining Plan.

10 tonne capacity Tippers, 1.2cum capacity Excavators / front end loaders are used for mining; for blast holes, Wagon/percussion drill machine with compressor will be deployed.

Rock breakers will be used for breaking of oversize boulders. Thus mining operation has become Fully Mechanized Mining Category A.

A mining plan for production and development is shown in Plate No. III A-E. The maximum bench height of 10m and a minimum bench width of 12m will be maintained.

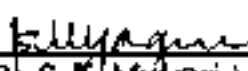
Following are the mine machinery to be used as per MMR, 1961.

The Method of mining shall continue to be Fully Mechanized 'A' category. There may be changes in the proposed deployment of machinery.

List of Machineries are as under. The following machines are proposed to be purchased or hired & used.

List of Machineries are as under.

Type	Nos.	Capacity	Motive Power
Excavator	3	1.2 cum	Diesel Engine
Tippers	9	10 tonnes	Diesel Engine
Rock Breaker	1	110Kg	Diesel Engine
Drill Machine & compressor	1	80-100 mts per hour	Diesel Engine Compressed Air
Water tanker	1	3000 liters	Diesel Engine
Jeep	1	2523 CC	Diesel Engine
Water Pumps	2	25 HP	Diesel Engine


Dr. S. K. Myligeri
Qualified Person

Type	Nos.	Size of hole (mm)	Capacity	Motive Power
1) Compressor	1	-	8 to 10 Kg/cm ²	Diesel Engine
2) Wagon/ percussion Drill Machine	1	150	80 - 100 mm/hr	Compressed Air

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**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

For 1 shovel = 257 cum

To handle 644 m³ 3 no. of Shovels are required.

Calculation for Number of dumpers required

Average one way haulage distance = 1.5 Km

Total traveling distance = 3.0 km

Average speed of dumper = 10 km/hour or 6 min/km

Traveling Time for 3.0 km = $3.0 \times 6 = 18.0$ min

Loading time = 5 min

Total time required for 1 tipper (10 MT or 3.5 m³) = $5 + 18 = 23$ min

Hence each dumper will make 2.61 trips say 3 trips in 1 hour.

In 7.0 hours in a shift = $3 \times 7.0 = 21$ Trips

Carrying capacity of tipper = 3.5 m³ (average) per Trip

1 tipper can carry = $3.5 \text{ m}^3 \times 21 \text{ trips} = 73.5 \text{ m}^3$ in 1 shift

To handle 644 m³ = $644 / 73.5 = 08.7$ Numbers

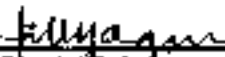
or say 09 no of tippers will be required

Transport from mine head to the destination:

The top soil and waste OB material from the mine head will be transported to the designated dumping yard by 10 MT tippers. The same tippers will also be used for transportation of ore to the beneficiation plant located at the southern part of West Block of the Lease.

- e) Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPI or ultimate size of the pit is to be shown for identification of the suitable dumping site.

Gold Ore mining is proposed to be carried-out in the Eastern Block of the Lease area along section SE2A-SE2A' to SE4A-SE4A'. The working pit will be advanced


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**MINING PLAN
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from East-West. Pit slope angle of 35° will be maintained. The benches will be kept at maximum of 10.0 m height and minimum of 12.0 m width.

The Pit Limit at the end of the proposed plan period in terms of length is 2340m, width is 132.5 m with maximum depth of 32.20m. A total of 575590.76 cum of materials including ore, top soil, overburden waste & intercalated waste will be excavated during the plan period.

There is 182056.30 cum of topsoil to be produced in the area during the plan period which is proposed to be kept at temporary dump located at the SW part of the Central block. During the plan period, part of the top soil is proposed to be used progressively for spreading over the safety zone to facilitate the development of green belt.

It is proposed to handle about 348412.78 cum of OB Waste & 2,256.09 cum intercalated waste in the plan period. The OB waste and intercalated waste is proposed to be dumped at the eastern side of the West Block covering an area of 2.31 Ha. At the end of plan period the total waste will be accommodated in this dump with a height of 15.2m. A portion of waste will also be used for preparing and maintaining of the mines roads.

Ground needs no preparation for disposal of overburden/waste as Gold Ore contains no toxic elements. The site of proposed dump lies between E-368389 to E368628 and N2542894 to N2543051.

The retaining wall of about 400m length to avoid surface runoff and about 400m of garland drain along the toe of the waste dump along with settling tank in series to control wash off of silt and sediment will be made in the 1st year of plan period and 300m parapet wall and 400m garland drain is proposed to be constructed during the 3rd year of the plan period.

Mine road, haul road will be made from mine pit to dumping yard, beneficiation plant, tailing pond, tailing dump and is shown in development plan (Plate – IIIA to III E).

- f) *Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections (Plate no. VI).*

On the basis of an evaluation of various parameters, such as the distribution and nature of occurrence of Gold deposit, structural features, topography, pit design,


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MINING PLAN
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geo-hydrological conditions etc., the ultimate pit limit on the surface, however, is fixed after realignment of the Seasonal Nalla.

i) Life of the Mine:

During the 1st five year plan period it is proposed to produce 120023.65 MTPA of Gold ore with a capacity of 60006.18 MTPA (maximum in 5th year). This rated capacity will be continued during 2nd plan period also. In pursuance to section 8A(2) of the MMDR Amendment Ordinance 2015, the Mining Lease will be granted for 50 years only. Hence the life of the mine will be 50 years.

Accordingly, by the end of 2nd plan period, production capacity will be enhanced up to 104248 MTPA to consume the remaining mineable ore during the balance forty years of Lease Period.

Since, planning for underground mining is not possible with the available set of data and detail study is proposed to be completed during the plan period (as discussed in earlier chapter), the actual production capacity could not be assessed at the moment. After the completion of underground planning to exploit the ore body, total reserve will be excavated within the lease period of 50 years.

ii) Ultimate pit limit:

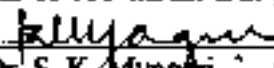
At the conceptual period it is planned to win the gold ore from eastern block and central block.

The deposit is considered upto 155 mRL level which is taken as the feasible depth to which excavations can be extended with 35° ultimate slope. During the conceptual period of the mine (50 years) it is proposed to excavate an area of 31.6 Ha. The depth of the working will extend upto 155 mRL the UPL is shown in Plate no. VI.

With the available set of data, only open cast mining has been planned to exploit the ore up to 155 mRL depth. The details of proposal for exploration and other studies as required for underground mine planning is illustrated in earlier chapter. Hence, the Ultimate Pit Limit has been considered only for open cast mining. During subsequent scheme period, when the underground planning to exploit the deep seated ore is done, ultimate pit limit may change.

iii) Exploration:

The entire lease area was explored by GSI and MECL which suffice the planning for Open Cast mining up to the depth of 155 mRL. But to exploit the deep seated ore


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body, underground mine planning is required and for the purpose several other studies (as illustrated earlier in para 1 (i) of Part A) along with establishing the behavior of loads of gold ore beyond that depth, exploration is required to be carried out.

However, considerable part of the resource remains below the open pit level (155 mRL) which needs to be ascertained for its depth continuity & nature of loads at depth up to 0 m RL and to comply with the provisions of Rule 12(3) of MCR 2017 i.e. to carry out detailed exploration (G1) level over the entire potentially mineralized area under the mining lease within a period of 5 years from the date of opening of the mine after execution of such mining lease. Accordingly, proposal for exploration is planned.

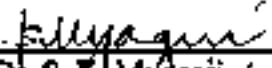
The exploration program has been planned yearly for this plan period as tabulated here under. Total 20 boreholes (PBH 1 to PBH 19 & PDH_S06_02) are proposed to be drilled in the Eastern & Central Blocks of the Leasehold area covering a tentative total depth of 4728 m.

The Year wise programme for proposed exploration is summarized as below:

Year	No of Boreholes (Core/RC/DTH)	Bore Hole No	Grid Interval	Total Meterage	No. of Pits, Dimension and volume	No. of Trenches, Dimension and volume
I	Nil	--	--	--	Nil	Nil
II	04	PBH 01 to PBH 04	50m x 50 m	1057m	Nil	Nil
III	05	PBH 05 to PBH 09	50m x 50 m	1101m	Nil	Nil
IV	05	PBH 10 to PBH 14	50m x 50 m	1262m	Nil	Nil
V	05	PBH 15 to PBH 19	50m x 50 m	1178m	Nil	Nil

iv) Top-Soil Utilisation:

There is 2005031.30 cum of topsoil to be produced in the area in the life period. Initially, the top soil will be dumped temporarily in the south western part of the central block covering an area of 3.0Ha. During the plan period part of generated top soil is proposed to be used for Green Belt development and in the different phases of conceptual period top soil will be used for spreading on the dump terrace and dump slope to facilitate stabilisation of dump through plantation. Also the top soil will be used for reclamation of exhausted pit in the east block.


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**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
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vi) Waste Disposal

It is proposed to handle about 12816055 cum of waste & 86277 cum intercalated waste in the conceptual period. The total waste is proposed to be handled for dumping as well as backfilling of matured pit at the end of mine life.

The dumping plan has been phased out in two. During the stage I dumping, the waste will be dumped at western block covering an area of around 9.01 Ha and at northern side of Central block covering an area of 2.51 Ha and dump height shall be 36m and 15m respectively. These two dumps will accommodate the waste excavated during proposed plan period (1st), 2nd and 3rd plan period.

For this three plan period the tailing shall be dumped in two dumping site. One is adjacent to the said waste dump at West Block over an area of 2 Ha and 2nd tailing dump at the north side of the Central Block covering an area of 3.20Ha.

In the 2nd phase of dumping, after the 3rd plan period, the concurrent backfilling in the mined out area of the East Block shall be undertaken along with re-handling of part of the dump at western block covering an area of around 9.01 Ha, so that in the subsequent years the dump area for the waste will be reduced to 4.26 Ha with a height of 27m. Thus after re-handling of waste dump, an area of 4.75 ha in the West Block will be made available and within which 3.35 Ha will be used to accommodate balance tailing generated during the conceptual period.

The final position and details of waste dump and tailing dump is tabulated below:

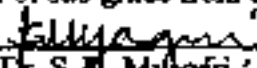
Dump	Location	Area	Height
Waste Dump 1	Southern part of West Block	4.26 Ha	27.00 m
Waste Dump 2	Northern part of East Block	2.51 Ha	15.00 m
Total Area of Waste Dump		6.77 Ha	
Tailing Dump 1	Northern Part of West Block	3.35 Ha	31.85m
Tailing Dump 2	Northern Part of Central Block	3.20 Ha	31.85m
Total Area of Tailing Dump		6.55 Ha	

After the period, concurrent backfilling is proposed till the end of the mine life.

Some quantity of OB waste will be used to maintain the haul roads within mine area.

vii) Mineral rejects and Sub-grade ores:

There will not be any generation of sub grade from this area.


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**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
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viii) Programme of afforestation :

It is proposed to develop green belt all along the boundary covering an area of 3.29 Ha during the plan period. Afforestation will be done using 2056 saplings per year covering an area of 0.8225 Ha. Thus, entire length of boundary will be covered with local Plant Species like -

Tamarind (*Tamarindus Indica*), Neem (*Azadirachta Indica*),
Ala (*Ficus Benghalensis*), Barni (*Acacia Ferruginea*),
Mango (*Mangifera Indica*), Anjan (*Hardwickia Binata*), etc.

During conceptual period plantation will be carried out over the waste dump slope and the terrace for stabilisation and on the reclaimed quarry.



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ix) Reclamation / Rehabilitation of worked out area:

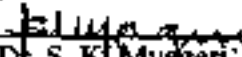
At the end of the conceptual period of the mine about 31.6 Ha of pit will be formed with 100 m of maximum depth. At the beginning of 16th year the matured pit in the Eastern Block will be back filled by the waste dump and the same will be reclaimed by spreading the topsoil on it. The same process will be continued to reclaim 13.63 Ha of the pit and remaining 17.97 Ha of the pit will be properly fenced and protected. The conceptual plan enclosed vide Plate No. VI shows the utilization of the land for the Lease period.

B. UNDERGROUND MINING :

Considering the area available and optimization, it would not be economically feasible to mine below 155m RL at the present price of gold, cost of mining and cost of processing. About 60% of the total geological resource cannot be mined by open pit mining method.

To mine these we shall have to resort to underground mining after considering the feasibility. At this point of time, information / data required for UG mine planning like geotechnical character of lodes, HW and FW rocks, depth continuity of mineralization, nature of lodes at depth, hydrological condition at depth etc. are not available for proper UG mine plan, even at conceptual level. However, it would be necessary to discuss the road forward leading to underground development for the deposit.

Shear zone hosted hydrothermal Gold deposits are generally deep seated in nature. Parasi may not be an exception. With the progress of Open pit mine development, the depth continuity of the lodes would be tested by drilling deep holes either from


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pit floor or from a suitable location on the hanging wall side of the lodes. If possible, deep drilling has to be extended over several levels. As is the case in many hydrothermal gold deposits in the World e.g. Olympic Dam, Muruntau, the near surface fragmented narrow gold lodes may merge at depth resulting in thicker lodes. Once the configuration of lodes is brought out by deep drilling, Shaft would be planned at suitable location to develop access. Adits will be developed parallel to the lodes. SLOS (Sub Level Open Stopping) may be the appropriate mining method. Stopes will be excavated as per the dimension prescribed by the Geotechnical studies. Stopes will be so designed that it would have least dilution. Stopes will be backfilled with waste generated from nearby stopes. The cycle will continue one level after another. Crown of appropriate thickness would be left between the Open Pit floor and the top most stopes to avoid collapse. The production shaft has to be supplemented by ventilation shaft and shaft for Men & Machineries depending upon the planned production. Alternately, winzes & raises can be developed to provide access to the different levels.

All the required work for the UG development, as discussed above would be carried out during the Plan period and if feasible, underground mine plan would be prepared and submitted for approval subsequently.


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PART-A

- a) *Minimum and maximum depth of water table based on observations from nearby wells and water bodies :*

On the observation from nearby bore wells, likely depth of water table is 18-m below surface.

- b) *Indicate maximum and minimum depth of workings:*

The Maximum depth of working during the plan period will be 32.2m while minimum be 23.3 m.

- c) *Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged.*

Manner of discharge mine water and Environment concern:

During operation phase, the requirement of water will be on account of sprinkling for dust suppression, plantation and drinking usage predominantly. During the course of mining, the water will be pumped out from mine sump and will be recycled to use in the other mining activities and beneficiation process.

During operation phase water quality monitoring will be carried out to assess the quality of water.

- d) *Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.*

The annual average rainfall being 1397.7 mm as per the Ranchi. Since the pit area at the end of plan period is very less, water accumulation will also be negligible. At the conceptual period, it is proposed to make a water harvesting pond at the excavated pit. Parapet wall and Garland drain with a settling tank is proposed to construct all around the waste dump and tailing dump to check the water pollution by dump wash off. Garland drain followed by small settling tank shall be constructed. Further, plantation shall be carried out on the dump slope to prevent erosion.


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

PART-A

- a) *Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off.*

There is 182056.30 cum of topsoil to be produced in the area in the Plan period, part of which will be spread over safety zone along lease boundary for developing green belt.

Year wise utilization of top soil in the plan period is tabulated below

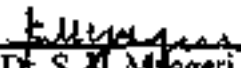
Year	Topsoil (cum)		Mineral Rejects (cum)			
	Reuse/spreading	Storage	Backfilling	Storage	Blending	Beneficiation
1.	--	108367.65	--	--	--	--
2.	8225	173831.30	--	--	--	--
3.	8225	165606.30	--	--	--	--
4.	8225	157381.30	--	--	--	--
5	8225	149156.30	--	--	--	--

- b) *The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification.*

The entire proposed mining lease area of Parasi Gold Deposit is already explored by GSI & MECL by putting 79 boreholes to cover the whole leasehold area in a 50m x 50m grid. Exploration in Parasi Gold Deposit is complete and is of G-1 level up to 155m RL from Section SW1 to SW 6A, Section S-1 to S12 and Section SE1 to SE-6 covering the West, Central and Eastern Blocks. The ground selected for dumping of Overburden, Waste material, Tailings, mineral storage yard etc. are already proved for absence of underlying mineral deposits.

- c) *Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise build up of dumps along with the proposals for protective measures.*

It is proposed to handle about 348412.78 cum of waste & 2,256.09 cum of intercalated waste in the plan period. The waste will be dumped in the area earmarked in the west within the lease area which requires about 2.31 Ha area for


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the plan period upto 15.2 m height. The site of proposed dump lies between E-368389 to E368628 and N2542894 to N2543051.

The retaining wall of about 400m length on 3 sides of waste dump to avoid runoff of fragments and about 400m of garland drain around waste dump to control wash off of silt and sediment will be made in the 1st year of plan period.

The details of dump is as follows.

Year	Waste Dump			Garland Drain (Length in m)	Retaining Wall (Length in m)
	Volume m ³	Area in (Ha)	Height (m)		
1 st Year	84697.95	2.31	3.70	400 m	400 m
2 nd Year	119065.60		5.20	--	--
3 rd Year	56054.31		2.40	--	--
4 th Year	35313.44		1.50	--	--
5 th Year	55537.57		2.40	--	--
Total	350668.87	2.31	15.2	40 m	400 m

[Signature]
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**MINING PLAN
PARASI GOLD DEPOSIT (75.173 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

PART-A

- a) *Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition:*

The Gold Ore produced from this mine is to be treated in the Company's Processing and Beneficiation plant to be established within the lease area to produce Pure Gold for marketing in the Bullion Market.

- b) *Give brief requirement of intermediate industries involved in up gradation of mineral before its end-use.:*

No intermediate industry is involved in up gradation of mineral before its end-use.

- c) *Give detail requirements for other industries, captive consumption, export, associated industrial use etc.:*

The Gold Ore produced from this mine is to be treated in the Company's Processing and Beneficiation plant to be established within the lease area to produce Pure Gold for marketing in the Bullion Market to cater requirement of Gold in Ornament / Jewelry Industries, Electronics & Computer Industries etc.

- d) *Indicate precise physical and chemical specification stipulated by buyers*

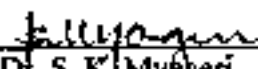
No precise physical and chemical specification stipulated by buyers as the Ore mined is to be processed for extraction of Gold in the Company's Processing and Beneficiation plant.

- e) *Give details of processes adopted to upgrade the ROM to suit the use requirements.*

No up-gradation will be done. The Gold Ore produced from this mine is to be directly treated in the Company's proposed Processing and Beneficiation plant and Pure Gold metal is to be extracted /produced.



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PART-A

- a) If processing / beneficiate of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc.

The Beneficiation & Processing of the ROM is planned based on the Beneficiation Studies carried out by Regional Ore Dressing Laboratory, Bangalore of ~~Regional~~ Bureau Of Mines (IBM) on Gold Ore Sample from Parasi Gold Deposit. However, on execution of mining lease deed, Beneficiation studies & Pilot Plant studies shall be carried out on bulk samples collected from the mine and realistic process technology shall be finalised.

A Brief description of Beneficiation & Processing of the ROM Gold Ore of Parasi Gold Deposit is given below:

Concept of Mineral Beneficiation

Gold occurs principally as a native metal, usually alloyed to a greater or lesser extent with silver (as electrum), or sometimes with mercury (as an amalgam). Native gold can occur as sizeable nuggets, as fine grains or flakes in alluvial deposits, or as grains or microscopic particles embedded in rock minerals. Ores in which gold occurs in chemical composition with other elements are comparatively rare.

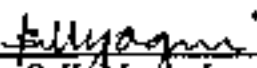
Gold Liberation:

Physical liberation of the gold from the gangue which affects the hydro-metallurgical and pyro-metallurgical process as access of gas or solution to the mineral is the issue. Therefore accessible gold is considered as free gold.

The refractory gold is difficult to process as it cannot be made accessible using only comminuting, ore needs chemical pre-treatment prior to gold extraction.

Major causes of gold refractoriness are

- Gold encapsulated in quartz/silicates
- Gold encapsulated in sulphides
- Ore containing active carbonaceous matter


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PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

Gold extraction or recovery from its ores may require a combination of comminution, concentration, hydrometallurgical, and pyrometallurgical processes to be performed on the ore. Gold bullions can only be produced from free gold.

Gold Production Process:



Ore Preparation techniques include:

- Comminution – Crushing & Grinding
- Sizing
- Concentration
- Solid/Liquid Separation- Thickening & Dewatering

Before concentration, gold ore has to be prepared in the size range suiting the particular concentration process through comminution techniques i.e. crushing & grinding.

Crushing is done to reduce the size of ROM ore to make it optimum for milling/grinding process for further size reduction.

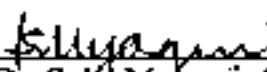
Gold Extraction & Purification -

Hydrometallurgy is a method for obtaining metals from their ores. It is a technique within the field of extractive metallurgy involving the use of aqueous chemistry for the recovery of metals from ores, concentrates, and recycled or residual materials. Metal chemical processing techniques that complement hydrometallurgy are pyrometallurgy, vapour metallurgy and molten salt electrometallurgy. Hydrometallurgy is typically divided into three general areas:

- Leaching
- Solution concentration and purification
- Metal or metal compound recovery

Beneficiation Studies by IBM on Gold Ore Sample from Parasi Gold Deposit:

Indian Bureau of Mines has carried out Beneficiation Studies on Gold Ore Sample from Parasi Gold Deposit. The extract of their studies are summarised below:


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MINING PLAN
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LESSEE : M/s RUNGTA MINES LIMITED

- The sample assayed 1.84 ppm Au, 5.65 ppm Ag, 71.3% SiO_2 , 9.34% Al_2O_3 , 3.48% Fe(T) , 0.19% Mn, 2.04% Na_2O , 2.17% K_2O , 3.61% CaO , 0.88% MgO , 0.009 % Pb, 0.005% Cu, 0.006 % Zn, 0.002 % Ni, 0.004 % CO, 0.73 % S(T) and 3.06% LOI.
- Pyrite, arsenopyrite, pyrrhotite and chalcopyrite are the main sulfide minerals present in very minor to trace amounts. Cherty quartz and sericite mica are the main gangue minerals present in major amounts. Chlorite / amphibole, biotite mica, calcite, ilmenite, muscovite mica and goethite are present in very minor to trace amounts.
- Direct cyanide leaching on the ore, adopting bottle roll procedure, of ore at minus 150 mesh size (100 microns), resulted in recovery of 95.1% Au in the solution with residue assaying 0.09 g /t Au.
- The sample ground to 150 mesh size and it was subjected to CIP process for 24 hrs leaching time using 10kg/t of NaCN, gave a recovery of 93.0% Au in carbon with residue assaying 0.09g/t of Au.
- It is found that the table concentrate assayed 36.68 g/t with 44.5 % recovery of Au (Wt% yield is 2.2)
- Leaching tests were conducted on the representative sample ground to different sizes in order to arrive at optimum size for recovering maximum values of Au. Leaching tests were conducted on the ore sample at different feed sizes keeping cyanide concentration and leach time constant. These tests were carried out at 65,100, 150 and 200 mesh sizes. NaCN was added at the rate of 3 g NaCN/ 300 g sample (purity of NaCN is 50%). Leaching time was 24 hrs. and found that the cyanidation of the as received sample gave a gold recovery of 95.1% Au with residue assay of 0.09 g/t Au at 150 mesh size, which is the optimum.
- Representative portions of sample, was ground separately to 150 mesh size (300 grams) were subjected to leaching at different NaCN concentration levels. Reaction time was 24 hours for all the tests and found that the cyanidation with 3g NaCN per 300 g (10 kg/t) gave optimum gold recovery and residue values . The gold recovery of 95.1 %Au with residue assay of 0.09 g/t Au was achieved at 3g NaCN. Further increase in NaCN concentration had no significant effect on gold recovery.
- It is also observed that, as the leach time advanced the gold recovery in solution increased and reached equilibrium at 24 hrs. Further increase in time after 24 hrs, there is only a marginal improvement of recovery of Au. The cyanide reaction time 24 hrs was found to be optimum with recovery was 95.1% .The residue assayed 0.09 g/t Au.

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- A representative portion of as received sample, ground to 150 mesh size (300 grams) was subjected to leaching tests for 24 with 3g NaCN per 300 gm. The activated carbon, in a porous pouch, was introduced into the slurry after 24 of leaching and adsorption time of 1 hr was given. After 1 hr, carbon pouch was removed, washed and was assayed for gold. Similarly residues and solutions were assayed and it is found that by CIP process, the recovery of gold 93.0% in carbon and residue assayed 0.09g/t.

Processing for Gold Recovery :

Gold ore received shall be stored in small hopper and then fed onto a vibrating grizzly feeder to screen out the oversize (100/150mm) material. Oversize(o/s) ore shall be discharged into the Jaw Crusher for further size reduction. Product of jaw crusher and undersize from vibrating grizzly together shall be fed onto a double deck classifying screen. Oversize from the top deck and bottom deck shall be fed to two different cone crushers for further size reduction. Crushed product shall be recycled back onto double deck classifying screen. Undersize of classifying screen shall be stored in hoppers for feeding to the extraction circuit.

From the surge hopper crushed ore shall be fed to ball mill circuit for grinding to fine size of 100 micron. Due to the information that there is free gold available upto a depth of 4-5m, an optional circuit of coarse grinding along with gravity separation has been incorporated. Reject from the gravity separation shall be fed to ball mill for fine grinding and subsequently feeding it to the extraction and purification process.

Ball Mill shall be in close circuit with the classifying cyclone, underflow of cyclone shall be recycled back to ball mill whereas overflow shall be fed to downstream extraction process.

Cyclone overflow shall be fed to leaching thickener to generate consistent thickened slurry in underflow. Thickened slurry is fed to a trash screen for removing any unwanted material. Undersize of trash screen is fed to leaching tanks for cyanidation, to dissolve gold and make compound with cyanide. After cyanidation the leached pulp is fed to Carbon in Pulp Cells.

Leached pulp and carbon are transferred in a counter current flow arrangement between a series of tanks, usually numbering 4 to 6. In the final tank, fresh or barren carbon is put in contact with low grade

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or tailings solution. At this tank the fresh carbon has a high activity and can remove trace amounts of gold (to levels below 0.01 mg/L Au in solution).

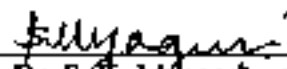
As it moves up the train, the carbon loads to higher and higher concentrations of gold, as it comes in contact with higher grade solutions. Typically concentrations as high as 4000 to 8000 grams of gold per tonne of carbon (g/t Au) can be achieved on the final loaded carbon, as it comes in contact with freshly leached ore and pregnant leach solution (PLS). This can be measured by comparing the amount of gold extracted from the carbon to the amount of carbon used. The final loaded carbon then is removed and washed before undergoing "elution" or desorption of gold cyanide at high temperature and pH.

The elute solution, normally consisting of caustic soda (the electrolyte), cyanide and water circulates through the loaded carbon extracting gold and other metals. The loaded solution passes through an electro winning cell where the gold and other metals are attached to cathodes, made up of wire wool, by electrolysis. The solution then passes back through the loaded carbon extracting more gold and other metals. This process continues until the carbon has been stripped.

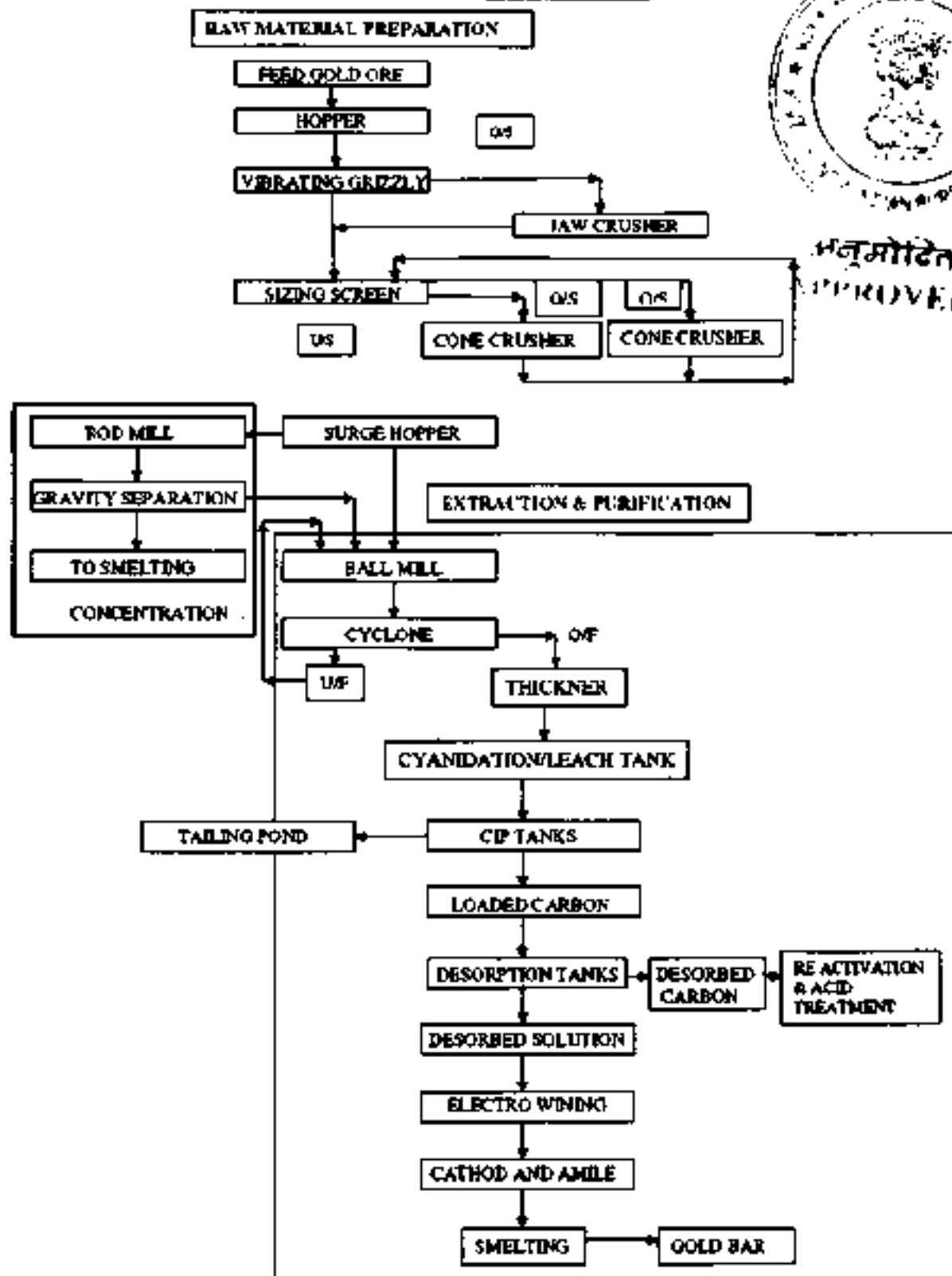
The cathodes (wire wool now plated with gold and other metals) are removed and placed in acid. The acid burns off the wire wool and other metals such as copper and leaves a sediment of gold and solution of acid and dissolved silver. The acid and silver are drained off after which the gold sediment is numerously washed with water.

After the water washes are complete the gold is dried mixed with borax and smelted.

Following is the Flow Sheet For 200tpd beneficiation plant for Gold Ore.


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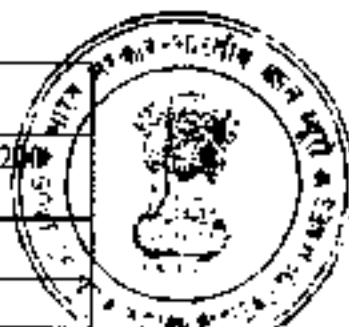

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MINING PLAN
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- b) Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.:

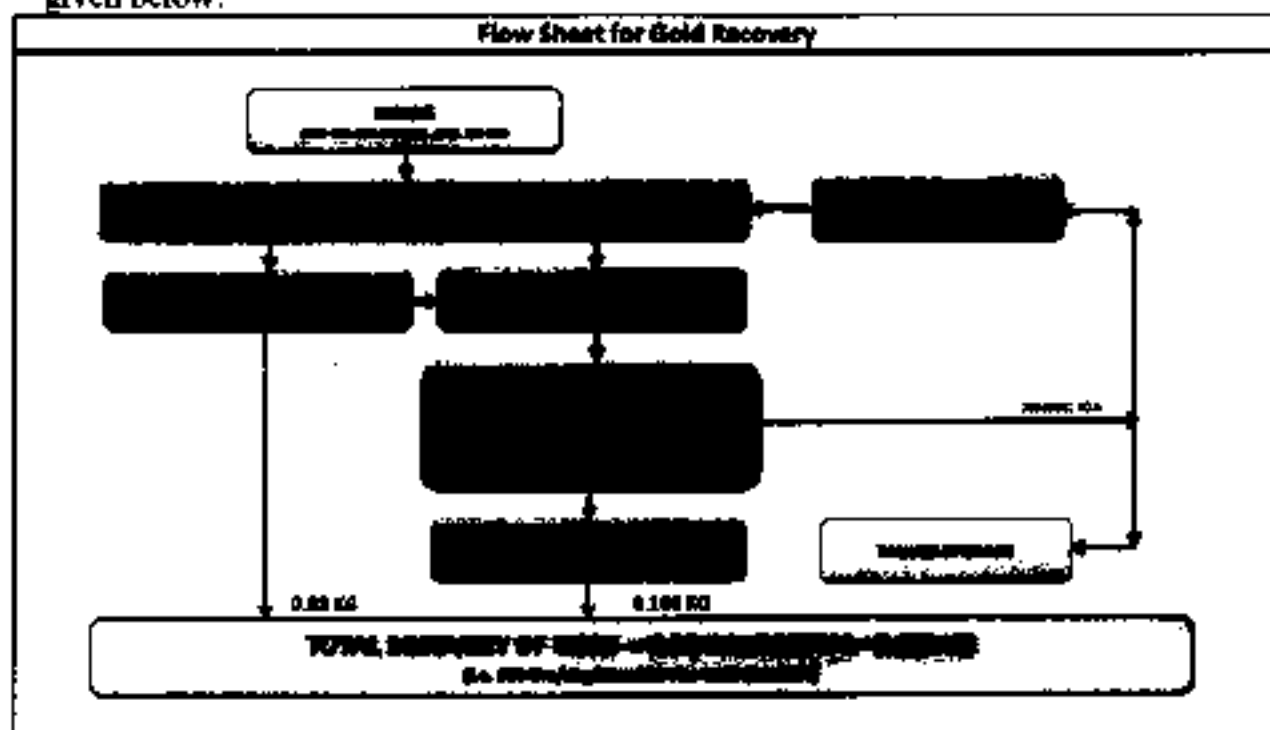
Metal Balance

Gold Ore	100 TPD
Average feed grade	1.0gm/ton (Gold content 200 gm in 200 Tones)
TPD	200/ton
Recovery by gravity process	40% recovery
Recoverable gold by gravity	$200 \times 0.4 = 80 \text{ gm}$
Recovery by Cyanation and CIP process	90% recovery
Recoverable gold from Cyanation and CIP	$200 \times 0.54 = 108 \text{ gm}$
Recovery of gold from electrolysis	99.9% recovery of (80gm + 108 gm)
Total gold recoverable	188 gm
Total gold loss from solids and liquid tails	$200 \text{ gm} - 188 \text{ gm} = 12 \text{ gm}$



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The material balance chart with a flow sheet indicating feed, product, recovery is given below:



[Signature]
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**MINING PLAN
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c) Explain the disposal method for tailings or reject from the processing plant.:

Wind speed and direction frequency distribution should be considered to determine the extent and significance of downwind effect. Where possible, mined out areas or open cut workings should be selected for tailing disposal. Alternatively, degraded site should be utilised either creek head water areas or hallo **APPROVED** used where possible to minimize screen erosion of tailing.

Ground water must be protected from dissolved chemicals associated with tailings (ex: base metals, cyanide, sulphates and total salinity) in very saline areas this may be unimportant.

Before leaving to the tailing dam, ground should be prepared to ensure that no water should percolate to the underground. Base area of the dam should be covered with clay or plastic sheet. The tailings should be treated with suitable chemicals for neutralizing harmful chemical contents, specially for the cyanidation plant the tailings should be treated with sodium hypo chloride to neutralize the cyanide content of water and bleaching powder and lime also used to bring normal PH?

d) Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam:

Tailings will be disposed to Tailing pond and water will be recycled after treatment. The Water loss due to evaporation will be replenished. No water will be discharged. Runoff from the mill site is directed either into the tailings pond or into holding pond for treatment, reuse or discharge care is taken to ensure that all low PH solⁿ drain into this pond and not into the decant pond where cyanide gas generation could occur. Before discharging to tailing pond to neutralize the cyanide, cyan kill (Sodium Hypochlorite) shall be added to bring the PH of water to 7 and then will be discharged to the tailing pond. Makeup water for the mill shall be fed from the seepage water of mine pit, from the recycled tailing water and afresh water from reservoir. Tailing Slurry is discharged from the mill in to the tailing pond from where the solidified cake will be hauled to the tailing impoundment. The impoundment water will be drained to tail water sump.

During the 3rd year of the plan period, wining of Gold ore is proposed. Tailing dam is proposed to be constructed during this year. The site for constructing tailing pond has been selected at the north east corner of the East Block which is proved barren

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area and close to the proposed beneficiation plant for economic and convenient disposal of tailings.

There will be one tailing pond covering 1.0 ha (159.0m x 64.0m) area with two equally divided chambers of dimension 79.5m x 64m. The Slurry tailing will be drained/pumped into the 1st chamber of the tailing pond, where after settling down of the solids, water will be decanted and drained into the tail water sump and settled solid cake will be hauled to the 2nd chamber for drying. The dried tailing will then be shifted to the tailing dump.

e) Specify quantity and type of chemicals if any to be used in the processing plant.:

Lime - 2 to 3kgs/ton Required $3 \times 200 = 600 \text{ kgs} \times 30 \text{ days} = 18000 \text{ kgs/mth}$

Sodium Cyanide - 0.5 kg/ton Required

$0.5 \times 200 = 100 \text{ kg/day} \times 30 \text{ days} = 3000 \text{ kg/mth}$

Bleaching Powder - 1kg/ton Required

$1 \times 200 = 200 \text{ kg/day} \times 30 \text{ days} = 6000 \text{ kgs/mth}$

Cyanokill (Sodium Hypo chlorite) - 1ltr/ton Required

$1 \times 200 = 200 \text{ ltr/day} \times 30 \text{ days} = 6000 \text{ ltrs/mth}$

HCl for Carbon Washing - Required 4000ltrs/mnth

Chemicals required for smelting - HNO₃ for smelting

Borax, Sand, Nitre, Manganese dioxide & Lead nitrate

- 3 Shelters /Sheds required to maintain stock of these chemicals at mine site
- These major chemicals should be kept stock at the mine site for regular mill process.

f) Specify quantity and type of chemicals to be stored on site / plant.:

Lime - 2 to 3kgs/ton Required

$3 \times 200 = 600 \text{ kgs} \times 30 \text{ days} = 18000 \text{ kgs/mth}$

Sodium Cyanide - 0.5 kg/ton Required

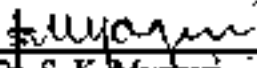
$0.5 \times 200 = 100 \text{ kg/day} \times 30 \text{ days} = 3000 \text{ kg/mth}$

Bleaching Powder - 1kg/ton Required $1 \times 200 = 200 \text{ kg/day} \times 30 \text{ days} = 6000 \text{ kgs/mth}$

Cyanokill (Sodium Hypo chlorite) - 1ltr/ton Required

$1 \times 200 = 200 \text{ ltr/day} \times 30 \text{ days} = 6000 \text{ ltrs/mth}$

HCl for Carbon Washing - Required 4000ltrs/mnth


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Chemicals required for smelting -

HNO₃ for smelting -

Borax, Sand, Nitre, Manganese dioxide & Lead nitrate

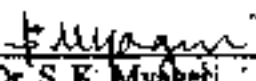
- 3 Shelters /Sheds required to maintain stock of these chemicals at mine site
- These major chemicals should be kept stock at the mine site for regular mill process.

- g) *Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given:*

Total requirement of water for mining and beneficiation plant and its allied activities are estimated as 461 KLD which includes 456 KLD industrial water. The requirement of water for drinking purpose i.e 5 KLD will be met from bore well. The water requirement for industrial/ other purpose will be met from mine seepage and Karkari nadi located at a distance of 4 Km by road (3.2 Km aerial distance) and / or Kanchi Nadi located at a distance of 21.5 Km by road (17.5 Km aerial distance). Water will be sourced depending upon the permission granted by the competent authorities of the State Govt.

Sl. No.	Particulars	Water demand (KLD)
1.	Beneficiation plant	400
2.	Dust suppression	12.0
3.	Drilling	8.5
3.	Domestic	5.0
4.	Green belt / plantation	35.0
	Total	460.5 (say 461)

Water required for mill process is 2 liter per kg. For mill process $200 \times 1000 \times 2 = 4,00,000$ liters $\times 30$ days = 120, 00,000 liters / month. Out of this 50% water can be reclaimed from the tailing dam. So 60 lakh liters can be recovered and shall be recycled. The Water loss due to evaporation will be replenished. No water will be discharged. Runoff from the mill site is directed either into the tailings pond or into holding pond for treatment, reuse or discharge care is taken to ensure that all low PH solution drain into this pond and not into the decant pond. Before discharging to tailing pond to neutralize the cyanide, cyan kill (Sodium Hypochlorite) will be added to bring the PH of water to 7 and then discharge to the tailing pond.


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PART-A

Describe briefly the following:

a) Site Services

Almost all the infrastructure facilities and site services will be provided in and around the mine to facilitate the gold production. Following site services shall be available at the mine to cater the need of workers.

(i) Power Supply :

Power supply for beneficiation plant shall be met from JSEB. For dewatering of pit water diesel operated pump sets are proposed to be installed

(ii) Water Supply :

Bore wells & tube wells are available in the area for source of drinking and domestic water.

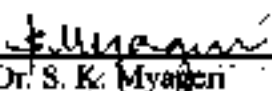
(iii) Roads :

The existing layout of the village road and mine roads is shown in the Surface Plan

b) Employment Potential

As per the Ministry of Mines notification dated 29.03.2010, a full-time Mining Engineer and a full-time Geologist as required under Rule 55(1) (3) (iii) of MCDR 2017 will be employed within 6 months in the mine

For production of 60,006 MT of gold ore in a year, Face OMS is expected to be around 4.5. Accordingly $60,006 / 300 / 4.5 = 45$ labors will be required to achieve the production target. Total 52 labors will be engaged in mine considering 15% case of absenteeism (15% of 45 + 7 = 52).


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All others required are shown in manpower organization chart, below:

Manager.....	1
Asst. Mines Manager.....	2
Mining Engineer (full-time)	1
Geologist (full-time).....	1
Surveyor with helper	3
Mate Cum Blaster.....	2
Excavator and Loader Operator.....	5
Drivers for tippers	10
Driller & Driller Helper.....	2
Pump Operator and Helper	2
Face workers	52
Others.....	3
Beneficiation plant	20
Environmental, quality and safety	5
Total	109



Overall OMS of Mine (excluding manpower for Beneficiation Plant) will be
 $60006 / 300 / 89 = 2.25$ tonnes/man shift

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 Dr. S. K. Myagari
 Qualified Person

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

PART- A

8.1. Environment baseline information: Attach a note on the status of baseline information with regard to the following :

Existing land use pattern indicating the area already degraded due to mining, roads, processing plant, workshop, township etc. in a tabular form :

Existing Land use pattern as on 01-04-2018.

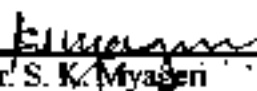
Sl. No.	Item	Present Land Use (Ha)
1.	Area under mining	--
2.	Storage of Top soil	--
3.	Waste dump site	--
4.	Mineral Storage	--
5.	Infrastructure	--
6.	Roads	0.240
7.	Railways	--
8.	Tailing Pond	--
9.	Effluent Treatment Plant	--
10.	Mineral Separation Plant	--
11.	Township Area	--
12.	Others	75.033
	Total	75.273

Water Regime:

The drainage pattern of the area is control by small seasonal nalla passing just on the central part of the lease area which ultimately join karkari nadi. The main drainage is controlled by Karkari Nadi, which is a tributary of Suhmarekha River. In the area under investigation, majority of the nalas flow in the northern direction and merges with Karkari Nadi, which is flowing towards east. The drainage pattern varies from reticulate to dendritic. There are no natural springs in the area. The water table is about 18 m generally below the ground level.

Quality of Ambient Air:

Following are the proposed monitoring stations in Core and Buffer zones:


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Monitoring stations	Air	Noise	Water	Soil
<i>Core zone</i>				
Mine Site	√	√	√	√
<i>Buffer zone</i>				
Parasi	√	√	√	√
Kutchauli	√	√	√	√
Kothadih	√	√	√	√
Manikadih	√	√	√	√



In general the SPM, SO₂ and Nox concentration in the region may be fairly good as there are no industries or quarries in the region

Ambient noise level :

The noise levels may be very low in this vicinity.

Flora and Fauna:

The area has a varied assemblage of Flora and Fauna owing to diversity of physical features. The prominent forest trees are Sal (*Shorea Robusta*), Kendu (*Piosphyra Melanoxylon*), Neem (*Melia Indica*), Mahua (*Bassialalitolia*), Mango (*Magifora Indica*), Shisham (*Dalbergia latitolia*). Among Bushes and Shrubs Ber (*Zizypus jujuba*) and Lantana (*Americana & Camara*) etc are very common. Intensive agriculture work is seen in the area involving production of rice, maize, arhar and tomato. The poor vegetation is observed along the gold mineralization zone. Wild animals are not common in the area because of high density of human population. Among domestic animals, cow, buffalo and goats are very common.

Climatic conditions:

No meteorological observatory exists within the study area. The climatic parameters recorded at Ranchi. The climate of this region is mainly tropical type and is influenced largely by the conditions in Bay of Bengal. Broadly, year can be divided into three main seasons. The winter ranges from November to February. The summer spreads from March to May and rainy season lasts from June to September. The meteorological parameters have been studied on the basis of data recorded during 1981-2009. The data in respect of various parameters are briefly discussed in the following paragraphs.

Temperature

The average daily maximum and minimum temperatures for each of the twelve months for the period 1981 to 2009 as recorded at IMD station, Ranchi have been furnished below :


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MINING PLAN
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AVERAGE DAILY MAX & MIN TEMPERATURE FOR VARIOUS MONTHS
(FROM 1981 TO 2009) AT IMD STATION, RANCHI

Months	Temperature °C	
	Maximum	Minimum
January	27.90	5.7
February	31.3	7.9
March	35.9	11.3
April	39.5	16.1
May	41.2	18.9
June	39.4	20.6
July	33.8	20.9
August	31.9	21.0
September	32.1	19.7
October	31.5	14.4
November	29.4	9.5
December	26.9	6.3
Mean	41.50	5.9

From the above Table, the mean of minimum temperatures ranges from 5.7°C in January to 21°C in August. The mean of maximum temperature ranges from 26.9°C in December to 41.20 °C in May.

Rainfall :

Bulk of the rainfall in the study area is received during the SW monsoon between June to October. The rainfall data as given below shows that the annual total rainfall for the period 1981 to 2009 comes to 1397.7 mm.

MONTHLY TOTAL RAINFALL (MM) AS RECORDED AT IMD STATION,
RANCHI FROM 1981 TO 2009

Months	Rainfall (mm)
January	16.7
February	21.2
March	25.0
April	21.8
May	61.7
June	249.4
July	336.6
August	319.1
September	247.3
October	76.6
November	10.8
December	11.6
Annual average	1397.7

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Dr. S. K. Myagari
Qualified Person

**Mining Plan
PARASI GOLD DEPOSIT (75.273 Ha)
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Relative humidity:

The average daily relative humidity data has been studied at IMD station, Ranchi for the period 1981 to 2009 which is given below :

**AVERAGE MONTHLY RELATIVE HUMIDITY
FROM 1981-2009 (IMD, RANCHI)**

Months	Relative humidity in %	
	at 8.30 hrs	at 17.30 hrs
January	67	47
February	61	40
March	46	31
April	42	29
May	53	39
June	73	64
July	86	82
August	87	83
September	83	78
October	71	65
November	64	54
December	66	50
Average	66	55

Wind Frequency :

To demonstrate the long term wind flow pattern of the study area, the frequency of wind directions as derived from climatological tables of IMD station Ranchi for the period of 1981-2009 is given below :

**ANNUAL AVERAGE WIND FREQUENCY FROM (1981 TO 2009)
RECORDED AT IMD STATION RANCHI**

Direction	Percentage of days wind from	
	At 8.30 hrs	At 17.30 hrs
N	9	12
NE	5	6
E	6	10
SE	5	9
S	6	5
SW	14	8
W	13	8
NW	16	26
CALM	26	16

Human Settlement:

There is no habitation in the area. No villages are situated within the area. Workmen and staff come from the nearby villages. So, there is no displacement involved. The villages falling within the buffer zone of 5 kms. from the lease boundary with population are given below.

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MINING PLAN
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Village	Population	Male	Female	Children (up to 6 yrs of age)		
				Total	Male	Female
Ulidihi	1515	752	763	231	134	97
Barniya	264	134	130	30	16	14
Roladihi	677	337	340	111	52	59
Manikadihi	1430	738	692	177	95	82
Parasi	4208	2121	2087	587	300	287
Gumandih	760	397	363	110	61	49
Torang	239	124	115	40	18	22
Madhukampiri	629	329	300	86	47	39
Nawadihi	225	118	107	50	28	22
Kothadihi	1170	582	588	158	76	82
Chayadihi	684	348	336	93	52	41
Madhudih	334	174	160	67	38	29
Chirudih	859	446	413	146	78	68
Kutachauli	119	58	61	11	06	05
Japno	923	463	460	149	72	77
Dongidih	675	339	336	101	46	55
Chiplibandih	808	420	388	119	59	60
Total	15519	7880	7639	2266	1178	1093

Percentage of SC & ST community and Literacy rate is given below :

Village	Total Population	% of Schedule Caste	% of Schedule Tribe	% of Total Literates	% of Male Literates	% of Female Literates
Ulidihi	1515	4	86	50	63	37
Barniya	264	0	100	56	63	37
Roladihi	677	0	12	60	62	38
Parasi	4208	8	61	55	62	38
Gumandih	760	3	82	45	67	33
Torang	239	20	80	58	67	33
Kothadihi	1170	9	7	65	58	42
Chayadihi	684	2	2	74	55	45
Madhudih	334	60	39	54	58	42
Chirudih	859	10	25	61	60	40
Kutachauli	119	0	99	50	73	27
Japno	923	0	71	48	63	37
Dongidih	675	10	60	51	62	38
Chiplibandih	808	0	62	55	63	37
Manikadihi	1430	NA	NA	NA	NA	NA
Madhukampiri	629	NA	NA	NA	NA	NA
Nawadihi	225	NA	NA	NA	NA	NA

Source of above data – Census 2011

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MINING PLAN
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Public building, places of worship and monuments:

No public buildings, places, monument etc., exist within the Lease area or in the vicinity.

Indicate any sanctuary is located in the vicinity of leasehold

There are no National Park, Wild life sanctuary and tiger reserve within 10 km radius.

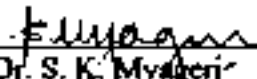
31/07/2024
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8.2 Impact Assessment:

Mineral deposits are exploited for the sustained development of the country. But this economic activity is likely to cause some adverse impact on the environment and ecosystem of the area. Therefore, it is obligatory on the part of the lessee to implement suitable control measures to mitigate the adverse impact of the various Mining operations. After analyzing and study of the Mining operations, it is found that the Mining activity certainly will have little effects on the different environmental parameters. It is possible to control the deterioration of environment due to Mining activity by adopting and monitoring few fixed practices.

- i) *Land area indicating the area likely to be degraded due to mining, dumping, roads, workshop, processing plant, tailing pond/dam, township etc:*

The area of this mine has been degraded due to mining and allied activities such as degraded by way of quarries, waste dump, road and other mining related ancillary works. As on existing position, total 0.24 ha land is under road. At the end of plan period, 16.29 ha of total area will be degraded due to mining and allied activities out of which 2.88 ha area comes under excavation during the plan period. The waste generated during plan period shall cover about 3.81 ha area for waste dumping and tailing dumping. The item-wise land utilized for different purposes is given below:


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Sl. No.	Item	Present Land Use (Ha)	End of Plan Period (Ha)	End of Conceptual Period (Ha)
1.	Excavated area	--	2.88	2.88
2.	Storage of Top soil	--	3.0	3.0
3.	Waste dump site & Tailing dumps	--	2.31	2.31
4.	Mineral Storage	--	1.0	1.0
5.	Infrastructure	--	0.16	0.16
6.	Roads	0.240	0.12	0.12
7.	Railways	--	0.68	0.56
8.	Tailing Pond	--	-	-
9.	Effluent Treatment Plant	--	1.0	1.0
10.	Mineral Separation Plant*	--	-	-
11.	Mineral Storage	--	0.80	0.80
12.	Township Area	--	-	-
13.	Green belt	--	3.29	3.29
14.	Others (parapet wall, garland drain and settling tank)	--	0.72	1.67
14	Unused area	75.033	59.313	22.913
	Total	75.273	75.273	75.273



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ii) Air Quality:

Impact on air quality

The opencast mining operations are prone to generation of higher levels of SPM and to a limited extent of SO₂, NO_x and CO due to blasting. However, there are no point source emissions. Moreover the transportation of gold ore and waste materials by dumpers from the mine site to the processing plant and waste dump area, may cause increased air pollution along the roads, if adequate control measure like regular maintenance of road, tree plantation along road and maintenance of leak proof truck bodies are not taken.

Air Quality Control measures: The following control measures are proposed:

- At mines water sprinkling will be done on the haul roads, working faces and dumping/stacking areas.
- Plantation will be done to arrest dust at possible locations.
- Haul roads will be maintained properly.
- Transport vehicles will be maintained periodically as per the manufacturers' norms and maintained spill proof. All vehicles shall be tested for pollutant concentration from their exhausts regularly and well maintained.

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- e) Dust masks will be provided as safety measure to the workers, engaged at dust generation points like excavation site, loading/unloading points etc.

iii) Water Quality :

Impact on water quality

The surface water quality is likely to be affected with higher load of suspended solids by the following:

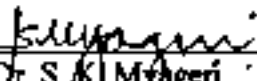
- Wash off from dumps
- Soil erosion from mine and roads
- Pumping out mine water to surface water channels

The dump may contribute to the pollution of surface water in terms of suspended solids. Since dumping location proposed to be carried out is at a safe distance from existing surface water channels, it will have limited impact on water quality. The pumped out water during dewatering may carry higher levels of suspended solids. Other sources of pollution are by oil spillage at the pit head and at the facilities viz. workshop, resulting in oil and grease contamination of surface water if appropriate control measures are not adopted.

Water pollution and control measures :

Effluent from mine

- i. To prevent surface and ground water contamination by oil/grease and sewage waste, following control measures are proposed to be implemented:
 - Leak proof containers will be used for storage and transportation of oil/grease. In the store also, the container containing oil/grease will be kept in empty safe open containers of higher volume than the containers to avoid oil/grease spillage. The area over which oil/grease is handled will be kept effectively impervious. Any wash off from the oil/grease handling area or workshop will be drained through impervious drains, collected in specially constructed pit and treated appropriately to remove any oil/grease and the water will be recycled. The oil grease will be sold to authorized vendors and sludge disposed off in specially constructed pit.


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- The sewage waste generated will be drained by underground impervious drains, lead to appropriately designed septic tanks and soak pits to prevent any pollution of surface or ground water.
- ii. The surface and ground water in and around the mine and infrastructure will be regularly tested and appropriate control measures adopted in case of any pollutant is detected above the prescribed limit.
- iv) *Noise level:*

Impact on noise level

Noise is unwanted and unpleasant sound which causes distraction, disturbance and annoyance. Continuous exposure to high level of noise can impair human hearing power. The mining activities generate noise mainly on account of:

- Operating mining machinery
- Use of explosives
- Moving road vehicles

Since drilling and blasting will be there, the back ground noise levels will be slightly high at the site while drilling and blasting. The area is away from roads where frequent traffic is encountered. General noise levels are expected to be less than 80 dba in working of the mine.

Noise control measures: The following measures will be taken to control the ambient noise level.

- (a) Periodic maintenance of noise generating machineries will be done.
- (b) Green belt will be developed at all the possible locations.
- (c) Ear plug will be provided to the workers as a safety measure

- v) *Vibration level (due to blasting)*

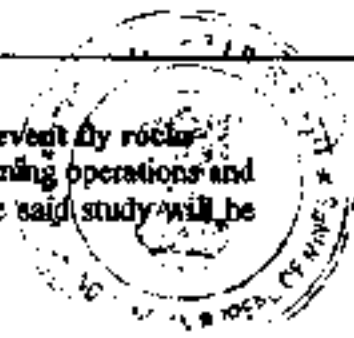
Effect on vibration level (due to blasting)

No ground vibration study has been conducted hence the impact of the proposed activity on ground vibration cannot be exactly anticipated. But, based on experience of similar mines appropriate control measures have been spelt out.


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Measures to reduce ground vibrations due to blasting and prevent fly rocks
The vibrations due to blasting will be studied during stages of mining operations and the recommendations/ suggestions given as per the result of the said study will be strictly adhered to especially the charge per delay.



General recommendations and suggestion

- (a) The peak particle velocity (PPV) of ground vibration will be kept below permissible limits by controlled blasting techniques.
- (b) Suitable powder factor will be adopted for overburden and Gold ore
- (c) Drilling and charging pattern will be modified, if required, based on the vibration study to be carried out.
- (d) Short delay detonators will preferably be used in blasting rounds rather than detonating fuse as trunk line.
- (e) To contain fly rocks, stemming column will not be less than burden of the hole and the blasting area will be muffled.
- (f) Each blast will be carefully planned, checked, executed and observed. Blasting data will be recorded. During blasting, a responsible officer will be supervising the whole operation.
- (g) Blasting will be carried out at mid-day and never at night.
- (h) Blasting will not be carried out when strong winds are blowing towards the inhabited areas.

vi) Acid mine drainage:

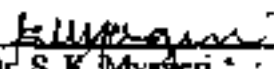
Not Applicable.

vii) Surface subsidence:

An impact of mining that can be felt on the surface could be in the form of subsidence/ slope failure. Since it is hard rock mining there shall not be any subsidence. The bench height and width will be maintained properly with permissible stable slope. Backfilling will be started as soon as exhausted pit will be available and reclaimed thereafter. However, there shall be creation of dumps within the lease area and is proposed to be stabilized properly to prevent slope failure.

viii) Socio/ Economic:

The proposed project will run with 109 persons. Apart from the above employment, more indirect employment will be generated through handling of material, transport etc. which will enhance social status of the people in the locality.


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ix) *Historical monuments:*

There are no historical monuments within 10 Km radius of the mining lease.

8.3. Progressive Reclamation Plan:

To mitigate the impacts and ameliorate the condition, describe year wise steps proposed for phased restoration, reclamation of lands already/to be ~~disposed~~ ^{developed} in respect of following items separately for 5 years period.

The progressive mine closure plan will be for the period of 5 years and will have following activities.

8.3.1 Mined-Out land: Describe the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The Proposals should be supported with relevant plans and sections depicting yearly plans and sections depicting yearly progress in the activities for land restoration/reclamation/ rehabilitation, afforestation etc, called "Reclamation Plan":

The details of land use during Plan period and proposed use upto Conceptual Period are given below:

Sl. No.	Item	Present Land Use (Ha)	End of Plan Period (Ha)	End of Conceptual Period(Ha)
1.	Excavated area	-	2.88	31.60
2.	Storage of Top soil	-	3.0	-
3.	Waste dump site & Tailing dumps	-	2.31 1.0	6.77 6.55
4.	Mineral Storage	-	0.16	0
5.	Infrastructure	-	0.12	0.12
6.	Roads	0.240	0.68	0.56
7.	Railways	-	-	-
8.	Tailing Pond & Silt Pond	-	1.0	1.0
9.	Effluent Treatment Plant	-	-	-
10.	Mineral Separation Plant*	-	0.80	0.80
11.	Township Area	-	-	-
12.	Green belt	-	3.29	3.29
13.	Others (parapet wall, garland drain and settling tank)	-	0.72	1.67
14.	Unused area	75.033	59.313	22.913
	Total	75.273	75.273	75.273

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During the plan period no matured pit will be available for backfilling. Hence, no proposal is given for reclamation. Though, a part of mining quarry in the East Block is expected to be exhausted at the end of 15th year. Then backfilling will be started by re-handling the waste dump materials from the proposed 2 nos. of dump which will be developed during that 15 years period. From 17th year onwards reclamation by spreading of top soil is anticipated. Afterwards concurrent backfilling and reclamation will continue till life of the mine.

Afforestation: Total plantation proposed during plan period is given below.

Year	7.5 m Safety zone		Approach Road	Survival Rate	Saplings (Local species)
	No of plants	Area in ha	No of plants		
1 st	NIL	NIL	500	90%	
2 nd	2056	0.8225	500		Tamarind, Neem, Ala, Banni, Mango, Sal, Shisham Kendu, Mahua etc
3 rd	2056	0.8225	500		Tamarind, Neem, Ala, Banni, Mango, Sal, Shisham Kendu, Mahua etc.
4 th	2056	0.8225	500		Tamarind, Neem, Ala, Banni, Mango, Sal, Shisham Kendu, Mahua etc
5 th	2056	0.8225	500		Tamarind, Neem, Ala, Banni, Mango, Sal, Shisham Kendu, Mahua etc
Total	8224	3.29	2500		Tamarind, Neem, Ala, Banni, Mango, Sal, Shisham Kendu, Mahua etc

Plantation is proposed to be provided and maintained around the mining area and along the roads. The yearly requirement of plants during the various years and stages of the mining project is as shown below :

REQUIREMENT OF PLANTS (YEAR/STAGE WISE AND LOCATION WISE)

Year			Requirement of plants for mine reclamation/afforestation & green belt		
			Area (Ha.)		No. of trees @ 2500/Ha
	Green belt	Surface dump area	Backfilled area	Total	
1 st	NIL	NIL	NIL	NIL	NIL
2 nd	0.8225	NIL	NIL	0.8225	2056
3 rd	0.8225	NIL	NIL	0.8225	2056
4 th	0.8225	NIL	NIL	0.8225	2056
5 th	0.8225	NIL	NIL	0.8225	2056
Conceptual	0	6.77	13.63	20.40	51000
Total	3.29	6.77	13.63	23.69	59225

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8.3.2 Topsoil Management:

About 20,05,410 cum of topsoil will have to be handled from areas to be excavated till the end of mine life. There is 1,82,056.30 cum topsoil during the plan period which will be kept separately for spreading over the safety zone to facilitate plantation and for future use for spreading over the dump slopes and dump terraces and for reclamation. Storage of Top Soil and its usage will be continuous throughout conceptual level.

AVAILABILITY/REQUIREMENT OF TOPSOIL (CUM)

End of year	Void area In ha	Top soil Available Cum	Topsoil Utilized Cum	Topsoil Stack Cum
1 st	1.53	108367.65		108367.65
2 nd	1.35	73688.65	8225	173831.30
3 rd	0	0	8225	165606.30
4 th	0	0	8225	157381.30
5 th	0	0	8225	149156.30
Conceptual	28.72	1822975	1972131.30	0
Total	31.60	2405031.30	2005431.30	

8.3.3 Tailing Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic distillation measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any should be described :

Tailings will be disposed to Tailing pond and water will be recycled after treatment. The Water loss due to evaporation will be replenished. No water will be discharged. Runoff from the mill site is directed either into the tailings pond or into holding pond for treatment, reuse or discharge care is taken to ensure that all low PH soil drain into this pond and not into the decant pond where cyanide gas generation could occur. Before discharging to tailing pond to neutralize the cyanide, cyan kill (Sodium Hypochlorite) shall be added to bring the PH of water to 7 and then will be discharged to the tailing pond. Makeup water for the mill shall be fed from the seepage water of mine pit, from the recycled tailing water and afresh water from reservoir. Tailing Slurry is discharged from the mill in to the tailing pond from where the solidified cake will be hauled to the tailing impoundment. The impoundment water will be drained to tail water sump.

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PARASI GOLD DEPOSIT (75.273 Ha)
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During the 3rd year of the plan period, wining of Gold ore is proposed. Tailing dam is proposed to be constructed during this year. The site for constructing tailing pond has been selected at the north east corner of the East Block which is proved barren area and close to the proposed beneficiation plant for economic and convenient disposal of tailings.

There will be one tailing pond covering 1.0 ha (159.0m x 64.0m) area with two equally divided chambers of dimension 79.5m x 64m. The Slurry tailing will be drained/pumped into the 1st chamber of the tailing pond, where after settling down of the solids, water will be decanted and drained into the tail water sump and settled solid cake will be hauled to the 2nd chamber for drying. The dried tailing will then be shifted to the tailing dump.

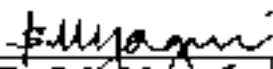
8.3.4 Acid Mine Drainage, if any and its mitigate measures

Not applicable

8.3.5 Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism:

Back filling is not possible at the end of plan period due to non availability of exhausted pit.

The information on protective measures for reclamation and rehabilitation works year wise are provided in the following table:


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (First Year)

Items	Details	Proposed	Actual	Remarks
Dump Management	Area afforested (ha)	--	--	--
	No of saplings planted	--	--	--
	Cumulative no of plants	--	--	--
	Cost including watch and care during the year	Construction of Retaining wall-400 m x 1.5m x 1.0 m, Cost - 4.0 Lakh Construction of Garland drain 400 m x 1 m x 1 m, Cost - 2.0 lakhs	--	--
Management of worked out benches	Area available for rehabilitation (ha)	--	--	--
	Afforestation done (ha)	--	--	--
	No of saplings planted in the year	--	--	--
	Cumulative no of plants	--	--	--
	Any other method of rehabilitation (specify)	--	--	--
	Cost including watch and care during the year	--	--	--
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise/slope wise	--	--	--
	Void filled by waste/tailings	--	--	--
	Afforestation on the backfilled area	--	--	--
	Rehabilitation by making water reservoir	--	--	--
	Any other means (specify)	--	--	--
Rehabilitation of waste land within lease	Area available (ha)	--	--	--
	Area rehabilitated	--	--	--
	Method of rehabilitation	--	--	--
Others (specify)*	Ambient Air Quality (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.48 lakhs	--	--
	Water Quality (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.80 Lakhs	--	--
	Noise Level Survey (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.096 Lakhs	--	--
	Soil Quality (Quarterly)	4 Location (1 Core 3 Buffer) Cost 0.036 Lakhs	--	--
	Plantation (Along the Approach Road)	(No. of trees - 500) Cost - 0.25 Lakhs	--	Outside the Lease Area


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SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (Second Year)

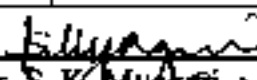
Items	Details	Proposed	Actual	Remarks
Dump Management	Area afforested (ha)	--	--	--
	No of saplings planted	--	--	--
	Cumulative no of plants	--	--	--
	Cost including watch and care during the year	--	--	--
Management of worked out benches	Area available for rehabilitation (ha)	--	--	
	Afforestation done (ha)	--	--	
	No of saplings planted in the year	--	--	
	Cumulative no of plants	--	--	
	Any other method of rehabilitation (specify)	--	--	
Reclamation and Rehabilitation by backfilling	Cost including watch and care during the year	--	--	
	Void available for Backfilling (L x B x D) pit wise/slope wise	--	--	
	Void filled by waste/tailings	--	--	
	Afforestation on the backfilled area	--	--	
	Rehabilitation by making water reservoir	--	--	
Rehabilitation of waste land within lease	Any other means (specify)	--	--	
	Area available (ha)	0.8225 Ha.	--	
	Area rehabilitated	--	--	
	Method of rehabilitation	(No. of trees - 2056) Cost - 1.03 Lakhs	--	
Others (specify)*				Plantation along Safety Zone
	Ambient Air Quality (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.48 lakhs	--	--
	Water Quality (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.80 Lakhs	--	--
	Noise Level Survey (Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.096 Lakhs	--	--
	Soil Quality(Quarterly)	4 Location (1 Core 3 Buffer) Cost - 0.036 Lakhs	--	--
	Plantation (Along the Approach Road)	(No. of trees - 500) Cost - 0.25 Lakhs	--	Outside the Lease Area


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (Third Year)

Items	Details	Proposed	Actual	Remarks
Dump Management	Area afforested (ha)	--	--	--
	No of saplings planted	--	--	--
	Cumulative no of plants	--	--	--
	Cost including watch and care during the year	Construction of Retaining wall-300 mx 1.5m x 1.0 m, Cost -3.0 Lakh Construction of Garland drain 400 m x 1 m x 1 m, Cost - 2.0 lakhs	--	--
Management of worked out benches	Area available for rehabilitation (ha)	--	--	--
	Afforestation done (ha)	--	--	--
	No of saplings planted in the year	--	--	--
	Cumulative no of plants	--	--	--
	Any other method of rehabilitation (specify)	--	--	--
	Cost including watch and care during the year	--	--	--
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise/slope wise	--	--	--
	Void filled by waste/tailings	--	--	--
	Afforestation on the backfilled area	--	--	--
	Rehabilitation by making water reservoir	--	--	--
	Any other means (specify)	--	--	--
Rehabilitation of waste land within lease	Area available (ha)	0.8225 Ha.	--	--
	Area rehabilitated	--	--	--
	Method of rehabilitation	(No. of trees - 2056) Cost - 1.03 Lakhs	--	Plantation along Safety Zone
Others (specify)*	Ambient Air Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.48 lakhs	--	--
	Water Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.80 Lakhs	--	--
	Noise Level Survey (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.096 Lakhs	--	--
	Soil Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost 0.036 Lakhs	--	--
	Plantation (Along the Approach Road)	(No. of trees - 500) Cost 0.25 Lakhs	--	Outside the Lease Area


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MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3(Fourth Year)

Items	Details	Proposed	Actual	Remarks
Dump Management	Area afforested (ha)	—		
	No of saplings planted	—		
	Cumulative no of plants	—		
	Cost including watch and cure during the year	—		
Management of worked out benches	Area available for rehabilitation (ha)	—		
	Afforestation done (ha)	—		
	No of saplings planted in the year	—		
	Cumulative no of plants	—		
	Any other method of rehabilitation (specify)	—		
	Cost including watch and care during the year	—		
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) put wise/slope wise	—	—	—
	Void filled by waste/tailings	—	—	—
	Afforestation on the backfilled area	—	—	—
	Rehabilitation by making water reservoir	—	—	—
	Any other means (specify)	—	—	—
Rehabilitation of waste land within lease	Area available (ha)	0.8225 Ha.	—	—
	Area rehabilitated	—	—	—
	Method of rehabilitation	(No. of trees - 2056) Cost - 1.03 Lakhs	—	Plantation along Safety Zone
Others (specify)*	Ambient Air Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.48 lakhs	—	—
	Water Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.80 Lakhs	—	—
	Noise Level Survey (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.096 Lakhs	—	—
	Soil Quality(Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.036 Lakhs	—	—
	Plantation (Along the Approach Road)	(No. of trees - 500) Cost - 0.25 Lakhs	—	Outside the Lease Area


 Dr. S. K. Myer
 Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (Fifth Year)

Items	Details	Proposed	Actual	Remarks
Dump Management	Area afforested (ha)	--	--	--
	No of saplings planted	--	--	--
	Cumulative no of plants	--	--	--
	Cost including watch and cure during the year	--	--	--
Management of worked out benches	Area available for rehabilitation (ha)	--	--	--
	Afforestation done (ha)	--	--	--
	No of saplings planted in the year	--	--	--
	Cumulative no of plants	--	--	--
	Any other method of rehabilitation (specify)	--	--	--
	Cost including watch and care during the year	--	--	--
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise/slope wise	--	--	--
	Void filled by waste/tailings	--	--	--
	Afforestation on the backfilled area	--	--	--
	Rehabilitation by making water reservoir	--	--	--
	Any other means (specify)	--	--	--
Rehabilitation of waste land within lease	Area available (ha)	0.8225 Ha.	--	--
	Area rehabilitated	--	--	--
	Method of rehabilitation	(No. of trees - 2056) Cost - 1.03 Lakhs	--	Plantation along Safety Zone
Others (specify)*	Ambient Air Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.48 lakhs	--	--
	Water Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.80 Lakhs	--	--
	Noise Level Survey (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.096 Lakhs	--	--
	Soil Quality (Quarterly)	4 Location (1 Core, 3 Buffer) Cost - 0.036 Lakhs	--	--
	Plantation (Along the Approach Road)	(No. of trees - 500) Cost - 0.25 Lakhs	--	Outside the Lease Area

Dr. S. K. Myerji
 Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

8.4 Disaster Management and Risk Assessment : This should deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority should also be described:

Mine Forman who will be on the spot of the mining operation will act as nodal officer and reports to the mine manager and the Director immediately. High risk accidents are very rare in these types of mines. Even if there is any such event, the lessee is quite capable to meet such high risk accidents. The mine site is 12 kms from the Tamar Town with tar road. The Capital township of Ranchi is 55 kms from the Mine site. The Mine is connected by all weather road to the NH 33 at a distance of 5.5km. The capital township of Ranchi has got all the facilities like Hospitals, Post Office, Police Stations and Rescue Stations. A vehicle is kept all the time in the mine site for conveyance. The site will be provided with telephone for quick communication. In case of high risk accidents quick evacuation is possible.

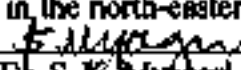
Mines Manager will be the responsible person for all kind of disaster management. As soon as, the Mine will be operative and statutory manpower will be engaged, name, address and contact no will be displayed in the mine site for all communications during emergency. However, in the mean time, till the mine comes into operation and Mine officials are appointed, the name, address and contact no of the Nominated Owner is given below for being responsible person for disaster management purpose.

Name : Shri M. D. Rustagi
Address : Rungta Mines Ltd,
Main road,
At/Po: Barbil,
District: Keonjhar
State: Odisha
Pin Code: 758035

Phone No.- 06767 - 275221, 277481, 276441

Seismic & Earthquake risk management

Historically, parts of this state have experienced seismic activity in the M5.0 range. Northern districts of Jharkhand that lie along the border with the neighboring state of Bihar as well as the districts in the north-eastern part of the state lie in Zone III.


Dr. S. K. Myer
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

The maximum intensity expected in these areas would be around MSK VII. All of the southern districts including the cities of Ranchi and Jamshedpur lie in Zone II. The maximum intensity expected in these areas would be around MSK VI. The Largest Instrumented Earthquake in Jharkhand was on 05 August 1979 in Dublabera- Majhgaon area, Jharkhand, Mb 4.7. This event was located along the state border between Jharkhand and Orissa, near the town of Daspur in north-eastern Orissa. The earthquake hazard map from Amateur Seismic Centre, Pune is given below:

Earthquake Hazard Map



(Source: <http://asc-india.org/maps/hazard/haz-jharkhand.htm> accessed 02.04.2018)

- Geological and climatic hazards such as land slide, subsidence and inundation is not expected as because the working is by opencast mining.
- Although earthquake was felt several times in Odisha, this part of the state has remained unaffected.
- Flood due to river action is not expected due to higher surface relief of the area.
- The chances of any slope failure would be minimal as benches will be developed with proper slope and maintaining height/width by 10/12m.
- Arrangement for the first aid will always be made available at the mine site all the time.
- An effective communication system like mobile phones, vehicles/bykes will also be available at the mine site all the time.
- Mock drill, different types of trainings will be arranged time to time to make the manpower efficient to handle all sort of disaster.
- In case of any emergency, the following person may be contacted : Mines Manager

Dr. S. K. Myagari
Qualified Person




8.5 *Care and maintenance during temporary discontinuance: For every five yearly review (as given in the mining Scheme), an emergency plan for the situation of temporary discontinuance or incomplete programme due to court order or due to statutory requirements or any other unforeseen circumstances, should include a plan indicating measures of care, maintenance and monitoring of ~~status of~~ unplanned discontinued mining operations expected to re-open in near future. It should detail item wise status monitoring and maintenance with periodicity and objective:*

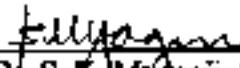
At present the mine lease is under process of obtaining all statutory clearances from difference agency. There is no question of temporary discontinuance. But if it happens again unfortunately in any time, the following measures will be undertaken depending upon the causes:

- Intimation to local mine & legal administrative authorities regarding the discontinuance.
- Listing of materials and stocks
- Tightening of security to keep the materials safe and secured.
- Repair and maintenance of haul roads, plantation, maintenance of plantation, maintenance of parapet wall – garland drain will be continued during temporary discontinuance.

8.6 *Financial Assurance :*

The financial assurance can be submitted in any en-cashable form preferably a Bank Guarantee from a Scheduled Bank as stated in rules 23(F)(2) of Mineral Conservation and Development Rules, 1988 for five years period expiring at the end of validity of the document. The amount calculated for the purpose of Financial Assurance is based on the CCOM's Circular No.4 dated 2006 as below:

The breakup of the mining lease area proposed to be used during the plan period of the mine within the lease area is as follows.


Dr. S. K. Myageti
Qualified Person

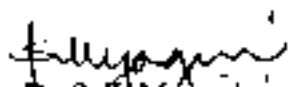
MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

Table indicating the break-up of areas in the Mining Lease for calculation of Financial Assurance

Sl.No.	Head	Area put to use at start of plan	Additional requirement during plan period (in Ha)	Total (in Ha)	Area considered as fully reclaimed & rehabilitated (in Ha)	Area considered for calculation (in Ha)
		A	B	C = (A+B)	D	E
1.	Area Under Mining	--	2.88	2.88	--	2.88
2.	Storage of Top Soil	--	3.00	3.00	--	3.00
3.	OB/ dump Tailing Dump	--	2.31	2.31	--	2.31
4.	Mineral Storage	--	1.00	1.00	--	1.00
5.	Infrastructure	--	0.16	0.16	--	0.16
6.	Roads	--	0.12	0.12	--	0.12
7.	Railways	0.24	0.44	0.68	--	0.68
8.	Tailing Pond	--	--	--	--	--
9.	ETP	--	--	--	--	--
10.	Mineral Sep. Plant	--	1.00	1.00	--	1.00
11.	Township Area	--	0.80	0.80	--	0.80
12.	Others (perimeter wall, Garland drain and settling tank)	--	--	--	--	--
	Total	0.24	12.43	12.67	--	12.67

The minimum area to be degraded at the end of the five years by means of excavation is 2.88 Ha & by other allied activities is 9.79 Ha. The financial assurance @ rate of Rs. 3,00,000/- Ha comes to $3,00,000 \times 12.67 = 38,01,000/-$. Since, Rs. 10,00,000/- is the minimum amount for 'A' category of mines as prescribed in MCDR 2017, however, Rs. 38,01,000/- Financial Assurance in the form of Bank Guarantee is enclosed herewith in favor of the Regional Controller of Mines, Indian Bureau of Mines, Ranchi vide Bank Guarantee No BG 134/2018 dated 12.10.2018 which will be valid up to 11.10.2023. Copy of the Bank Guarantee is enclosed as Annexure - VIII.

Date:


Dr. S. K. Myageri
 Consulting Geologist & Qualified Person

Dr. S. K. Myageri
 Qualified Person

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28/11/2018
 Regional Controller of Mines
 Indian Bureau of Mines

**MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED**

PART-B

A. CONSENT LETTER/ UNDERTAKING/ CERTIFICATE FROM THE APPLICANT

B. UNDERTAKING

C. CERTIFICATE FROM Qualified Person

Consent Letter from Lessee, Certificate from the Qualified Person is enclosed herewith.

Undertakings related to implementation of all measures proposed in PMCP in a time bound manner and during the pendency of approval, all changes in name, address should be informed promptly is also enclosed herewith.


Dr. S. K. Miyageri
Qualified Person



**अनुमोदित
APPROVED**



Rungta Mines Limited

MAIN ROAD, BARBIL - 756 035, DIST - KENDUJHAR, ODISHA, INDIA
Telefax: 05787 - 276651, E-mail: info@runglemines.com

CONSENT LETTER / UNDERTAKING / CERTIFICATE **FROM THE APPLICANT**

- 01 The Mining Plan in respect of Parasi Gold Deposit over an area of 75.273 Hectares in villages – Parasi, Kutachauli and Kothadih. P.O.- Parasi, Taluk – Tamar, District - Ranchi, Jharkhand, under Rule 13(1) of the Minerals (Other than Atomic and Hydro Carbon Energy Minerals) Concession Rules, 2016 and Rule 23 of MCDR, 2017 has been prepared by Qualified Person Dr. S.K. Myageri.

This is to request the Regional Controller of Mines, Indian Bureau of Mines, Ranchi region, to make further correspondence regarding any correction of the Mining Plan with the said recognized person at his address below:

Dr. S. K. Myageri M.Sc. (Applied Geology), Ph.D., F.G.S., M.E.A.I	"Sri Mata", 3rd Main, Shivanand Nagar, Kalasapur Road, Gadag – 582103, Karnatak. Mobile : 09448135768, Tele-Fax : +91 8372235768 e-mail : skmyageri@gmail.com
--	--

We hereby undertake that all modifications/ updating as made in the said Mining Plan by the said Qualified person be deemed to have been made with our knowledge and consent and shall be acceptable on us and binding in all respects.

02. It is certified that as per the CCOM Circular No.-2/2010 and the addendum dated 06.04.2010, the D.G.P.S. survey of the mine lease area will be completed by an agency recognized by the State Government within three months from the approval of the Mining Plan.

Contd. Page-2



Rungta Mines Limited

MAIN ROAD, BARBIL - 758 035, DIST. - KENDUJHAR, ODISHA, INDIA

Telefax : 06767 - 276651, E-mail : bboffice@rungtamines.com

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03. It is certified that the Progressive Mine Closure Plan of Parasi Gold Deposit of M/s Rungta Mines Ltd. over an area of 75.273 Hect. complies with all statutory rules, Regulations, Orders made by the Central or State Government, Statutory organization, Court etc. which have been taken into consideration and whenever any specific permission is required the lessee will approach the concerned authorities.

The information furnished in the **Progressive Mine Closure plan** is true and correct to the best of our knowledge and records.

04. "The provisions of **Mines Act, Rules and Regulations** made there under have been observed in the Mining Plan over an area of 75.273 hectares in Ranchi district in Jharkhand state belonging to Parasi Gold Deposit, and where specific permissions are required, the applicant will approach the **D.G.M.S.** Further, standards prescribed by **D.G.M.S.** in respect on **miners' health** will be strictly implemented".

Place : Barbil

Date : 13.10.18

Signature of Applicant:

Name of the Owner/Nominated Owner:

Designation:

Name of the Company/Organisation:

Address

M. D. Rustagi

(Director & Nominated Owner)

M/s. Rungta Mines Ltd.

Rungta Office, Main Road

Barbil-758 035

Dist: Keonjhar, Odisha.



Rungta Mines Limited

MAIN ROAD BARBIL - 758 035 DIST - KENDUJHAR, ODISHA, INDIA

Tel: 06761 - 275651 Email: office@rungtamines.com

UNDERTAKING REGARDING SUBMISSION OF GEO-REFERENCED CADASTRAL MAP

We undertake that we shall submit Geo-referenced Cadastral map and Co-ordinates of the Boundary Pillars of the Mining Lease of Parasi Gold deposit as Per the CCOM Circular No. 2/2010 and its addendum dated 06.04.2010 to the Regional Controller of Mines, Ranchi Region, Ranchi within three months from the approval of the Mining Plan, as the necessary D.G.P.S survey work will be completed within this period by the recognized agency of the State Govt.

Place : Barbil

Date : 13.10.18

Signature of Applicant:

Name of the Owner/Nominated Owner:

Designation:

Name of the Company/Organisation:

Address

M. D. Rustagi

(Director & Nominated Owner)

M/s. Rungta Mines Ltd.

Rungta Office, Main Road

Barbil-758 035

Dist: Keonjhar, Odisha.



Rungta Mines Limited

MAIN ROAD BARBIL - 758 035, DIST - KENDUJHAR, ODISHA, INDIA

Tel/fax : 06767 - 226651, E-mail : bbl@office@rungtamines.com

UNDERTAKING

I, on behalf of M/s Rungta Mines Limited, declared as 'Preferred Bidder' vide letter no. Kha.Ni.(Ranchi/Gold)-18/2016-2543/M dated 13.11.2017 issued by the Director (Mines), Department of Industries, Mines & Geology, Government of Jharkhand, as per Rule - 9.4 (b)(iii) of Mineral(Auction) Rules, 2015 for Applied Mining Lease area in village - Parasi, Taluk - Tamar, District - Ranchi, State - Jharkhand over an area of 75.273 ha. for Gold mineral hereby undertake that no matter is pending against the Parasi Gold Deposit on following issues :

1. Issues related to illegal mining with State Govt.
2. Royalty and revision matters with State Govt.
3. Safety & environment issues of general public concern.
4. Public Interest Litigation (PIL) and court cases etc

If anything is found wrong & incorrect in the declaration during the period of document, suitable action may be initiated including withdrawal of approval of document.

Place : Barbil

Date : 13.10.18

Signature of Applicant:

Name of the Owner/Nominated Owner:

Designation:

Name of the Company/Organisation:

Address

M. D. Rustagi

(Director & Nominated Owner)

M/s. Rungta Mines Ltd.

Rungta Office, Main Road

Barbil-758 035

Dist: Keonjhar, Odisha.



Rungta Mines Limited

MAIN ROAD, BARBIL - 758 035, DIST - KENDUJHAR, ODISHA, INDIA

Telefax : 06767 - 278551, E-mail : bo@office@rungtamines.com

UNDERTAKING

We undertake -

- i. That, we have submitted Cadastral Plan prepared by us for the Mining Lease area of Parasi Gold deposit, which is well within the Co-ordinates of the Boundary Pillars provided in the Precise Area Map of the concession area over 75.273 Hectares, which was annexed as a part of the tender documents during conducting Auction of the said mine by the Government of Jharkhand.
- ii. That, we have mentioned in the Mining Plan the details of village wise classification of the ownership of the land i.e. Government Non-Forest Land, Government Forest Land, Private Land along with breakup for land use pattern i.e. Agricultural land, Waste land, Grazing land etc. of the said lease area based on duly certified Land Schedule of the Mining Lease area of Parasi Gold deposit by the Circle Officer, Tamar Circle of Ranchi District.
- iii. That, we are responsible for the correctness of the submitted Cadastral Plan of the Mining Lease area of Parasi Gold deposit and all the data furnished with respect to the details of village wise classification of the ownership of the land along with breakup for land use pattern in the Mining Plan.
- iv. That, in case of any deviation or dispute arises with respect to aforesaid facts with any concerned authorities; we shall be responsible of the same.

Place : Barbil

Date : 13.10.18

Signature of Applicant:

Name of the Owner/Nominated Owner:

Designation:

Name of the Company/Organisation:

M. D. Rustagi

(Director & Nominated Owner)

M/s. Rungta Mines Ltd.



CERTIFICATE FROM QUALIFIED PERSON

The provisions of the Mineral Conservation and Development Rules 2017 made under Section 18 of the Mines & Minerals (Development & Regulation) Amendment Act 2015, have been observed in the preparation of the Mining Plan for Parasi Gold Deposit over an area of 75.273 ha. of M/s. Rungta Mines Limited, in Parasi, Kutachauli and Kothadih villages, P.O. Parasi, District Ranchi of Jharkhand State and whenever specific permissions are required, the applicant will approach the concerned authorities of **Indian Bureau of Mines**. The information furnished in the Mining Plan is true and correct to the best of our knowledge.

Place : Gadag

Date : 13.10.18


Dr. S.K. Myagari

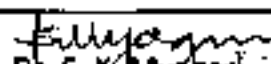
Consulting Geologist & Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

PART-B

The following plans and sections have been enclosed with this Mining Plan as Plates. The details of the plates are tabulated hereunder.

Sl. No.	Description	Scale	Plate No.
1.	Key Plan	1:50,000	IA
2.	Precise Area Map	-	IB
3.	Cadastral Plan	1:3960	IC
4.	Surface Plan	1:2000	IIA
5.	Geological Plan	1:2000	IIB
6.	Geological cross sections West Block	1:2000	IICa
7.	Geological cross sections Central Block	1:2000	IICb
8.	Geological cross sections East Block	1:2000	IICc
9.	Development Plan & Sections 1 st year	1:2000	IIIA
10.	Development Plan & Section 2 nd year	1:2000	IIIB
11.	Development Plan & Section 3 rd year	1:2000	IIIC
12.	Development Plan & Section 4 th year	1:2000	IIID
13.	Development Plan & Section 5 th year	1:2000	IIIE
14.	Reclamation Plan	1:2000	IV
15.	Environment Plan	1:5000	V
16.	Conceptual Plan	1:2000	VI
17.	Financial Area Assurance Plan	1:2000	VII


Dr. S. K. Myrageri
Qualified Person

MINING PLAN
PARASI GOLD DEPOSIT (75.273 Ha)
LESSEE : M/s RUNGTA MINES LIMITED

PART-B

The following documents have been enclosed with this Mining Plan as Annexure.

The details of the Annexure are tabulated hereunder.

SL. No.	Description	No.
1.	Copy of Letter of Intent from Director, DMG, Govt. of Jharkhand vide letter no. Kha.Ni(Ranchi/Gold)-18/2016/M dated 03.01.18 alongwith clarification letter issued by him to us vide letter no. 1770 dated 09.07.18.	I
2.	Letter of Director, DMG, Govt. of Jharkhand to RCOM, Ranchi clarifying the area of the Mining Lease to be 75.273 Ha. vide letter no. Kha.Ni.(Ranchi/Gold-18/2016 2221 M/Ranchi, dated 27.08.2018	IA
3.	Letter of Director of Mines vide letter no. Kha.Ni(Ranchi/Gold)-18/2016/614/M dated 09.03.18 in reply to our letter no. RML/BD/Parasi_COMR/17-18/720 dated 28.02.18 requesting certification of lease area map.	IB
4.	Copy of List of Board of Directors & Certificate of Incorporation of M/s Rungta Mines Ltd., Chaibasa, Jharkhand.	IIA
5.	Copy of Authorisation letter (Board Resolution for Nominated Owner).	IIB
6.	Copy of photo ID of the Nominated Owner	IIC
7.	Copy of Land Schedule certified by the Circle Office, Tamar, Ranchi and Copy of Notification of Forest Department vide no C/F 17049/55-2865R dated 15.09.1955 for the notified Forest Plots of Parasi Village	IID
8.	Copy of Geological Report – Text and Plates (in separate 03 volumes)	III
9.	Feasibility Study Report	IIIA
10.	Qualified Person Educational and Experience Certificate	IV
11.	Field photos	V
12.	Copy of DGPS Survey Report provided with the Tender Document by the State Govt.	VI
13.	Copy of Bank Guarantee	VII


Dr. S. K. Myaseri
 Qualified Person