

Scrutiny comments on examination of Review of Mining Plan in respect of Jonnagiri Gold Mine of M/s Geo Mysore Services (India) over an extent of 597.82 Ha. located in Jonnagiri, Pagadrayi & Erragudi Village, Tugalli Mandal Kurnool District of AP State submitted under Rule 17(2) of MCR, 2016.

Text:	
1	<i>The document should have been prepared as per the prescribed format of IBM manual for appraisal of mining plan 2014.</i>
2	<i>Co-ordinated of the lease boundary in WGS 84 authenticated by competent authority of the state government should be submitted.</i>
3	<i>The name of nominated owner, his ID and permanent and present address proof, the certificate of incorporation of the company and it's registered address should be indicated along with documentary proof.</i>
4	<i>All Plans and sections signed by the Mining Engineer, Geologist, Qualified person should mention their name.</i>
5	<i>Date of execution of the lease be mentioned in the text at introduction.</i>
6	<i>Person signing the document should be authorized by the board of directors of the company. Name of the signatory should appear below the signature.</i>
7	<i>Details of board of directors of the company should be submitted.</i>
8	<i>Consent letter, undertaking, certificates submitted by the authorized person should be furnished on company's original letter head duly dated and signed. Since the qualified persons are also company's employees the certificates from them is also from company's letter head duly dated and signed.</i>
9	<i>Copy of the photo identity proof and address proof of the person who signs the document should be submitted.</i>
10	<i>List of RP/ PL/ML held by the lessee should be furnished in tabular form with present status in introduction chapter.</i>
11	<i>Surface right area held by the lessee should be furnished, further mode of acquiring the land should also furnished. Also the status of area proposed for the proposed plan period should be submitted with supporting document.</i>
12	<i>In the last approved mining plan it was proposed to carry out mining operations by both underground and opencast method but in the present submission only opencast method is proposed, which needs justification.</i>
13	<i>Documentary evidence towards purchase of GSI exploration report for Dona temple block (west) and East block should be submitted.</i>
14	<i>Review of earlier approved proposals should be submitted in to-to in tabular form incorporating proposal, actual achievement, deviations if any with justifications, for easy reference. For example it was approved for underground as well as opencast method of mining, but no such details are furnished.</i>
Review of Mining Plan:	
15	<i>Refer page no.6, no proved reserves (111) were estimated in the earlier approved mining plan, but in the present submission reserves under this category has been furnished which is contradictory, such type of contradictory statements should be rectified.</i>
16	<i>Progressive mine closure plan should be reviewed and submitted.</i>
17	<i>Review of entire exploration carried out so far in the lease area should be submitted.</i>
Geology & Exploration:	
18	<i>Future exploration programme should be furnished in such a way the exploration should be carried out in the entire lease area FOR Gold and associated minerals as per the provision of rule 12(4) of MCDR,2017. Accordingly the year wise exploration programme should be proposed.</i>
19	<i>Bench mark be established in the lease area and the level in mRL with co-ordinates be marked furnished in text part of the document and depicted in plans also submit the photographs of the same.</i>
20	<i>Geology of the lease area should be correlated with reference to Regional Geology.</i>
21	<i>Contour lines and values be shown on the part geological plan printed in</i>

	1:1000 scale.																							
22	As there exist old working pits in the lease area, details of the same with dimensions and locations (WGS 84) should be submitted in addition to the pits trenches made by the lessee in the text part of the document and the same to be demarcated in the relevant plans and sections.																							
23	Block wise controls of Gold mineralization (Lithology, Geological structure) be discussed with demarcating the controls of mineralization on the geological plan. Based on the exploration, mapping etc. carried out so far in the lease area, the dimension / structure of the ore body in each block should be discussed in text part of the document. Potential Mineralized area identified on the basis of exploration work already carried out, outcrops along with geological structures, Lithology, controls of gold mineralization (Lithology, Geological Structure) etc. should be discussed in the text part and plotted on the geological plan. Further part geological plan for different blocks should be submitted on 1:1000 scale for easy reference incorporating mineralized zone identified on the basis of exploration work already carried out, UPL, UNFC code, out crops, Lithology, geological structures, controls of gold mineralization (Lithology, Geological structure) etc.																							
24	Details of exploration carried out by GSI should be furnished in chronological order in tabular form incorporating bore hole no. location (WGS 84), collar RL, Angle, bore hole depth, for easy reference.																							
25	It is stated that exploration has been carried out in different phases at different grid interval. The details of all the exploratory works like geological mapping, soil sampling, litho geo chemical sampling, geo physical survey, trenching, petro graphic study, mineragraphic study. geo technical study. bore hole deviation survey, drilling carried out block wise/phase wise be submitted in tabular form. Details of all the exploratory activity containing year of work, dimension, grid interval, co-ordinates, level be furnished item wise in tabular form.																							
26	The item wise exploratory operation carried out so far in the lease area since from beginning should be furnished incorporating the details in tabular form as below, <table><tr><td>Block</td><td>Phase</td><td>Year</td><td>Type of exploratory operation (If bore hole then mention type, of bore hole and angle of bore holes Core / RC)</td><td>Nos</td><td>Grid interval</td><td>Dimensions / Total meterage</td><td>Angular/ vertical</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								Block	Phase	Year	Type of exploratory operation (If bore hole then mention type, of bore hole and angle of bore holes Core / RC)	Nos	Grid interval	Dimensions / Total meterage	Angular/ vertical								
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27	Exploration expenditure should have incorporated from drilling up to the analysis, Geo-physical survey, soil sampling, bore hole deviation survey, trenching, GSI report purchase. Bill pertaining to purchase of GSI report and other exploration activity be submitted.																							
28	Methods of reserve / resource estimation as per GSI, approved MP and Current submission with reserve/ resources estimated, grade details be correlated in the text part and submitted. For major deviations if any justification be submitted.																							
29	The detail of study carried out for correlating RC bore holes with Diamond core bore holes should be submitted for considering RC bore hole data for reserves/resources estimation. Only one twin bore hole is considered for the study of the entire lease area, though there is variation in these bore holes, then how this could be considered for the remaining RC bore holes needs justification.																							
30	Sampling method adopted has not been discussed for different type of should be submitted in tabular form.																							
31	Meterwise assay details of each bore holes for Gold and associated minerals should be furnished.																							
32	Gist of bore hole wise encountered mineralized zone assay data should be furnished.																							
33	Para 1.e.3. details pertaining to total meterage drilled, no. of samples																							

	collected, analysed with no. of radicals should be furnished for easy reference.																									
34	Ore zone is considered with mineral content of 0.6 g/t, but on discussion it was come to know that mineralized zone is considered up to 0.3 g/t accordingly reserves/ resources should be re-estimated block wise and submitted. As the cutoff is 0.6g/t, the ore with mineral content between 0.3 to 0.6 g/t should be considered as part of ROM and assessed separately.																									
35	The extent of potential mineralised area be furnished along with details of exploration carried out and resource established with grade should be furnished in the tabular form as below <table><tr><td></td><td colspan="5"></td><td>Total</td></tr><tr><td>Level of exploration wise extent</td><td>G1 level (ha)</td><td>G2 level (ha)</td><td>G3 level (ha)</td><td>Unexplored area (ha)</td><td></td></tr><tr><td>Rsaour ces in million tonnes</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Grade(in n Gm/tonne)</td><td></td><td></td><td></td><td></td><td></td></tr></table>							Total	Level of exploration wise extent	G1 level (ha)	G2 level (ha)	G3 level (ha)	Unexplored area (ha)		Rsaour ces in million tonnes						Grade(in n Gm/tonne)					
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36	Modifying factors considered for reserves/resources estimation be submitted.																									
37	The UPL considered based on bench height of 7.5m and width 6m arriving at pit slope of more than 45 degree is not acceptable as this type of operations are not scientific and safe as per statute. The pit slope should be as per statute. Accordingly the reserves/resources should be re-estimated.																									
38	Details of east block and west block lodes having gold mineralization has not been discussed. The details should include structure of ore body, dimension of ore body, dimension of mining block identified with grade, grade of gold and associated minerals.																									
39	Grade variation within the east and west block should be discussed in text part of the document along with level wise assay map. Further the details of reserves estimated based on assay plan has not been furnished.																									
40	Recovery details of metallurgical study and beneficiation study be submitted.																									
41	In the feasibility axis justification the costing and economic viability information, information related to environmental clearance (EC) and Consent for Operation, information related to recovery of metal in respect of metallurgical and beneficiation process and other factors like statutory provision relating to land be submitted.																									
42	Reserves/ resources should be submitted as on date with grade of ore. Further parameters of reserves/resources estimation like cut off grade, threshold limit etc be submitted. Reserves as per earlier approved document has to be submitted and additional reserves estimated based on exploration carried out during earlier plan period should have been incorporated for easy reference. The details furnished are not properly justified.																									
43	All the potential mineralized area be shown on the geological plan and exploration proposal be given for exploring the entire potential mineralized area in G1 level of exploration within 5 years as per the provision of rule 12(4) of MCDR,2017. The exploration proposal be submitted block wise and phase wise. Further then Geostatistical variogram study should be proposed for associated minerals in the five year plan period.																									
44	In the pit optimization (pg-24) the basis of categorization of resources under 221,222 in east block has not been furnished. Further while giving justification as per UNFC it is stated that these resources will be converted into reserves upon further detailed drilling. In this context it is to state that though the exploration has already been carried out in G1 level and not able to delineate the shape, dimension, grade of the ore body then the categorization as per																									

	<i>UNFC should be modified as per the reduced grid spacing of exploratory bore holes.</i>
45.	<i>In the feasibility axis justification the costing and economic viability data and status of environmental clearance has not been submitted.</i>
46.	<i>Reserves should have been estimated separately for insitu ore and loose debris lying in the old working pits.</i>
47.	<i>The mining lease was granted for Gold and other associated minerals. But reserves/resources, grade details only in respect of Gold has been submitted. Reserves / resources details of other associated minerals has not been submitted, which may be clarified.</i>
48.	<i>The level wise slice plan has been submitted. In the slice plan the top most, bottom most and current level pit position be shown on the slice plan. The resources/reserves be estimated level wise with grade and the same be furnished in tabular form. The reserves / resources be estimated by both the slice plan method and Geostatistical method.</i>
49	<i>Sequence wise procedure adopted for reserves/resources estimation by block model has not been discussed.</i>
50	<i>Outcome of the geotechnical feasibility study be discussed in text.</i>
51	<i>Outcome of bulk density study should discussed and be furnished with supporting documents.</i>
52	<i>Outcome of Geophysical study, Geo-Chemical study, petrographic, mineragraphic study and trenching be discussed in text.</i>
53	<i>Details of study carried out for recovery of Silver as a biproduct has not been furnished.</i>
Mining:	
54.	<i>There exist old workings in the lease area, as well as trenches. The details should be incorporated in surface plan and dimensional details with location should be furnished in para 2.A.a.</i>
55.	<i>Bench parameters should be defined as per the provision of MMR 1961 for safe and scientific mining.</i>
56.	<i>On examination of core bore hole logs, it has been noticed that the gold mineralization starts from surface itself, on verification in the field it is found to be old mining debris and filled trenches. The details of quality and quantity of the same has not been estimated and furnished, though the area is proposed for exploitation during this plan period.</i>
57.	<i>Suitability of East block for opencast mining is not furnished.</i>
58.	<i>The benchwise weighted average grade of proposed mining block for each year needs to be furnished and the mechanism for the grade control for optimum utilization of mineral along with blending techniques needs to be furnished.</i>
59.	<i>In the year wise tentative excavation plan there is a proposal of substantial quantity (3,18,600 m³) of generation of mineral reject, but the same has not been defined in geology chapter for its reserve/resources estimation purpose. In this regard basis of generation of mineral reject wrt ore should be furnished. However as per the earlier approved plan there was proposal for generation of sub grade ore, but in the present submission no proposal for generation of sub grade has been submitted, which needs to be clarified.</i>
60.	<i>In the year wise development & Production plan the part A & B of the plan be submitted showing their location in a key plan in the same plan. The year wise development and production be shown properly by giving colour/hatching index.</i>
61	<i>Outcome of the feasibility study be discussed in text.</i>
62	<i>Extent of mechanization needs to be described in context of proposed production targets. The machine requirement should be supported by necessary calculations.</i>
63	<i>The bench wise grade of proposed mining block for each year needs to be furnished and the mechanism for the grade control for optimum utilization of mineral along with blending techniques needs to be furnished. Bench parameters needs to be mentioned in the text.</i>
64	<i>Section wise/bench wise Computation made for year wise production and</i>

	<i>development proposal should be furnished in details.</i>
65	<i>In the layout of mine working amount of advance to be made length wise, width wise, level to be mined (mRL), co-ordinates, Volume has not been furnished.</i>
66	<i>The generation, use and stacking of sub grade, mineral rejects should be discussed.</i>
67	<i>Box cut details for opening of the mine be submitted.</i>
68	<i>In the year wise development and production plan the year wise area to be mined should be demarcated by coloured line. The ramps are not proposed.</i>
69	<i>The conceptual plan prepared is sketchy and has not been prepared as per the guidelines. The UPL has not been defined as per statute and reserves have not been estimated as per UNFC guidelines. Life of mine has not been calculated. Conceptual status of the mine as given in the plan is not correctly accessed. Conceptual status of mine at the end of lease period be discussed for exploration, waste and sub grade generation, pit development, land use pattern, afforestation, reclamation and rehabilitation.</i>
70	<i>Area proposed for waste dumping, tailing pond and processing plant should be proved for its barrenness before brought into use. The backup calculation of the area required for waste dumping, tailing pond, processing plant etc. should be furnished.</i>
71	<i>The built up of dumps from year to year to be shown in yearly plans and sections. Designed capacity & height of individual dump and precautions envisaged for confinement of the dumps along with protective works, needs to be described in the text. The arrangements for top soil dump its storage needs to be furnished in the text and plan.</i>
72	<i>The waste dump slope should be maintained as per the statute.</i>
73	<i>Hydro-geological study of the lease area from a institute of national repute like CGWB should be carried out and submitted. The UPL should be decided based on outcome of the above study and subject to statutory permission from competent authority.</i>
74	<i>Contradictory statement regarding final pit limit is furnished in Mine drainage chapter and in conceptual plan as 120m and 220m respectively, which should be clarified. Further UPL related information submitted is also contradictory with comparison to EC condition.</i>
75	<i>No separate stacking of mineral reject has been proposed in plans and section, though proposal of substantial quantity generation has been furnished.</i>
76	<i>It is furnished in pg-43 that the mineral reject will be processed either by blending or as separate feed upon its viability, but the ore which can be blended cannot be considered as mineral reject. In this regard the ore/mineral reject which is blendable has to be estimated and furnished separately than that one which is not blendable. Accordingly year wise blending proposal should be submitted.</i>
77	<i>Use of Minerals-In page no-46, it is stated that the ore to be mined from the subject mine is having a grade of 1.41g/t of Gold. It is to be clarified that the average grade of gold from this mine is 1.41g/t or not, with justification.</i>
Processing of ROM	
78	<i>The precautionary measures to be taken in respect of processing plant based on environment impact assessment and environment management plan should be furnished.</i>
79	<i>The material balance sheet incorporating quantity and percentage in respect of processing of ROM should be furnished.</i>
80	<i>Engineering details of in text be submitted in tabular form.</i>
81	<i>Water balance chart of the processing should be submitted incorporating drawl of fresh water, re use and loss. Source of water requirement of processing plant be furnished.</i>
Progressive Mine Closure Plan	
82	<i>The area put to use at the start of plan period is furnished as nil, but there are old workings, trenches, exploratory work have already been carried out. The area degraded due to above activity should be considered and submitted. Further in the annual return submitted for the year 2014-15 the area degraded was reported to be 90 Ha.</i>

	<i>Further the area already degraded should be considered as the plan submitted is supporting the same. Financial assurance table should be submitted in to to as per the format will only be considered. In the financial assurance plan the item wise area used be shown in different colour/hatching index.</i>
83	<i>The environmental monitoring should be proposed for Air, Noise, Water, Soil as per IBM and MOEF within the core and buffer zone and should be furnished in tabular format with details like location name, co-ordinates, frequency of sampling.</i>
Plans and Sections	
84	<i>All the plans should be prepared based lease sketch approved by the competent authority of the State Govt of Andhra Pradesh.</i>
85	<i>Copy of the lease sketch should be submitted and original lease sketch should be furnished for verification</i>
86	<i>All the plans and sections should be submitted as per the provision of rules 31, 32, 33 & 34 of MCDR, 2017.</i>
87	<i>Surface Plan submitted does not matching with actual field actual like shaft near Temple, pittings/ trenching by MECL or any agency.</i>
88	<i>Standard colour code should be used in respect of litho units for easy reference.</i>
89	<i>Lease map with Geo-co ordinates of lease boundary pillars authenticated by state government authority should only be submitted, no modification in the plan is acceptable.</i>
90	<i>Regional Geological Plan, lithological Index should have been furnished with geological description.</i>
91	<i>The qualified person should furnish certificate duly signed by them stating that “Certified that this plans and sections area prepared based on the lease map authenticated by state government” in all plans and sections.</i>
92	<i>Co-ordinates of grid lines should be submitted in ‘WGS 84’ in addition to local co-ordinates in all the plans and sections, for easy reference.</i>
93	<i>Standard colour code should be used for depicting various activities.</i>
Enclosures	
94	<i>Copy of ground water table study from a institute of national repute should be submitted.</i>
