Annexure-I

SITE INSPECTION REPORT IN RESPECT OF STOPING NOTICE OF **8-P block in Oakley's Reef** of Hutti Gold Mine GOLD MINE (ML.NO. 2671)

1. **Introduction:**

M/s Hutti Gold Mines Company Ltd. has submitted application for the stoping i.r.o. their Hutti underground Gold mine, over an area of 528.35 Ha (Non-Forest Patta Land), in Hutti Village, Lingasugur -Tq, Raichur District, Karnataka state requesting to permit stope of **8-P block** (Oakley's Reef) in BE43-44 region in between 17th & 19th level by sub-level method with post filling, under rule 30(2) of MCDR, 2017 on 12th Feb 2018. The mine was inspected by S/Shri Arun Kumar, DCOM and Prashant S. Hegde, SMG on 23/02/2018. S/Shri M. Shantha Kumar, Mines Manager, Dr T.K. Abdul Rahim, Manager (Exploration), Dr S.N. Solankar, Dy. Manager (Exploration), Shri Ghosh, Mining Engineer and other mine officers were present during the inspection. The scrutiny comments are prepared based on the inspection of the mine and the document submitted by the Company.

2. **Location & Approach**:

The area falls in Survey of India Toposheet No.56 D/12 , between latitudes N16° 10´ 28.2" to N 16° 12´ 26" and the longitudes E 76° 38´ 26.7" to & E 76° 39´ 59.3". The mine is located adjacent to Hutti- Village, Tq- Lingasugur and Dist-Raichur of Karnataka state. The nearest railway station is Raichur about 80 km, which is on the Chennai-Mumbai Broad Gauge line of South Central Railway. All weather road passes through which connects Hutti with Raichur. National Highway No-150A, is about 10 kms west of the area. Nearest Airport is at Hyderabad about 240Kms, can be approached via road & Rail.

3. **Lease particulars**:

The mining operation in the area started during year 1880 and recent renewal of ML (No-2671) on 26/03/2012 for a period of 20 years w.e.f. 19/12/2008 with validity upto 18/12/2028. The stoping production reported from 12 nos of blocks during year 2017-18.

4. **Compliance of earlier Notices**:

The quarterly report of stoping and development up to (Dec-2017) was received and enclosed in the application. The clarifications and justifications were sought regarding the operations in nos of stope blocks and present new stope applications before completion of earlier stope blocks.

5. **Geology, structure & Control**:-

5.1)The Hutti-Maski schist belt is a NNW-SSE trending horse shoe shaped curvilinear belt, grouped under the unclassified (eastern) greenstone belts, probably equivalent to Dharwar Super Group. It extends over a strike length of 70km, occupying an area of 670 sq.km this belt is predominantly made up of metabasaltic/ meta andesitic suite of volcanic (>80%) with the subordinate acid volcanic (15%) and minor amount of meta sediments (about 5%) represented by lower amphibolite facies metamorphism. The schist belt on all sides is surrounded by gneisses and granitoids.

The Hutti deposit is located at the north western periphery of the Hutti greenstone belt. All the auriferous lodes occur within the meta volcanics dominantly composed of massive, fine to medium grained, pillowed meta basalt and subordinate widths of Acid volcanic bands of rhyolitic composition, which occur intermittently as concordant bodies. The gold quartz-sulphide mineralisation is localised mostly within the chlorite-biotite-carbonate schist that occur as tabular zones within the meta basalts, and at the contacts of meta basalts with the acid volcanic rocks.

Nine significant well defined parallel to sub-parallel tabular auriferous reefs viz.Main, Prospect, Oakley's, Middle, Zone-I, Village, Strike (Hanging wall),Strike (Foot-wall) and New East reefs. The general strike of the mineralised zones is N 20^0 W dipping towards west at about 60^0 to 70^0.

These reefs are localised along narrow zones of highly sheared chlorite-biotite-carbonate schist. The prominent dolerite dykes trending east-northeast cut across all the rock formations and postdate deformation, metamorphism and gold-quartz mineralisation. The effects of shearing are well represented in all the parallel lodes of Hutti mines. Intensive deformation such as mylonite banding in the quartz veins, brecciation, associated with schistosity furnish good testimony for shearing. The lodes of the Hutti deposit are generally gold-quartz-sulphides type and the lode consists largely of altered wall-rock with quartz and carbonate in the form of veins, veinlets, stringers and impregnated with sulphide minerals, native gold and minor amount of scheelite. The sulphide minerals includes arsenopyrite, pyrrhotite, pyrite, little sphalerite and chalcopyrite.

5.2)Structure of Hutti Greenstone Belt:-- The Hutti greenstone belt shows evidences of three distinct phases of folding and deformation (DF1, DF2 &DF3) which are associated with the development of planar and linear structural fabric. Development of shear zones of ductile to brittle regimes along the axial traces of major F1 folds is one of the most prominent structural features in the Hutti greenstone belt and forms the loci for localization of primary gold-quartz mineralization. These shear zones occur mostly within the meta basalts and along the contacts of meta basalts and acid volcanic rocks. The 2nd phase of folding and deformation (DF2), represented by major and minor folds, has refolded or cross-folded the 1st fold axial traces and the associated shear zones. The 3rd phase of folding & deformation is seen in the schistose rocks and in the lodes of Hutti deposit as broad warps. Oakley's fault is the only major fault in the Hutti mines and is quite persistent along its strike and dip throughout the mines area. The fault zone is about 0.5 m. wide and trends WNW - ESE with dip varying from 45^0 towards north near surface and gradually steepening to vertical in deeper levels. A number of minor cross-faults of a steeply dipping conjugate set also occur which displaced the lode zones and are predominantly left lateral faults.

5.3)Exploration: Investigation for gold in the selected block of the schist belt was carried out by different officers of GSI from time to time starting from year 1967-68. The Summary of cumulative exploration carried in the area is as follows.

Name of agency	Surface Drilling	Underground drilling
GSI	53 BHs with 7070 total meterage	-------
M/s HGML	104 Nos BHs with 9022 total meterage	57 nos of BHs with 6080 total meterage

Underground development activities:- Underground mechanized mine developed upto 26th levels, having mainly 3 shafts.

(1) Mallappa vertical Shaft (933.7 m depth)
(2) Central vertical Shaft (871.86 m depth)
(3) Village inclined shaft (552.9 m)

Further, sinking of new circular shaft and decline are under progress.

5.4) During recent inspection dated 9th to 10th Nov. 2018, the violation of rules 19, 26(2), 30 and 45 MCDR 2017 were pointed and correspondence under progress.

5.5)As per the last approved modified review and updation of mining plan dated 14/2/2017, about 8.99 million tonnes of proved ore (111) with average grade of Au 5.37 gms/tonne assessed in Hutti Mine.

5.6. Adequate underground development activities have already been carried out up to 26th level. The delineation of ore body in the 8-P block was already made with the help of development and further development in the proposed stoping is not required. Accordingly, the proposals of stoping of 8-P block (Oakley's Reef) in BE43-44 region in between 17th & 19th level by sub-level method with post filling was made in present review and updation mining plan and is under process. The present economic cut-off grade of ore is 2 gm/tonne of Gold.

6. Mining & Development:---

6.1)Status of proposed stope:--The proposed stope block 8-P lies between 19th level to 17th level in BE43-BE44 region. North, South and Bottom of this block is stoped out by Sub-level method of stoping. Top of this block is a virgin area. Stoping in North side of the stope block is in progress and South side is stoped and filled with mill tailings.

6.2)Status of STOPE PREPARATION:---- The details of stope preparation made as follows.

a) One drill-level i.e., 18th level below and one drill-level 17th level below is developed to the entire length of the stope block.
b) One slot rise between 19th levels to 17th level is developed at northern end of the block.
c) One exit/approach cross cut west is being developed at 18th level connecting 18th footwall bypass drive to ore drive at southern end.

d) Two small service rises are being developed between 18th level to 18th drill-level and 17th level to 17th drill-level at south end of the stope block.

6.3) Status of proposed stope Extraction level:--The existing bottom level i.e. 19th level proposed to be used as extraction level. A haulage drive of 3.00 m. x 3.00 m. developed in the foot wall at 13.00 m. away from the ore drive. Draw cross cuts of 3.00 m. x 3.00 m. shall be developed at 10.00 m. interval, as shown in Drg.No. 29/334.

6.4)Proposed of Blasting pattern:--- 115mm dia downward holes proposed to be drilled from 18th drill-level to 19th level, 17th drill-level to 18th level with burden of 2.50m and toe spacing of 2.80m, and 57mm dia upward holes proposed to be drilled from 18th drill level to 18th level and 17th drill level to 17th level with burden of 1.50m and toe spacing of 1.80m covering the stope width to the entire length of the stope block.

The Proposed BLASTING pattern as follows:-

(a)Blasting of drill holes drilled from 18th drill-level to 19th level and 17th drill-level to 18th level will be commenced from slot rises provided at north end of the block 8 P. (b)Blasting of drill holes from 17th drill-level to 18th level and 17th drill-level to 17th level proposed to be commence simultaneously. A lead and lag of minimum 6.00m proposed to be maintained between the levels and drill-levels. This sequence of blasting operation proposed to be maintained for the entire stoping block. (c)Suitable slurry explosives proposed to be used for blasting operations. (d)The maximum charge of 220 kgs of explosives per delay proposed to be maintained throughout the stoping operation. (e)All the drill holes proposed to be blasted either in full or in vertical lifts of 6.00 to 8.00 m.(f)Blasting proposed to be carried out at the end of the shift after withdrawing all the men from the underground workings.

6.5) Proposed WITHDRAWAL OF ORE:--The broken ore proposed to be transported by Electrical/Diesel operated LHD and will be dumped into ore transfer rise at 19^{th} level.

6.6) Proper safety measures are being made in Haulage drive and draw cross cuts and ventilation arrangement.

The proposals submitted are to stope out this blocks by sub-level method with post filling as per NIRM report. Further, the DGMS permission has already been granted for this block.

7.Conclusions & Recommendations: Based on field observations, recommendations in NIRM report), DGMS permission of this block and proposals in present review and updation of Mining plan , the present stoping permission may be granted subjected to compliance of scrutiny comments. The Scrutiny comments prepared separately, in addition to this site inspection report, which needs to be attended by the lessee /company with corrections in the plan and sections to the satisfactory level.

This office may be informed once the stoping operations are commenced and the progress in regard to development & stoping may be informed quarterly.

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