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REPORT OF

GEOLOGYCAL STUDY TOUR TO

DODDANNAVAR IRON ORE MINE

Date of visit 2 Aug 2023

B.Sc. FORTH SEMESTER

GEOLOGY (NEP)

SKE SOCIETY'S

G.S.Sc. COLLEGE, BELGAUM

Department of Geology

CERTIFICATE

This is to certify that **Mr. Chandrahas Parashuram Patil** of B.Sc. IV Semester with Geology as major subject has attended the geological Study Tour to "DODDANNAVAR IRON ORE MINING COMPANY" on 2nd August 2023 .

Exam Seat No. **U15BL21S0460**

Head, Dept. of geology

Head
Geology Department
G. S. S. College, Belgaum.

SKE Society's GSSc Degree College,

Department of Geology

GEOLOGYCAL STUDY TOUR TO

DODDANNAVAR IRON ORE MINE

REPORT

Date of visit 2nd August 2023

We the B.Sc IV semester student of Geology Department visited Doddannavar Iron Ore Mining Company in Hiremagi Sulebhavi Aihole village, Hungund Taluka, Bagalkote District, Karnataka. We started our journey on 2nd AUGUST 2023 morning and returned on the same day evening.

Geological Background of the Area:

The geology of the area is quite well known world over for the Proterozoic sedementry basin popularly known as ' Kaladgi Formatin '. The area is present in the northern part of the Hungund-Kushtagi Schist Belt. This is comparatively a large schist belt which extends for nearly 100km having width of 20km. The northwestern extension of the belt is hidden under the Proterozoic Kaladgi sedements and Deccan traps. The belt is largely composed of basalt and landsite with minor ultramafic and subordinate metasedimentry bands. Banded iron formation made up of ferrugious chert and quartzite are present. The belt is completely engulfed by gneisses on all sides and is intruded by younger granites.

Stratigraphy : . The general geological succession along with Order of Superposition is given in Table.

META SEDIMENTS	
Formation	**Thickness**
Lateritic soil/clay/ shale – exposed on the surface	0-0.2m
Iron ore	0.5-31m
BHQ (Banded Hematite Quartzite) / Hematite siliceous	0.3-10m

Geological features observe during study tour:

- A major part of the area is covered by iron ore and BHQ.
- It consist mainly of hematite and underlain by Banded Hematite Quartzite(BHQ).
- The iron ore bands occurrence has been found at two places in the northern and southern parts.
- The strike length of northern and southern ore bands are 264m and 388m respectively.
- The northern ore body is running NE-SW (2100) to N-S direction with general dip of 600 to 700 towards west and having width varies from 20m to 80m.
- Both the iron ore bodies are enclosed by BHQ , Shale and Sandstone in all the major formation of the area, structure like joints, minor fold have been noticed.
- Folds are well developed in the central part of the field are symmetrical or asymmetrical synclines and anticlines are more in N-W direction.

Geological structures seen during field studies:

- **FOLD -** It is a stack of originally planar surfaces, such as sedimentary stack that are bend or curved during permanent deformations. At the field we observed various folds which are clearly visible and some chevron folds.

- **ANTICLINES-** It is a type of fold that is arch like shape and has its oldest bed at its core. At the field there is huge structure of anticline which is uplifted due to tectonic activity.

- **STRIKE-** It indicates the altitude or position of linear structural features.

- **DIP-** It is the angle of inclination major downwards from horizontal.

Method of Mining

It is proposed to operate mine the existing method of mining i.e. by fully mechanized opencast mining method adopting a system of benches. Slope of the benches will be maintained at 37° slope. Bench height 6m and width shall be maintained at 8m as per the statutory requirements. Where ever the bench height is more it will be reduced to 6m height.

Drilling: The primary drilling operation is conducted by wagon drill of 100mm dia bit, the drilling depth will 6.6m with sub grade drilling. The jackhammer will be used for secondary blasting. The diesel driven compressor will be used for the operation of drilling.

Blasting: The blasting operation will be performed by using millisecond delay detonator of multi - row blasting, the drilling and blasting will be required about 50%, the remaining will be excavated by self-excavation of the machinery. The lessee is having the own magazine which is shown on the surface plan. The Slurry type of explosive will be used. The charging will be 2/3 of the hole and 1/3 will be stemming practicing is adopting. The blasting vibration will be minimized by using millisecond delay detonators and reducing the charge per hole. The controlling measures of flying fragments will be undertaken.

Dozing: after blasting, the scattered ore will be dozed by Wheel Loader for convenient of loading and movement of the transport vehicle.

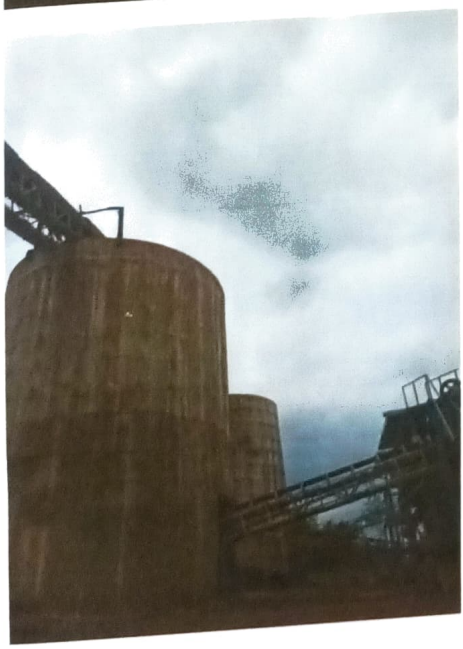
Excavation: The extraction of the blasted material and the self-excavated material will be loaded by 1,4m3 bucker capacity excavator. The material will be loaded in to 16tons capacity tippers.

Transportation: The material will be loaded by excavator will be transported by the 16tons capacity tippers. These tippers will be utilized only for internal transportation of ROM from face to crushing screening plant and to the waste dump/mineral stock/mineral reject stock.

Acknowledgements: We are grateful to our teachers Dr.P.T.Hanamgond and Mr Suraj Mense and Mr Yogesh Kutre, for conducting this study tour.

Description of Field Photographs

- **Machines use for the extraction of the iron ore.**



Area of the mine

Folds

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Signature And Name of The Staff Prof. Sura j S Mehse Prof. Yogesh M Kutre	

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