

CORPORATE NEWS

Government of India introduced a liberalised mineral policy in 1993 enabling the private entrepreneurs to enter the field of exploration and mining for several major minerals such as gold, basemetals etc. In tune with this trend, the Geological Society of India has introduced a new class of Corporate Membership. In order to cater to their interests and to provide a forum for exchange of geoscientific information by the corporate sector, we introduce a new section of CORPORATE NEWS beginning with this issue. -Ed

NOTE ON PRELIMINARY INVESTIGATION FOR GOLD IN PARTS OF SANDUR AND GADAG GREENSTONE BELTS OF DHARWAR CRATON

(1) The Hutti Gold Mines Company Ltd. (HGML), National Geophysical Research Institute (NGRI), and the Mineral Sales Private Ltd. (MSPL), investigated gold associated with banded iron formation (BIF) in the schist belts of Karnataka under a project of Department of Science and Technology (DST). The main object of the investigation was to establish the relationship between gold mineralisation and deposition of banded iron formation in greenstone belts and develop a model for gold concentration, leading to identification of workable deposits of gold in BIF as well as carry out pilot plant scale metallurgical tests.

(2) An area of 800x400 m in the MSPL leasehold, forming the northern section of the Ramandurg range of Sandur schist belt, which consists of ultramafics, BIF, metagabbro, pyroxenites and amphibolites was selected for the study. Samples collected were analysed by fire assay at HGML laboratory. Initial results were discouragingly low but sulphide concentrates analysed 17 gm/tonne. It is only after NGRI confirmed the presence of gold by electron microprobe analysis in a large number of samples that exploration efforts were continued. A fire assay laboratory was soon established at the site by MSPL.

(3) 1324 bed rock samples from MSPL lease area indicated a range in values for gold from 'not detected' to more than 1 gm/tonne. In each lithological unit, a few samples were selected and tested in different laboratories in India. The results indicated a large variation from 0.1 gm/tonne to 2.25 gm/tonne for the same samples. Variations were probably caused by the inhomogeneity of gold distribution in different lithological units sampled at -100 mesh and/or faulty splitting of samples during crushing, grinding and pulverizing.

(4) Banded magnetite quartzite (BMQ) sample weighing 3 kg from the MSPL leasehold area was analysed at an Australian Laboratory which indicated a head value of 0.2 gm/tonne gold with a possible recovery of 91.3%.

(5) MSPL thereafter modified the existing HGML plant at Gadag Gold Project (GGP) by addition of cyanidation, CIP, electrowinning and smelting unit and tested in bulk 7028 tonnes of ore from GGP in 7 cycles and recovered 3427 grams of bullion. Grade of ore fed ranged from 1.44 to 2.88 gm/tonne with recovery ranging from 25% to 95%. Capacity utilisation of the pilot plant for different cycles varied from 23% to 72%. Pilot plant operations indicated economic viability of designing 250 TPD open pit mine and mill at a recovery grade of 1.07 gm/tonne at 60 to 70% capacity utilisation.

(6) In Dharwar craton there are more than 80 known ancient workings. Some of the selected ancient workings were explored by Messers John Taylor and Co., in the early part of 20th century, out of which only KGF and Hutti developed into producing mines. The main emphasis of exploration

in recent years by the GSI and MECL has been to identify and develop vein type deposits similar to Champion Lode of KGF and Hutti Mine to be suitable for underground mining. Even in the late 1980's when Chigargunta prospect in Kolar belt was developed, the possibility of open pit operation was not examined. It was only after the conversion of the Chitradurga plant designed for copper concentrate production into gold processing plant in 1994, attention was focussed on development of open pit mining for recovery of gold from ore analysing about 2 gm/tonne. Current operations of Chitradurga gold unit by supply of ore from Ajjanahalli open pit mine, transported over a distance of 80 km and milled in 500 TPD processing plant, has proved the economic viability of developing mine and mills in different centres for gold mining and processing.

(7) Identification of world class deposits of 70 tonnes gold to be mined at the rate of 7 tonnes gold per annum is likely to be a long drawn affair requiring heavy capital investment. Development of small and medium scale properties through indigenous technology is possible. Karnataka has 40,000 sq.km areal extent of greenstone belts and GSI, after processing and interpreting the available data, has indicated 385 anomaly areas for gold and has prioritised areas in different greenstone belts based on geochemical signatures, geological milieu and field studies for follow up evaluation.

(8) Exploration for gold in the Gadag greenstone belt has been attempted by MSPL, NGRI and HGML by bed rock sampling and testing by fire assay initially, followed by regional scale sampling at closer intervals. This has indicated a few spots suitable for open pit mining. Satellite deposits identified by MSPL and NGRI in Gadag goldfield and pilot plant tests at GGP indicate the possibility of operating a 250 TPD processing plant economically. The main source of ore supply will be by open pit operations that can be supplemented from underground exploratory development, wherever higher grade vein type deposits are known to exist. The results will lead to expansion of mine and mill in steps to a suitable economic scale. GGP has a potential of being reckoned as a deposit of world class.

MSPL is thankful to HGML for permitting them to operate the GGP on lease basis. Authors are thankful to undisclosed reviewers and many others who have given encouragement to write this note.

Director, MSPL, Hospet, Karnataka

RAHUL BALDOTA

NGRI, Hyderabad

S.M. NAQVI

HGML, Bangalore

A.S. KULAGERI

Consultant, Bangalore

R.H. SAWKAR