

DE BEERS
A DIAMOND IS FOREVER

KAR-02

CLOSING REPORT

for

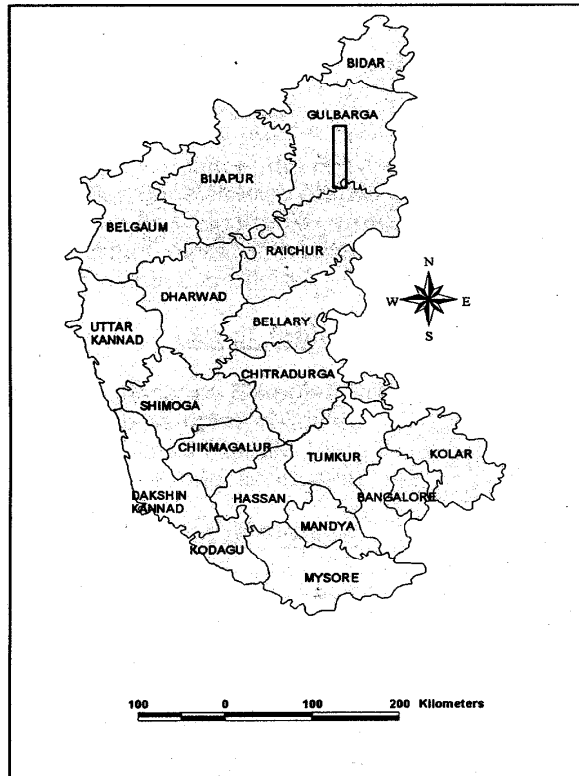
**RECONNAISSANCE PERMIT NO 8
(C1 50 MM 2000)**

in the

STATE OF KARNATAKA

for the period

7th May 2001 to 20th October 2003



In terms of the relevant legislation, the information reported in this document is to be kept strictly confidential by the Karnataka State Government for a period of two years from the date of expiry of the Reconnaissance Permit.

**Closing Report on Reconnaissance Permit No. 8
(C1 50 MM 2000) Karnataka**

1. Reconnaissance Permit Status

The Reconnaissance Permit lies in the Districts of Gulbarga and Raichur and was executed at Bangalore on 7th May 2001. Out of an original area of 1000km², 500 km² was relinquished on the 7th May 2003 and another 500 km² was relinquished on the 20th of October 2003 (Map 1). As a result of these relinquishments the De Beers India Surveys Pvt. Ltd. has relinquished all of the RP area granted, after thorough reconnaissance operations, ahead of the scheduled relinquishment (6th May 2004).

2. Geology and Geomorphology

The southern areas of the RP is underlain by the Peninsular Gneisses which range in age from 3400 to 2500 m.y. and form part of the West Dharwar Craton (Map 2). The formation of these rocks occurred in 3 stages with influx of granitic material being recognized before 3.3 b.y., at 3.0 b.y. and the youngest at 2.6 b.y., the latest being associated with amphibolite facies metamorphism culminating in the formation of granulites.

The older gneisses (Older Gneiss Complex) are mainly composed of amphibolite facies gneisses of tonalitic-trondhjemitic-granodioritic (TTG) composition and contain enclaves of ancient supercrustals of volcanosedimentary origin. In some places, the Gneisses are unconformably overlain by Dharwar type schist belts. Steep dipping faults and ductile shear zones dissect the complex in many areas.

The Younger Gneiss Complex (YGC) is confined to a wide belt of gneisses surrounding the archaean nucleus and is mainly granodioritic and granitic in composition. Enclosed within these rocks are narrow Kolar type schist belts which are largely basaltic in composition and are characterized by gold mineralization.

Overlying these rocks to the north is the Bhima basin, the smallest of the Proterozoic basins in India. This basin closely resembles the Kurnool Group of the Cuddapah Super-group located further south. The Bhima Group is made up largely of limestones but includes conglomerates, sandstones, siltstones and shales all of which were deposited in a shallow marine environment either along beaches or intra-tidal zones.

Enclaves of the Deccan traps occur in some parts of the RP. This volcanic event took place 65 m.y. ago coinciding with the Cretaceous-Tertiary boundary.

Most of the RP lies within the drainage basin of the Pedda Vagu river which drains the high lying areas to the north of the RP towards the south. The edge of the Bhima basin is char-



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acterised by an east west trending area of higher topography along which a watershed divides this drainage with that to the north (Map 3)

3. Activity during the reporting period (7th May 2001 to 20th October 2003)

The entire area has been scrutinized with 90 reconnaissance samples (an average sample density of 0.1 samples per km²) and 9 follow-up samples. Kimberlite indicator mineral results for all the samples have been received and interpreted. An airborne survey was conducted using De Beers proprietary Airborne Multispectral Scanner (AMS) system and 7 anomalies were identified and followed-up.

3.1 Reconnaissance stream sediment sampling

The permit area has been scrutinized with 90 reconnaissance stream sediments samples.

Stream samples comprise 150 litres of unscreened material, collected from natural heavy mineral trapsites and field screened to -2.0mm. Loam samples comprise 75 litres of material collected from surface in interfluves. Sample localities are shown in Map 4 and sample details are recorded in Table 1.

The samples were processed at De Beers heavy mineral treatment plant in Bangalore, and the concentrates were consigned to De Beers laboratory facilities in Australia for further processing and sorting. Kimberlitic indicator minerals recovered (garnet, spinel, clinopyroxene and ilmenite) were microprobed at the University of Melbourne.

3.2 Follow-up sampling

A total of 9 follow up stream samples were collected in areas where favorable reconnaissance sampling results were received (Table 2). The samples comprise 30 litres of material collected predominantly in first order creeks. The samples were processed at De Beers heavy mineral treatment plant in Bangalore and the concentrates were consigned to De Beers laboratory facilities in Australia for further processing and sorting.

3.3 Results of reconnaissance and follow-up sampling

Results of all the reconnaissance and follow-up samples have been received and interpreted. Of the total samples 59 reconnaissance samples and 7 follow-up samples are positive with respect to kimberlite indicate minerals (Map 5 and Table 3). A total of 13 garnets, 239 ilmenites and 178 spinels were reported from the visual sorting of the sample concentrates (Table 3).



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3.4 Mineral Chemistry

Mineral Chemistry data from the reconnaissance indicator minerals is shown in Figures 1-8. Much of the data shows that the indicator minerals are derived from source or sources unlikely to contain diamonds.

3.5 Airborne Multispectral Scanner Survey

An airborne survey utilising De Beers proprietary hyperspectral scanner technology was completed during April 2002. The system works by measuring reflectance of narrow wavelength bands of sunlight reflected from the Earth's surface. Different minerals (as well as other materials) absorb different wavelengths of light to varying degrees. The AMS system is sensitive enough to actually distinguish some specific types of minerals by the absorption of certain wavelengths of light detected. In the search for kimberlites, the system is configured to look for the presence of magnesium-rich clay minerals, derived from the weathering of ultramafic rocks.

The AMS equipment was fitted into a P68C (registration VT-TAH) aircraft chartered from Taneja Aerospace and Aviation Limited, 1010, 10th Floor, Prestige Meridian - 1, 29 M.G Road, Bangalore 560 001. The surveying was conducted from an altitude of 9,500 ft (2,896 m) along flight lines 2 km apart (Map 6).

A total of 7 anomalies were selected as areas comprising Mg-rich rocks with the potential to be kimberlites (Maps 7 & 8; Table 4). Follow up of the survey involved field visits to anomalies and identification of the causative lithological units. Small samples were collected for PIMA (Portable Infra-Red Mineral Analyser) analysis to confirm that the lithology identified on the ground corresponded to the anomalous Mg-rich absorption feature identified by the aerial survey. PIMA analysis was carried out in Bangalore. No kimberlite has been discovered with this technology in the RP area.

Detailed sheets of AMS anomalies followed up are attached as Appendix A.

4. Interpretation

Based on the results received for various techniques used in the exploration of this RP, it has been concluded that the potential for discovering a diamondiferous kimberlite in the RP area with the present level of knowledge is low. As a result, De Beers India Surveys Pvt. Ltd. has decided to relinquish the RP area in total to explore for more prospective areas of the state.

5. Personnel

The following personnel are employed by De Beers India Surveys Private Limited



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Name	Designation	Education
Tarun Rautela	Staff Geologist	MSC Tech – Applied Geology
M.P.Unnikrishnan	Staff Geologist	MSC Tech – Applied Geology
Anuradha Sarangi	Consultant Geologist	MSC Tech – Applied Geology
K.Aravind	Financial Controller	Chartered Accountant
Archana Sehgal	Office Manager	MBA – Marketing
S.Chandrasekhar	Treatment Plant Operator	Bachelor of Arts
C.K.Chandu	Treatment Plant Operator	Pre – University (XII Std)
A.Chenniah	Field Driver	IX Std
K.Ekambaram	Treatment Plant Operator	X Std
R.Loganathan	Treatment Plant Operator	X Std
Matthew Christopher Cooke	Field Driver	X Std
G.Oblesh	Field Driver	V Std
G.Padmanabhan	Field Driver	VI Std
R.Philomen Raj	Office Driver	IX Std

In addition, unskilled labourers were employed on a daily basis daily from local towns and villages to help with the sampling programme.

6. Training

De Beers maintains high operating standards including safety and environmental awareness. To this end, training is an integral part of career development with the organisation. The following is a short summary of training completed to date.

All staff including geologists and field drivers received first aid and safety training, including fire fighting. Staffs also receive ongoing education in HIV/AIDS awareness and other well-ness issues.



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Geologists received training in field navigation, sample site selection, sample collection, labelling and recording of sample data. They have also received training in undertaking of ground magnetic surveys. Quality control and further on the job training is ongoing.

Geologists received training in basic kimberlite geology and field identification during the period 11th-12th June 2001.

Geologists received training on Arcview GIS software during the period 25th to 27th July 2001.

Geologists received further training on Arcview GIS software during the period 3rd to 4th December 2001.

All skilled staff attended a management training programme run by Deloitte's Haskins and Sells in Bangalore.

All Geologists attended a course in Geosoft for the geophysical data analysis and interpretation in August 2003, at Bangalore.

All geologists attended a Geosoft training programme in August 2003.

7. Expenditure

Total cumulative expenditure of Rs 4,383,724.15 has been incurred for the RP to date. The expenditure was incurred as follows:

Capital expenditure: Rs 790,898.98

Revenue Expenditure: Rs 3,592,825.17



M.D. Lynn
Regional Exploration Manager
De Beers India Surveys Private Ltd
Bangalore, June 2003



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