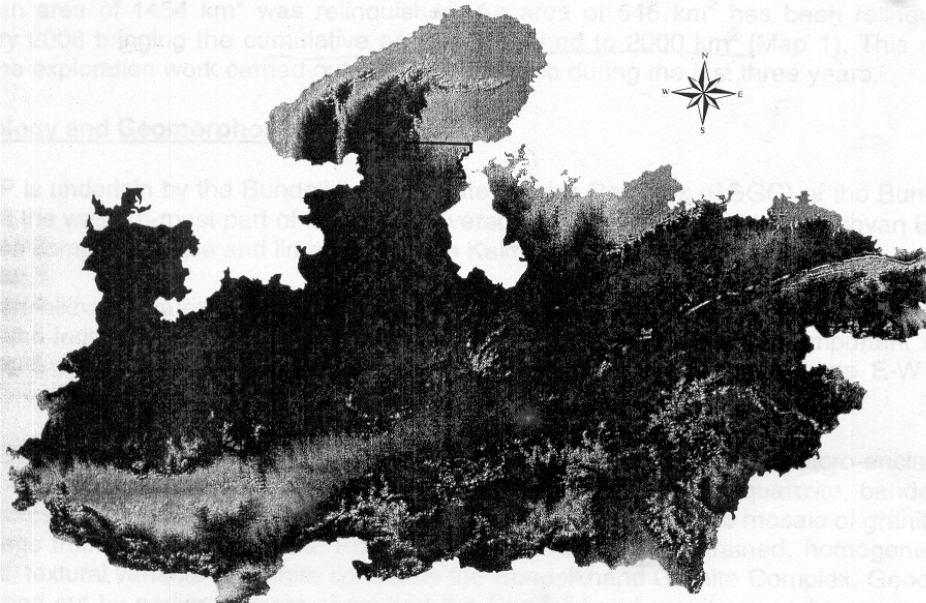


MP-14

Closing Report of Reconnaissance Permit
Mining/ RP-/2002/3006 Madhya Pradesh

Report for the period
13/01/05 to 12/01/08



0 25 50 100 150 200
Kilometers

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



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**Closing Report on Reconnaissance Permit
Mining/ RP-/2002/3006 Madhya Pradesh**

Report for the period
13/01/05 to 12/01/08

1. Reconnaissance Permit (RP) Status

The RP is 2000 km² in extent and was executed at Bhopal on 13th January 2005. As per rule 7(i) (a) of MCR 1960, it is scheduled to be reduced by 50% on or before 12th January 2007. On 13th July 2006 an area of 1454 km² was relinquished. An area of 546 km² has been relinquished on 12th January 2008 bringing the cumulative area relinquished to 2000 km² (Map 1). This report summarizes the exploration work carried out in the permit area during the last three years.

2. Geology and Geomorphology

The RP is underlain by the Bundelkhand Granite Gneiss Complex (BGGC) of the Bundelkhand Craton and the western-most part of the RP is covered by the basal part of the Vindhyan Basin, which in this area comprises shale and limestone of the Kaimur Group. (Map-2).

The Bundelkhand craton, covering an area of about 26,000 sq. km, represents the northern most part of the Indian shield and lies north of the Narmada-Son Lineament, an important tectonic divide separating the N-S Dharwarian trend from the SW-NE Aravalli trend and the E-W Bundelkhand trend.

The BGGC is a highly deformed Archaean granite-greenstone terrain with macro-enclaves of the relicts of ~ 3.5 Ga tonalitic gneisses, ultramafics, amphibolites, fuchsite quartzite, banded iron formations, schists, marbles and calc-silicate rocks that occur in a composite mosaic of granitic rocks ranging in age from 3.3 Ga to 2.2 Ga. Porphyritic, coarse-to-medium grained, homogeneous and fine-grained, textural variants of granite constitute the Bundelkhand Granite Complex. Geochemical studies carried out by earlier workers show that the Bundelkhand granite is an I-type, metaluminous to weakly peraluminous, calc-alkaline granite.

The Vindhyan basin is the largest sedimentary basin of the continental part of the Indian plate. It is spread over an area of more than 100,000 sq. km out of which 60,000 sq. km is exposed and remaining about 40,000 sq. km area hidden below the Deccan Continental Flood Basalts (DCFB) and the Indo-gangetic alluvium. Exposures of the Vindhyan Supergroup are seen up to Sasram in the east, where its extension is covered by alluvium. The western part of the basin is in faulted contact with the Aravalli Mountain Belt near Chittorgarh. Dholpur is the last exposure of Vindhyan in the north beyond which the Vindhyan sediments are covered by alluvium.



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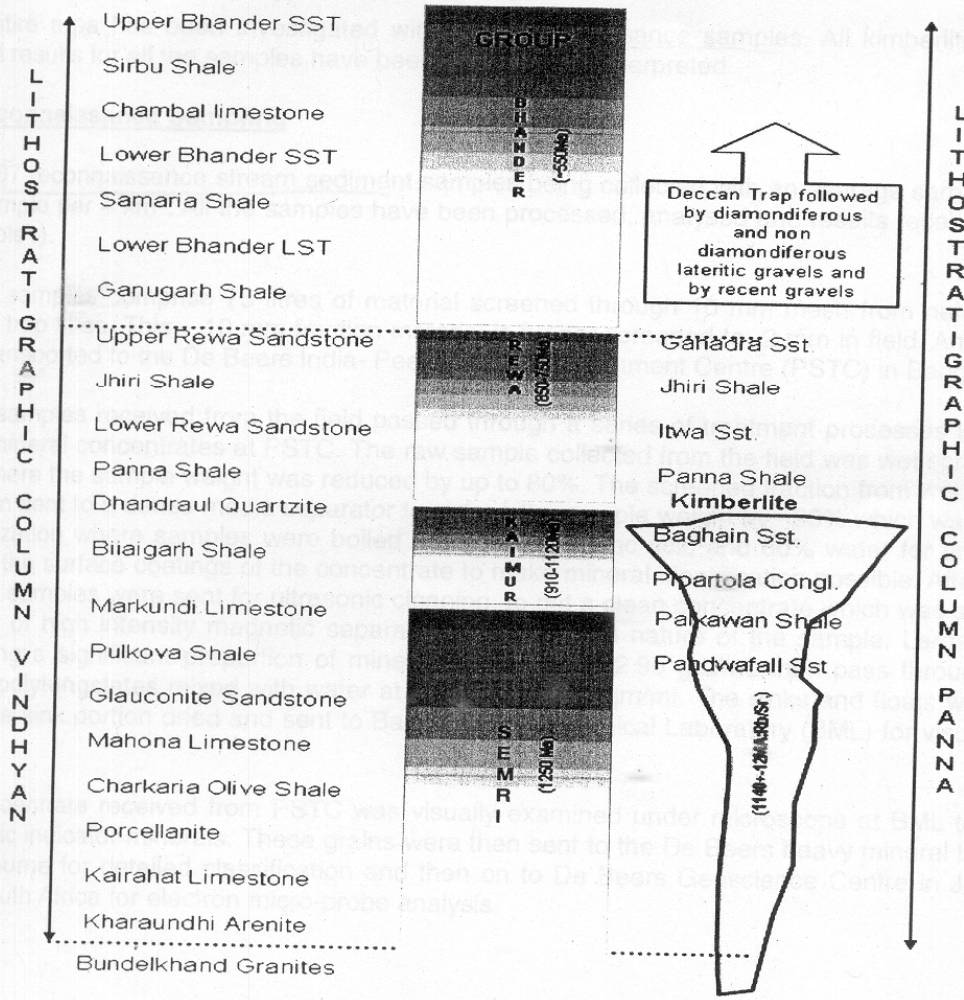
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The basin is a sickle shaped synclinorium, separated towards the Northwest from the Aravallis by the Great Boundary Fault, trending roughly NE-SW and in South is bounded by the Son-Narmada lineament.

The Vindhyan are represented by a sequence of sandstone, shale and lime stone. They have been divided into the Semri, Kaimur, Rewa and Bhandar groups.

Lithostratigraphy of the Vindhyan Supergroup



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The Panna diamond belt occurs on the northern fringe of the Vindhyan (Map-3 and 4). The area is 80 km long, 6-10 km wide and trending ENE-WSW. Sporadic diamond mining activities have occurred in recent gravels, lateritic soil/cap rocks and conglomerates. Two primary sources have been located to date at Majhgawan (~10cpht) and Hinota (< 5 cpht).

The general geomorphology of the RP area is well drained with moderate to gentle slope (Map 3 & 4).

3. Activity during the period from 13th January 05 to 12th January 08

The entire area has been investigated with 107 reconnaissance samples. All kimberlitic indicator mineral results for all the samples have been received and interpreted.

3.1 Reconnaissance Sampling

Total 107 reconnaissance stream sediment samples being collected with an average sample density of 1 sample per 4 km². All the samples have been processed, analysed and results received (Map 5 and Table1).

Stream samples comprise 75 litres of material screened through 10 mm mesh from natural heavy mineral trap sites. This – 10 mm fraction material is further screened to -2 mm in field. And samples were transported to the De Beers India- Peenya Sample Treatment Centre (PSTC) in Bangalore.

All the samples received from the field passed through a series of treatment processes to produce heavy mineral concentrates at PSTC. The raw sample collected from the field was wet screened to -2 mm where the sample weight was reduced by up to 80%. The screened fraction from wet screening was then sent to a dense media separator to reduce the sample weight by ~95% which was followed by acidization where samples were boiled with 20% sulphuric acid and 80% water for one hour to remove the surface coatings of the concentrate to make mineral identification possible. After acidization, the samples were sent for ultrasonic cleaning, to get a clean concentrate which was sent for either low or high intensity magnetic separation based on the nature of the sample. Large samples containing a significant proportion of minerals denser than 2.95 gm/mL then pass through lithium tetro- polytungstates mixed with water at a density of 3.1 gm/ml. The sinks and floats were separated, the sink portion dried and sent to Bangalore Mineralogical Laboratory (BML) for visual examination.

The concentrate received from PSTC was visually examined under microscope at BML to recover kimberlitic indicator minerals. These grains were then sent to the De Beers heavy mineral laboratory Melbourne for detailed classification and then on to De Beers Geoscience Centre in Johannesburg, South Africa for electron micro-probe analysis.



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3.2 Reconnaissance Sampling Result

Results were received for all reconnaissance samples in the RP (Map 6 and Table 2), and 31 samples were reported positive with respect to visually kimberlitic indicator minerals. A total of 362 spinels and 1 garnet were reported. No ilmenite or clinopyroxene were recovered.

3.3 Mineral Chemistry

Mineral Chemistry plots are shown in Figures 1 – 8. Note that additional grains were probed, so totals reported as visual recovery and numbers of grains probed do not necessarily correspond.

The spinel chemistry is of low interest and most of the spinel probably derived from the unrelated ultramafic rocks. The garnet is conformed as non-kimberlitic (Figures 1-8).

4. Interpretation

Mineral chemistry of the indicator minerals recovered from this area suggests low interest ultramafic and/or unrelated rocks.

5. Personnel

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

Earth Scientists attended a programme on XSIMS database management.

Earth Scientists also attended a programme on Datamine solutions which will enable them to effectively organize data from drilling programmes.

GIS Manager attended a conference on G.I.S data standard and interoperability at map India 2006 conference, New Delhi, India.

Earth Scientist completed a sort time assignment for drilling and petrology training in Canada and South Africa.

Name	Designation	Education
Tarun Rautela	Senior Geologist	M.Sc. Tech – Applied Geology
Gargi Mishra	Staff Geologist	M.Sc. – Applied Geology
K.V.Praveen Kumar	Staff Geologist	M.Tech-Remote Sensing
Sukhbinder Sharma	Geologist (on contract)	M.Sc Geology
Rekha K.R.	Kimberlitic Mineral Analyst	M.Sc Geology
Shobha N.	Kimberlitic Mineral Analyst	M.Sc. Geology



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Sanjay Deogiri	ICT Manager	B.Sc. Electronics, MCSE
Girish Menon	Security Adviser	Graduate
Gajanana Naik	Treatment Plant Supervisor	Graduate
D C Shekar	Field Assistant	Grade 12
Venky Kumar	Field Driver	Grade 12
B Srinivas	Field Driver	Grade 10
B S Dinesh	Field Driver	Grade 10

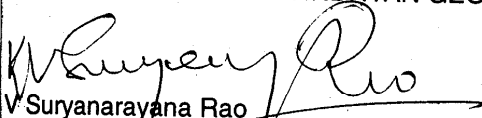
6. Expenditure

Total expenditure of Rs. 13, 831, 151/- has been incurred for the Reconnaissance Permit to date. The expenditure was incurred in the different hats, as follows:

- Exploration Expenditure
- Permit Fees
- Liaison Costs, including the costs associated with obtaining DGCA permits
- Geological Analysis
- Sample Treatment, Examination and Analysis
- Project Management
- ECOHS Costs
- Office Overheads
- Others (like security assessment cost)

References

- Detailed Information on Diamond in Madhya Pradesh (India) by Geological Survey of India (1994 report).
- GEOLOGY AND EVOLUTION OF THE INDIAN PLATE by S.M. Naqvi.
- Recent Advances in VINDHYAN GEOLOGY by Geological Society of India.


V. Suryanarayana Rao
Technical Specialist (Geology)
De Beers India Private Ltd



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