

**Closure Report on Reconnaissance Permit  
93G1/77-5-2007-338/06 Uttar Pradesh**

Report for the period  
28/09/07 to 20/01/10

**1. Reconnaissance Permit (RP) Status**

The RP is 1044 km<sup>2</sup> in extent and was executed at Lucknow on 28<sup>th</sup> September 2007. As per rule 7(i) (a) of MCR 1960, it is scheduled to be reduced by 50% on or before 27<sup>th</sup> September 2009. On 26<sup>th</sup> September 2008, a total of 529 km<sup>2</sup> was relinquished and the remaining area of 515 km<sup>2</sup> was relinquished on 20<sup>th</sup> January 2010 (Map 1). This closure report summarizes the exploration work carried out in the permit area from 29<sup>th</sup> September 2007 to 20<sup>th</sup> January 2010.

**2. Geology and Geomorphology**

The RP is covered by Upper Proterozoic sediments of the Vindhyan Supergroup overlying Archaean basement of the Bundelkhand Craton (Map 2).

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 the remaining 40,000 sq. km area is hidden below the Deccan Continental Flood Basalts (DCFB) and 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.

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 limestone. They have been divided into the Semri, Kaimur, Rewa and Bhandar groups.



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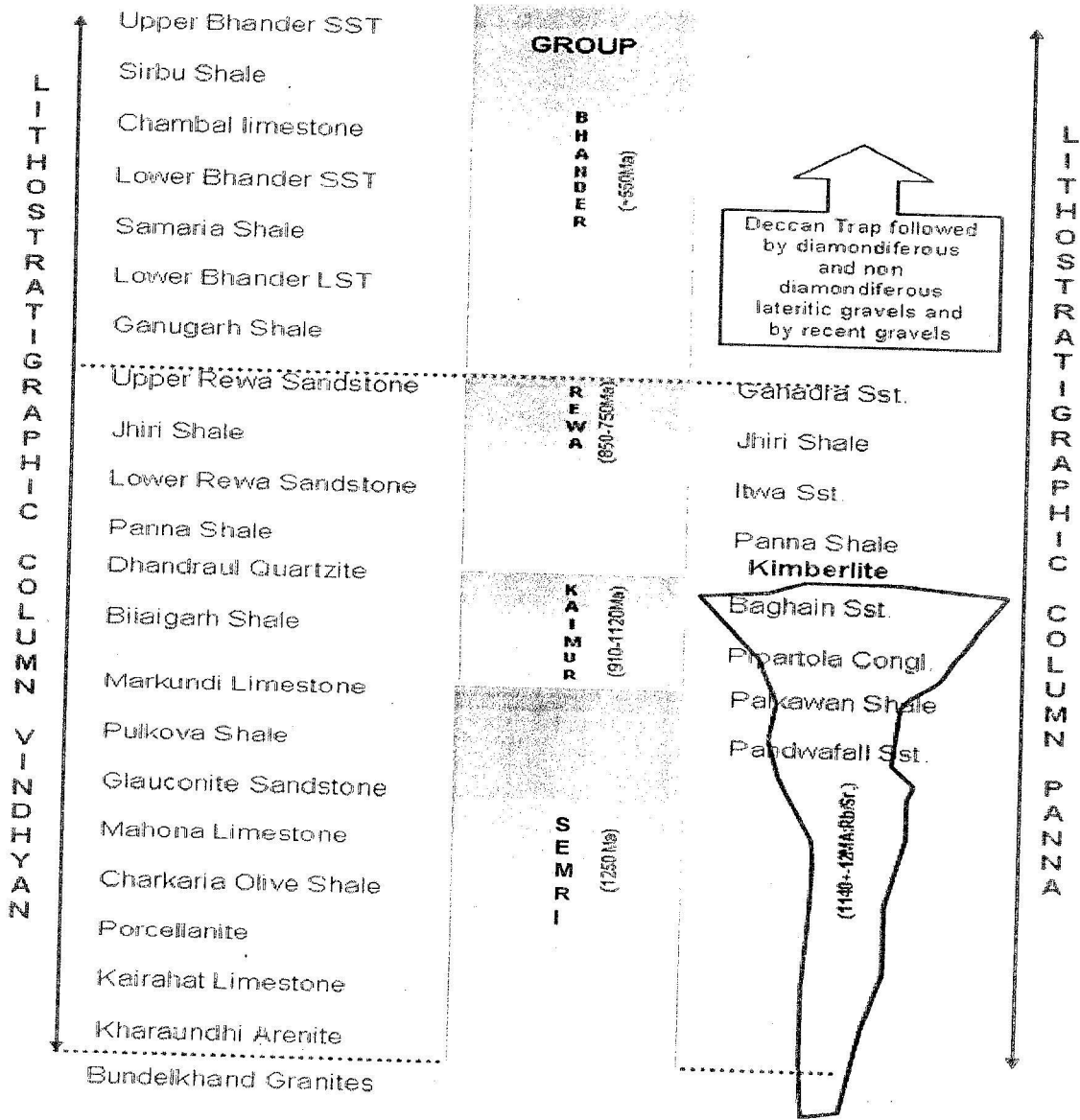
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## Lithostratigraphy of the Vindhyan Supergroup



The geomorphologic control over the region is dominated by the subdued Vindhyan ridges in the south and the large tracts of flat land in the north of the RP. Streams originating over the Vindhyan hills (Rewa group) have a high gradient in their upstream course and low gradient in the lying tracts downstream to the north (Map 3).



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## 3. Activity during the period from 29<sup>th</sup> September 07 to 20<sup>th</sup> January 2010

### 3.1 Pre-field operations

Purchase of topo sheets (on 1:50000 scale) for the license area from the Survey of India and converting them into digital form.

Study of Land sat TM data and production of digital images.

Mobilisation of vehicles, laptop computers and other field equipment.

Training of geologists and field drivers for sampling in different geomorphologic terrain.

### 3.2 Reconnaissance Sampling

A total of twenty seven (31) reconnaissance samples were collected in the RP area excluding forest area (Map 4 & Table 1). Reconnaissance sampling is done only in the non forest areas. The stream samples have been collected one in every 33 sq km. A stream sample site was selected after examining the stream bed for about one km searching for the best available trap site. The gravel is collected to produce at least a minimum of 15 to 60 lts of - 2 mm fraction material depending up on the quality of trap site.

The samples were sent to the Peenya Sample Treatment Center in Bangalore and consigned the concentrates to the De Beers Centurian Lab, in RSA for further processing and sorting.

### 3.3 Sampling Results

Results were received for all reconnaissance samples in the RP (Map 5 & Table 2), and ten (10) samples were reported positive with respect to visual kimberlitic indicator minerals.

### 3.4 Follow up Sampling & Results

Four (4) follow - up stream sample has been collected and two (2) reported to be visually positive with respect to visual kimberlitic indicator minerals (Map 6, 7 & Table 3, 4).

### 3.5 Mineral Chemistry

Visually positive grains were sent for mineral chemistry (Fig 1).

### 3.6 Ground Geophysical Survey

Three follow-up ground geophysical blocks (551/125/S007, 551/141/S004 and 551/141/S005) were planned based on mineral chemistry results and structural intersections/pattern evident from the satellite image data (Map 8).



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## 3.6.1 Ground Magnetic Survey

A total of 282.7 sq km been covered by ground magnetic survey (Map 9 and Appendix 1) carried out with G856 and 19W/T magnetometers. A line spacing of 50m or 100m and a station spacing of approximately 10 m has been followed for the ground geophysical surveys. A total of twenty eight (28) anomalies have been identified from the ground magnetic surveys till date and all of them turned out to be due to cultural features upon site visits of the anomalies (Map 9 and Table 5)..

## 4. 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 organization. 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. All staff also receives ongoing education in HIV/AIDS awareness and other wellness issues. Geologists received training in field navigation, sample site selection, sample collection, labeling and recording of sample data. They have also received training in undertaking of ground magnetic surveys. Quality control and further on the job trainings are ongoing

## 4. Remarks

A detailed ground geophysical (ground magnetic surveys) work has been done in the area based on available mineral chemistry and also in areas with suitable structural intersections for kimberlite emplacement. No anomaly of interest has been identified in the area. It can therefore be safely concluded that either kimberlitic indicators recovered in the area are of transported origin (flood plain derived grains) or if there are any bodies in the area they are too small to be detected by the geophysical technique used. The area is thus not likely to bear any diamond bearing kimberlites. The total area has therefore been relinquished as no further work could be proposed in the area.

## 5. Personnel

De Beers maintains high operating standards including Environmental, Community, Occupational Health & Safety and Environmental (ECOSH) awareness. Through effective management practices the group aims to ensure the health and safety of its employees



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