

**Closure Report of Reconnaissance Permit  
DMG Execution No. PLV/28/2008/1634, Maharashtra**

Report for the period  
27/05/08 to 25/05/09

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

The RP is 2000 km<sup>2</sup> in extent and was executed at Nagpur on 27<sup>th</sup> May 2008. As per Rule 7(i) (a) of MCR 1960, it is scheduled to be reduced by 50% on or before 26<sup>th</sup> May 2010. The whole RP area has been relinquished on 25<sup>th</sup> May 2009 itself due to poor results. This closure report summarizes the exploration work carried out in the permit area from 27<sup>th</sup> May 2008 to 25<sup>th</sup> May 2009 (Map 1).

**2. Geology and Geomorphology**

The important lithotectonic associations in the craton are:

1. Gneissic Complex (Sukma, Amgaon), with granite of different ages (Dongargarh, Malanjkhanda, Kanker, Jhiram, Sukma etc.)
2. Granulite belts (Bhopalpatnam, Kondagaon)
3. Kotri-Dongargarh Orogen
4. Isolated fold belts of Bengpal, Sakoli and Sonakhan
5. Mafic dyke swarms (Bijapur, Gidam, Kondagaon, Keshkal)
6. Proterozoic 'Purana' basins (Abujhmar, Khariar, Indravati, Pranhita-Godavari)

Major portion of the RP area towards the west is covered with Achaean granite gneiss – metasedimentary association of Bengpal Group which is unconformably overlain by Proterozoic sediments. The Bengpal group exposed in the west is the oldest, comprising amphibolite, hornblende schist and banded ferruginous quartzite. These schistose formations also occur as enclaves within the migmatized granite gneiss. The rocks are altered and exhibit marked degree of silicification and mylonitisation indicating high shearing activity. The granite gneisses are coarse grained, light coloured and sometimes foliated. The feldspars are altered. The granite and gneiss are intruded by basic dykes, pegmatites and quartz veins. The Bengpal group is overlain by Bailadila group which consists of Quartzite and Quartz-Sericite Schist, Chlorite Schist, Phyllite Talc-Tremolite Schist, Hornblende Schist, Meta Volcanics and Altered Ultramafics, Banded Hematite Quartzite, Metaconglomerate. The eastern portions of the RP area is overlain with Dongargarh Supergroup rocks consisting gabbro, metagabbro, hornblendite, quartzites and epidiorites with phyllite and pelitic schist of Dongargarh group, metabasic volcanic including metabasalts, diabase, amphibolite of Amgaon group which is again overlain by Dongargarh granite intersected by dolerite



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dykes and quartz/pegmatite vein. The eastern margins of the RP area is marked by middle Proterozoic basaltic lava flows/vesicular andesite of Abujmar group along with sandstone with shale and Conglomerate of the same group.

The RP area lies in the catchments of Waingangā River which flows southerly. This river is also known as Pranhita River towards the downstream side. Waingangā River flows in the western portions of the RP area. The tributaries on the western side of the river flows West-ESE and the tributaries on the eastern side of the river flows West-WSW directions. The eastern parts of RP area is drained by Bande River which flows south west and ultimately joins into Indrāvati River. The area is well-drained and inspite of residual soil (laterite) cover at places, the area is suited to heavy mineral stream sampling. Most of the structures in the area are NW-SE and NE-SW.

### **3. Activity during the period from 27<sup>th</sup> May 08 to 25<sup>th</sup> May 2009**

#### **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 geomorphological terrain

#### **3.2 Reconnaissance Sampling**

Reconnaissance sampling is done only in the non forest areas and in safe areas not infested by naxallites. The stream sampling is planned to collect one sample in every 30 to 40 sq km. A stream sample site is planed on the map and thereafter the site is selected in field 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 60 to 120 lt of - 2 mm fraction material depending upon the quality of trap site. A total of 7 reconnaissance samples were collected in the RP area excluding forest and unsafe areas (Map 4 & Table 1).

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

#### **3.3 Sampling Visual Results**

Results has been received for all 7 reconnaissance samples in the RP and six (6) samples were reported positive with respect to visual kimberlitic indicator minerals. A total of 182 spinels were recovered from the sample concentrates (Map 5 & Table 2).



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## 3.4 Mineral Chemistry

Visually positive grains were sent for mineral chemistry (Fig 1-8). The results received are not encouraging with respect to diamond exploration. Interpretations from mineral chemistry plots did not indicate the presence of any source rock in the RP area where there is mantle sampling with respect to diamond stability field. No kimberlitic garnet has been recovered from the collected samples. Therefore, it can be concluded that the RP area does not have a potential diamondiferous host rock and hence no further work could be proposed in the area. ✓

## 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 training is ongoing

### 4.1. Remarks

The mineral chemistry results from stream sediment sampling in the safe portions of the RP area did not indicate any area where there is sampling of kimberlitic grains from diamond stability field. The rest of the area is still critically unsafe to work on. It has therefore been concluded that no further exploration work can be planned with respect to diamond exploration. Hence the total area has been relinquished. ✓

## 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

### List of Personnel

Name	Designation	Education
K.V.S. Rao	Technical Manager - Geology	M.Sc. Tech – Applied Geology
C Kumar	Geologist	M.Sc. Tech – Applied Geology



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