

# Closure Report of Reconnaissance Permit DGM Execution No. PLV/28/2008/1633, Maharashtra

Report for the period 27/05/08 to 21/05/10

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

The RP is 2000 km² 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 21<sup>st</sup> May 2010 due to unsafe working conditions. This report summarizes the exploration work carried out in the permit area from 27<sup>th</sup> May 2008 to 21<sup>st</sup> May 2010 (Map 1).

#### 2. Geology and Geomorphology

The RP area lies in the Bastar Craton also known as Bhandara or Central India Craton (Map 2).

The important lithotectonic associations in the craton are:

- 1. Gneissic Complex (Sukma, Amgaon), with granite of different ages (Dongargarh, Malanjkhand, 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 unclassified granites and gneisses with enclaves of hornblende schist and amphibolite. There are exposures of Pleistocene-Recent Laterites in the western portion of RP area. 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 dykes and quartz/pegmatite vein.

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



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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 (Map 3).

## 3. Activity during the period from 27<sup>th</sup> May 08 to 21<sup>st</sup> Máy 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 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 planned 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 18 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 18 reconnaissance samples in the RP and fifteen (15) samples were reported positive with respect to visual kimberlitic indicator minerals. A total of 8 garnets and 496 spinels were recovered from the sample concentrates (Map 5 & Table 2).

#### 3.4 Mineral Chemistry

Visually positive grains were sent for mineral chemistry (Fig 1-8). The results received are slightly encouraging with respect to diamond exploration. Interpretations from spinel mineral chemistry plots slightly indicate the presence of some source rock in the eastern portions of RP area where there is mantle sampling with respect to diamond stability field, though garnet mineral chemistry plot did not indicate sampling of any high pressure subcalcic garnets. Further sampling in the eastern parts of the RP area was recommended which would have been possible only if the area is rendered safe for working.



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### 3.5 Security Assessment

Due to critical security condition in the RP area our sampling was restricted to comparatively safer areas. Further work could have been done only if the area was safe to work on.

A security assessment was done for the area using both internal and external sources:

De Beers India security advisor met Maharashtra's Senior Police Officers at Nagpur and Gadchiroli. It was briefed that the RP area is infested by Naxallites. De Beers India was advised that the RP area extremely unsafe from exploration and travel point of view.

De Beers India exploration also got reports from few external agencies wherein it clearly stated that the RP area is not safe to work on.

#### 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

#### 5. Remarks

Based on the internal and external security assessment done for the RP area, it is concluded that the area is not safe to work. De Beers India waited for some time for situation to improve but conditions did not improve. It has been therefore decided to relinquish the whole area due to security reasons.



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