

APR. 20

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Closing Report on Reconnaissance Permit G. O. Ms. No. 246, Andhra Pradesh

Report for the period
11/09/02 to 10/09/05

1. Reconnaissance Permit Status

The Reconnaissance Permit was 679 km² in extent and was executed at Kurnool on 11th September 2002. As per rule 7(i) (a) of MCR 1960, >50% of the area (343 km²) was relinquished on 12th Aug 2004. As per the conditions of RP the tenure of the RP expired on the 10th September 2005 (Map 1).

As per Government of India Rules and Regulation MCR 1960 Rule 7(1) (i) (b), applied for Prospecting License over an area of total 12 km² (Map 2), on 22nd September 2005.

2. Geology and Geomorphology

Most of the RP is underlain by Proterozoic sediments of the Cuddapah and Kurnool Super groups overlying Archaean basement of the East Dharwar Craton, which comprises part of the Peninsular Gneiss Complex and is exposed towards the north west (Map 3).

The Cuddapah sequence comprises a thick pile (up to 12 km) of clastic and chemical sediments with minor volcanic units (Ramam and Murty, 1997). It is intruded by picritic and gabbroic sills and dykes. The sediments have been dated at Middle to Late-Proterozoic and have been termed 'Purana Basins' indicating cratonic Proterozoic sedimentary basins. However, these ages are poorly constrained. Rb/Sr dating of sills indicate a maximum age of 1800 Ma in the Lower Cuddapah sequence. A sill near the top of the Cuddapah Sequence has been dated at 980 Ma.

The Kurnool Super group comprises a relatively thin sequence of clastic and chemical sediments of Late Proterozoic age. The maximum thickness is 500 m. At the base of the Kurnool sequence and directly overlying the Cuddapah Super group rocks is the Banganapalle Quartzite Fm., which comprises a chemically mature quartz arenite with local conglomeratic lenses. This unit is important because it has been demonstrated to contain diamond as well as mantle-derived garnet and spinel. These minerals have been interpreted to derive from pre-Kurnool age kimberlites, such as the Wajrakur kimberlites to the south-west or perhaps other undiscovered sources of similar age.

The Banganapalle Quartzite was a major source of diamonds in India in the 17th century, and old diggings can be seen to the southwest of the RP. Local villagers occasionally report the discovery of diamonds today.

The major structural pattern in the area comprises two sets of lineaments oriented west-northwest to east-southeast, and west-southwest to east-northeast respectively. The



northern margin of the Kurnool Group is down-faulted against the underlying Cuddapah sequence in the north of the RP.

The RP lies within the topographically diverse regions of the Cuddapah basin where well dissected streams prove extremely favorable for heavy mineral sampling (Map 3 & 4).

3. Activity during the period (11/09/2002 to 10/09/2005)

Based on the initial geological analysis of the terrain it was decided that regional stream sampling would be the most suited exploration technique to screen the reconnaissance permit area for diamondiferous kimberlites. Reconnaissance stream samples were collected from suitable trap sites and ground surveys were also carried out to follow-up the initial interpretation of the data. Sixteen bore holes were drilled based on GM anomalies in the RP area. A total of 201 samples were collected in the RP area.

A new Lamproite dyke (551/110/0003) was discovered (Table 10). The Lamproite, rock and tailing sample localities and information are shown in Map 10.

Description of Lamproite Dyke

The set of dykes is identified as leucite -bearing, magmatic, micaceous lamproite. It occurs as a set of NW-trending near vertical sheets intruding sediments of the Cuddapah Supergroup east of the village of Aliyabad Tanda. The dykes occur along a prominent structural feature visible in the DEM and satellite imagery of the area and can be traced for several kilometres.





Figure 1. Lamproite dykes cutting across a stream section. At this locality, the dykes have bifurcated into five separate intrusions, the largest being over a metre wide.

Petrographically the dykes are highly clay- and carbonate-altered and have uniform texture with variable quantities of serpentine pseudomorphs after olivine. The groundmass contains variably clay-altered mica (probably phlogopite), as well as abundant clay-altered leucite and rare oxides.



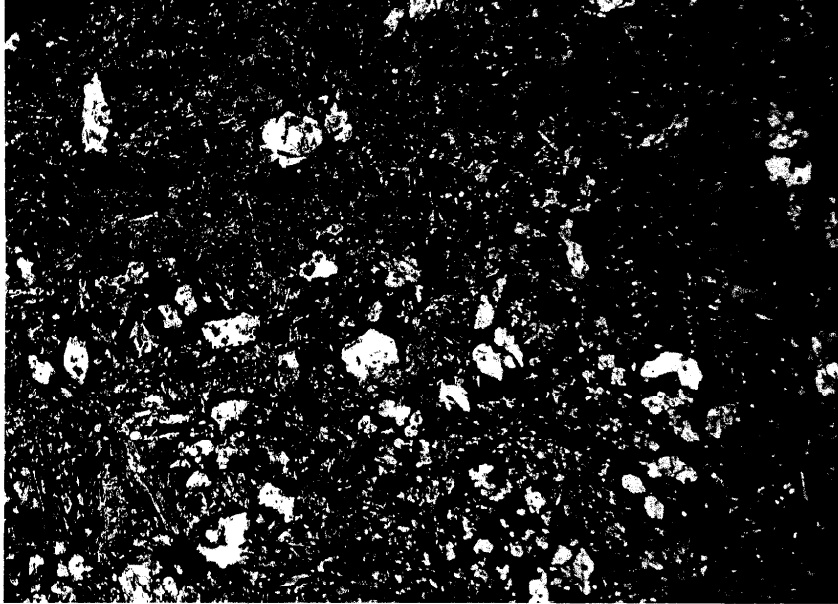


Figure 2. Altered olivine phenocrysts in a matrix of altered phlogopite and carbonate FOV ~6 mm.

The chemistry of indicator minerals recovered from the dykes, plus the presence of leucite, indicate a low diamond potential for this lamproite.

3.1. Reconnaissance Sampling

Reconnaissance stream sediment and loam sampling was carried out to assess the RP area for diamond potential and a total of 172 of Reconnaissance Samples were collected. The samples comprise 150 liters of unscreened material for the stream samples and 75 liters for the loam samples, collected from natural heavy mineral trapsites and field screened to -2.0mm.

Sample localities are shown in Map 6 and Table 1.

The samples were processed at the De Beers Heavy Mineral Treatment Plant in Bangalore and the concentrates were consigned to the 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 Reconnaissance Sampling Results

Results have now been received for all 172 samples (Map 7; Table 2). 88 samples are positive with respect to kimberlitic indicator minerals, and a total of 1498 spinels, 2 garnet, 12 ilmenites are now reported. No clinopyroxenes were recovered.

3.3 Follow Up Sampling

Follow up stream sediment sampling was carried out to further assess the diamond potential of the RP area and a total of 5 samples were collected. (Map 8; Table 3)

Stream samples comprise 75 liters of unscreened material, collected from natural heavy mineral trapsites and field screened to -2.0mm.

3.4 Follow Up Sampling Result

Results were received for all Follow up stream sediment samples (Map 9 and Table 4). A total of 386 spinels were reported. No clinopyroxene, garnets or ilmenite was recovered from the samples collected.

3.5 Conglomerate Sampling

Conglomerate samples are in the form of tailing samples (Map 10; Table 5) collected from old working of Banaganapalle conglomerates and analyzed for their kimberlitic mineral content. Two samples were collected.

In addition a further 22 rock samples were collected and found to be unrelated rocks (Map 10 and Table 6 and Table 7).

3.6 Conglomerate Sampling Result

Results received for 2 conglomerate tailing samples, were positive with respect to kimberlitic indicator minerals. 4 Garnets and 58 spinels were reported. No clinopyroxenes or ilmenites were recovered from the samples collected (Map 11 and Table 8).

3.7 Mineral Chemistry

Mineral Chemistry data from the De Beers India Lamproite dyke discovered 551/110/0003 is shown in Figures 1 – 8. Some G10 garnets are present.

Mineral Chemistry data from the indicator minerals recovered from the Reconnaissance Permit area is shown in Figures 9 – 16.



3.8 Ground Geophysical Survey

An area was followed up with a ground magnetic survey using a Proton precision magnetometer with 100 meter spaced lines (Map 12 & Table 9). A total of 2241 line kilometre of data has been collected. A total of 28 anomalies were covered and based on the results of ground magnetic survey, sixteen drilling targets have been selected.

Detailed sheets of GM anomalies followed up are attached as Appendix 1.

3.9 Drilling

A total of 16 holes totaling 627.43 meters were drilled to test the geophysical anomalies (Map 13 & Table 11). No kimberlites were encountered during drilling.

Detailed borehole logging data is attached as Appendix 2.

4. Personnel

Name	Designation	Education
K.V.Suryanarayan Rao	Project Manager	M.Sc. Tech-Applied Geology
Basudeb Datta	Staff Geologist	M.Sc.-Applied Geology
K.V.Praveen Kumar	Staff Geologist	M.Tech-Remote Sensing
Gargi Mishra	Staff Geologist	M.Sc. Tech-Applied Geology
Chandan Kumar	Staff Geologist	M.Sc. Tech-Applied Geology
Sanjay Deogiri	ICT Manager	B.Sc. Electronics,MCSE
R.Srinivaslu	Field Driver	X Std.
J.Subramani	Field Driver	X Std.
Nagraj	Field Driver	XII Std.

Labour

Labourers were employed on a daily basis from local towns and villages to help with the field work.

5. 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.

All earth scientists attended a course on ArcGIS conducted by ESRI, India.

All field geologists attended a training programme on First Aid conducted by International SOS.

The drivers were put on a training course on Defensive Driving and Road Safety conducted by the Automobile Association of Southern India.

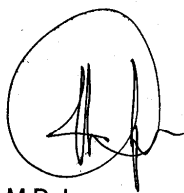
All field drivers attended training on vehicle maintenance conducted by Mahindra & Mahindra.

6. Expenditure

Total expenditure of Rs 17,771,191 has been incurred for the Reconnaissance Permit to date. The expenditure was incurred as follows:

Capital expenditure: Rs 2,261,395

Revenue expenditure: Rs 15,509,797



M.D. Lynn
Regional Exploration Manager
De Beers India Prospecting Private Ltd

