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The Ruangwa graphite deposit and its characteristics, Ruangwa District, Lindi Region, Tanzania

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The Pacco Gems Limited Company (PGL) has recorded the occurrence of graphite at the Ruangwa property while carrying out gold exploration during 2009-2010. Subsequent detailed investigation established the presence of a graphite deposit. The Ruangwa property, fully owned by PGL, is located to the northeast of the Mtondo village and lies within the Nambilanje ward in the Ruangwa District, Lindi Region of the United Republic of Tanzania. The site is about 620 km from Dar-es-Salaam and approximately 260 km north of the Mtwara town.

Proterozoic age lithological units are exposed in the area and comprise amphibole gneiss, graphitic schists, quartzo-feldspathic gneisses, marble, quartzite, ultramafics of variable ages, aplite, pegmatite and quartz veins. The general trends are dominantly NNE-SSW dipping SE at 20° to 50°. Fold geometry indicates three phases of deformation. The property is crossed diagonally from SW to NE by a shear zone that marks the major thrust of older rocks to the NW onto younger rocks to the SE.

Graphite mineralization occurs in the NW and SE portions of the Ruangwa property. Detailed exploration by mapping, pitting, trenching and drilling has been carried out in the SE portion of the property, denominated as the Lindadwe area. Graphite mineralization occurs in the graphitic schist, graphitic quartzite and at the margins of marble. Economic lodes are however restricted to the graphitic schist. Graphite mineralization is traced for 6.5 km with widths varying from 100 m to 2000 m. The grade of the graphite lodes vary from 3% to 32% graphitic carbon. The graphite recovery from ore is 90% with the concentrate containing 78% to 82% graphitic carbon. To test the grades, recovery and flake size of the ores available in this property, the samples were analyzed and processed in various labs of different countries including Canada, Germany, India and South Africa, which confirmed the reasonably good grades of the ore and good recovery. The flake size varies from powder to jumbo, being 20% powder, 60% medium and 20% jumbo size.

One block in the Lindadwe area with 2000 m of strike length has been investigated in detail with 16 trenches and 30 boreholes. Reserves of 160 million tons with 7.75% graphitic carbon have been established in this area. The total resources of the Ruangwa property on the basis of existing trenches and drillholes are 500 million tons with grades above 6% graphitic carbon. Detailed investigations in the property are in progress.

