ELKEDRA DIAMONDS NL

Altjawarra Craton Diamond Project

Partial Relinquishment Report for period ending August 9, 2003

For EL 22530 (Tobermory)

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Map Sheets:
1: 250,000: Tobermory (SF53-12)
1:100,000: Tobermory (6453); Toko (6452)

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1 INTRODUCTION

Exploration License EL 22530 is located on the Tobermory (SF53-12) 1:250,000 sheet in central Northern Territory. This report details all work carried out on the relinquished portion of the tenement up to August 9, 2003 by Elkedra Diamond NL.

2 CONCLUSION

Processing of aeromagnetic data coupled with stream sediment sample results indicate that, in terms of diamond prospectivity, the area is presently of low priority. No further work is currently warranted.

3 GEOLOGICAL SETTING

3.1 Regional Geology

The Altjawarra diamond project is located on the North Australian Craton, which represents an amalgamated terrain that was consolidated around 1,800 Ma. From a diamond exploration perspective, the significance of the North Australian Craton is that it hosts all of Australia’s diamond mines to date including the recently discovered diamondiferous Merlin kimberlites located on the eastern portion of the North Australian Craton. Of particular importance is the age of the Merlin pipes, which have been dated as Devonian (~380 Ma). Elkedra Diamonds are targeting this same kimberlite event, or younger, in the southern Georgina Basin located south of the Merlin field.

The project area incorporates several kilometers of Cambro-Ordovician platform sediments of the southern Georgina Basin, which wholly veneer a basement continental block referred to as the Altjawarra Block. The southern Georgina basin and the underlying Altjawarra Block in particular, are associated with a zone of anomalously thick lithosphere extending to at least 200km depth as recognised from recent seismic tomography studies (Kennett, 1997; Van der Hilst et al., 1998; Debayle and Kennett, 2000). The geophysical data highlight the area as highly prospective for the emplacement of diamond-bearing kimberlites.

3.2 Tenement Geology

The southern portion of the relinquished tenement is underlain predominately by Cambrian-Ordovician sediments of the Kelly Creek Formation. These sediments form part of the Georgina Basin. The northern portion of the relinquished tenement is underlain predominantly by younger Tertiary limestones of the Austral Downs Formation. This limestone unit documents the presence of an ancient palaeolake Austral in Tertiary time.

4 EXPLORATION COMPLETED

Exploration activities undertaken include:

1) Processing and targeting for aeromagnetic anomalies from the Eromanga and Georgina surveys; and
2) Stream sediment sampling.
4.1 Magnetics
The release of the Eromanga and Georgina aeromagnetic surveys by the NTGS has proved critical in this early stage of exploration and forms the basis of all geophysical work undertaken in the tenement.

All aeromagnetic interpretation and processing were undertaken by Dr. Duncan Cowan of Cowan Geodata Services, Perth.

The aeromagnetic, altimetric dtm and radiometric data covering the Central Craton target area were windowed out of the Elkedra NTGS dataset. The windowed area was initially analyzed by running the “Smart” filter program of Cowan Geodata Services. The filter is a simple pattern recognition technique developed by Cowan Geodata Services. The program uses regression analysis between a window of the grid data and a typical model anomaly to identify roughly circular anomalies. The model data calculated is a full 3D vertical cylinder implementation. The method involves various inputs to the program including window size, model cylinder radius, top and bottom depths and amplitude response. In the Central Craton area the filter was run once to test response using a standard 200m diameter cylindrical model with a 30m depth, 400m grid window, and 25-200nT amplitude range.

Further data enhancement and preliminary kimberlite target screening was later undertaken in a smaller area referred to as the central craton area using a combination of techniques which included:

- 1D Wavenumber filtering
- 2D Euler deconvolution depth calculation
- 2D Werner deconvolution depth calculation
- Modelling and inversion of individual anomalies

The focus was on identifying possible kimberlite targets in the presence of significant intrasedimentary background noise due to maghemite channels, areas of ferricrete, clay-pan and sinkholes and cultural sources. The altimetric dtm and radiometric data were used to assist in anomaly screening. Identifying possible kimberlite magnetic anomalies in an area of extensive drainage and palaeosurface related magnetic anomalies is difficult due to a high degree of anomaly overlap as well as interference from anomalies due to shallow basement rocks. The relatively wide line spacing of 400-m limits spatial resolution of small sources as small kimberlites located between flight lines may not be detectable or produce only weak magnetic anomalies with magnetic attributes similar to sinkholes etc.

No anomalies were identified from the aeromagnetic data within the relinquished area.

4.2 Stream Sediment Sampling
A total of 22 stream sediment samples were collected from present-day drainages in the relinquished area. A summary of location coordinates and descriptions is presented in Appendices 1 and 2 respectively.

4.3 Heavy Mineral Indicator Sampling
A total of 11 stream sediment samples were collected for heavy mineral processing for diamond indicator minerals. A summary of the results is presented in Appendix 4.
All field samples were processed at the Diatech Laboratory in Perth. Material is screened at 0.8mm and heavy mineral concentrate is routinely observed down to 0.3mm size fraction. The 0.3 to 0.1mm fraction is sent for fusion for microdiamond recovery. The 0.1mm slimes are discarded.

One sample reported positive for a single chromite (G0222).

5 MINERAL CHEMISTRY

Mineral chemical analytical work and grain identification was carried out by Dr. Wayne Taylor using a JEOL 6400 analytical SEM at the Centre for Microscopy and Microanalysis, University of Western Australia. High precision element analyses on recovered chromite grains were undertaken by Dr. Wayne Taylor using a Cameca SX-50 electron microprobe at the Electron Beam Laboratory, CSIRO Division of Exploration and Mining, ARRC, Bentley, WA. Some additional analyses were undertaken with a Cameca Camebax and a Cameca SX-100 electron microprobe at the Research School of Earth Sciences, Australian National University, Canberra.

Individual chromite grains are classified based on internal textures as observed in polished grains under the microscope. Textural classification includes smooth, crack/mosaic, pitted/porous, lamellar, and lattice. The lamellar and lattice textured grains are characterized by the presence of two interfingering chromite types (exsolution domains) whereas all other grains are composed of one chromite type.

Three grains from sample number G0222 were analysed for mineral chemistry. Mineral chemical results indicate that the grains are mantled-derived. However, no high Cr (>60 wt% Cr₂O₃) chromites were recovered. Results are presented in Appendix 5.

6 GEOCHEMISTRY

Geochemical analysis was undertaken on 11 of the 22 samples collected from the minus 250 micron and plus 100 micron fraction. Samples were analysed at Ultra Trace and Genalysis laboratories in Perth for a large suite of elements.

The geochemistry results do not indicate the presence of kimberlite or other deposit types in the area sampled. Results are presented in Appendix 3.

7 REFERENCES

