ELKEDRA DIAMONDS NL

Altjawarra Craton Diamond Project

Final Relinquishment Report for

EL 23272 (Dingo East)

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Map Sheets:
1: 250,000: Avon Downs (SF53-04)

1:100,000: Burramurra (6356); Scarr (6256); Barry Caves (6257); Avon (6357)

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1 INTRODUCTION

Exploration License EL 23272 is located on the Avon Downs (SF53-04) 1:250,000 sheet in central Northern Territory. This report details all work carried out on the tenement up to October 9, 2003 by Elkedra Diamond NL.

2 CONCLUSION

No aeromagnetic anomalies of interest with respect to kimberlite exploration were identified from processing and interpretation of the Georgina SW aeromagnetic survey. The tenement location ranked low priority in terms of diamond prospectivity of the Altjawarra Craton and 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 recognized 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 tenement is underlain predominately by Quaternary unconsolidated sands overlaying Cambrian age Arrinthrunga Formation.

4 EXPLORATION COMPLETED

Exploration activities undertaken include:

1) Processing and targeting for aeromagnetic anomalies off the Georgina SW survey.

4.1 Magnetics

The release of the Georgina SW survey aeromagnetic survey flown for 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.

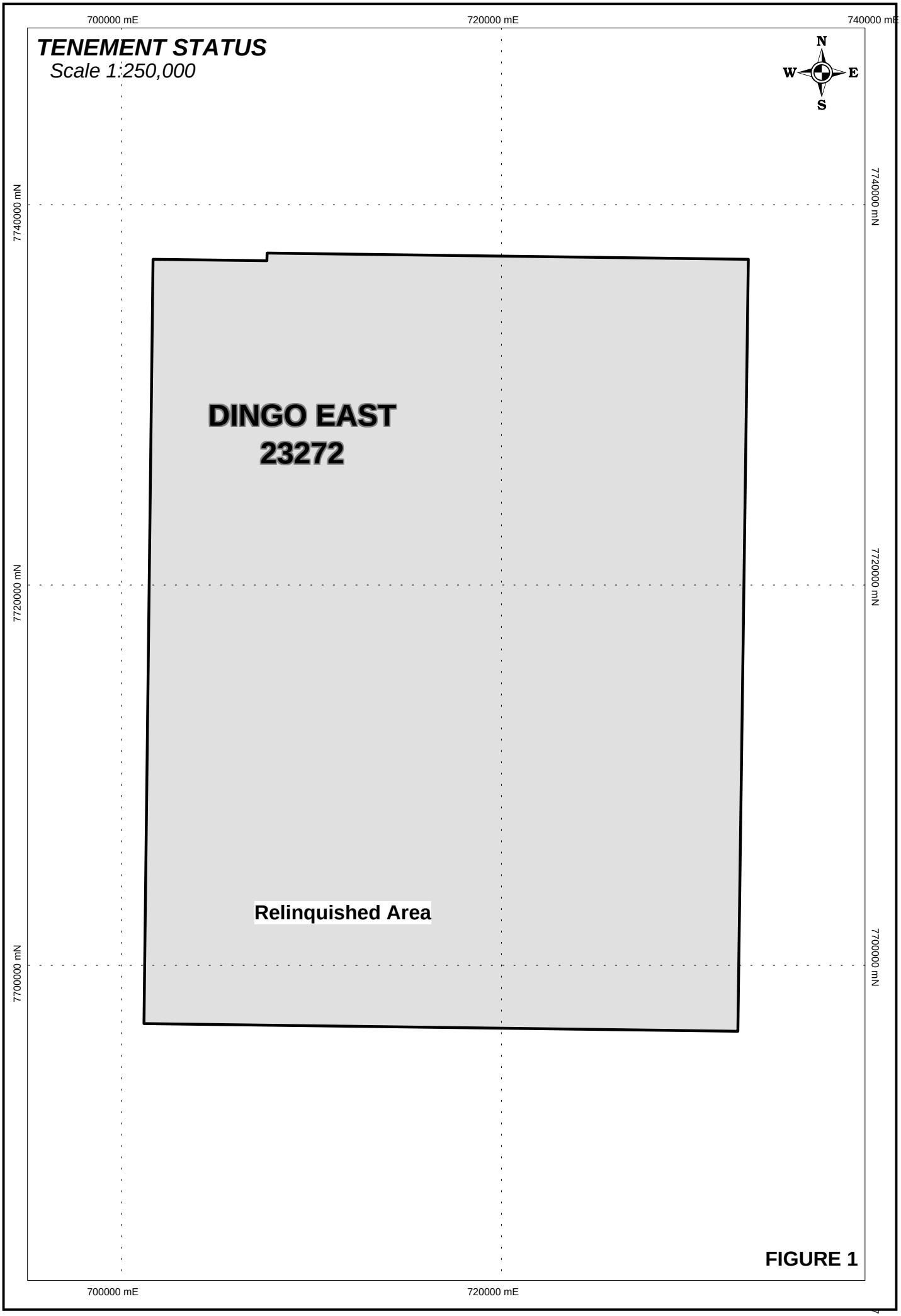
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FIGURE 1

The aeromagnetic, altimetric dtm and radiometric data covering the tenement 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. 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. No anomalies were identified.

Further data enhancement and preliminary kimberlite target screening was later undertaken 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-pans 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 additional anomalies were identified.

5 REFERENCES

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