ELKEDRA DIAMONDS NL
ABN 42 092 334 220

Altjawarra Craton Diamond Project

Final Technical Report
EL23965 Gordon Creek

Reporting Period: 24/05/2004 – 23/05/2005

Elkedra Reference: 204/E-00/ET-FinalReport20050819

Date Due: 19th August 2005
Author: Jo Leadbeatter
Keywords: Northern Territory, Altjawarra Craton, Diamond, Manganese, Base Metals, Magnetics, Elkedra Survey, Eromanga Survey
Map Sheets: 1: 250,000: SF53-08 Sandover River
1:100,000: 6354 Gordon Creek
Copy To: 1. NTDBIRD, Darwin, Northern Territory
2. Elkedra Diamonds NL

Table of Contents

1 INTRODUCTION 1

2 Geological setting 1

2.1 Regional Geology 1

2.2 Tenement Geology 1

3 Exploration Completed during Reporting Period 1

3.1 Aeromagnetic Survey Interpretation 2

3.2 Aerial Photography Interpretation 2

4 Conclusions 3

5 References 3

Figures

Figure 1: Tenement Location Plan

Figure 2: Aeromagnetic Anomaly Location Plan

Appendices - Digital Data Files:

Data Description	Digital Data File Name
Appendix 1: Aeromagnetic Interpretation	EL23965_2005_02_AeromagAnomalies.txt

1 INTRODUCTION

Exploration License EL23965 (Gordon Creek) is located within Elkedra Diamonds NL's Altjawarra Project Area. The tenemenet was granted on 24th May 2004. This report details all work carried out by Elkeddra Diamonds NL on the tenement until it's relinquishment on 23rd May 2005.

The Altjawarra Project Area is located approximately 400km east-northeast of Alice Springs in the Northern Territory. The relinquished tenement falls within the Sandover River (SF53-08) 1:250,000 and Gordon Creek (6354) 1:100,00 sheets. Access to the tenement areas is via station tracks off the Sandover Highway which runs to the northern of the tenement (Figure 1). The tenement is crossed by a number of station tracks.

2 GEOLOGICAL SETTING

2.1 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 a possible younger event or events, in the southern Georgina Basin.

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 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.

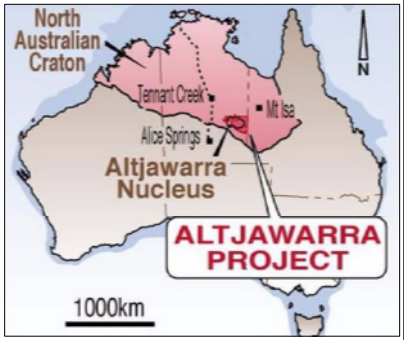
2.2 Tenement Geology

Much of the tenement is covered by grey-black clay-rich soil. The underlying lithology is predominantly Late Cambrian-Early Ordovician dolostone, limestone and minor quartz sandstone of the Ninmaroo Formation, which also outcrops/subcrops throughout much of the tenement area. There is also minor subcrop/outcrop of Late Cambrian Tomahawk Formation (quartzose and glauconitic sandstone, minor dolostone, limestone, dolomitic quartz sandstone and conglomerate with interbedded limestone or dolostone and marl) in the northwest corner of the tenement.

3 EXPLORATION COMPLETED DURING REPORTING PERIOD

Exploration activities undertaken during the tenure period includes:

1) Aeromagnetic interpretation
2) Aerial photography interpretation



Tenements

EL23965
Relinquished Area

Roads

Highway
Minor roads and tracks

N

ELKEDRA DIAMONDS NL

Date:17/8/2005	Figure 1 Altjawarra Project EL23965 Gordon Creek Tenement Location Plan
Author: JL	
Office: West Perth	
Drawing: 204E_00ET_001	
Scale: 1:500000	Projection: MGA Zone 53 (GDA 94)

0 5 10 20
kilometres

3.1 Aeromagnetic Survey Interpretation

The release of the 1999 Elkedra 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. This survey was merged with data obtained from the 1983 Huckittta East survey. 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

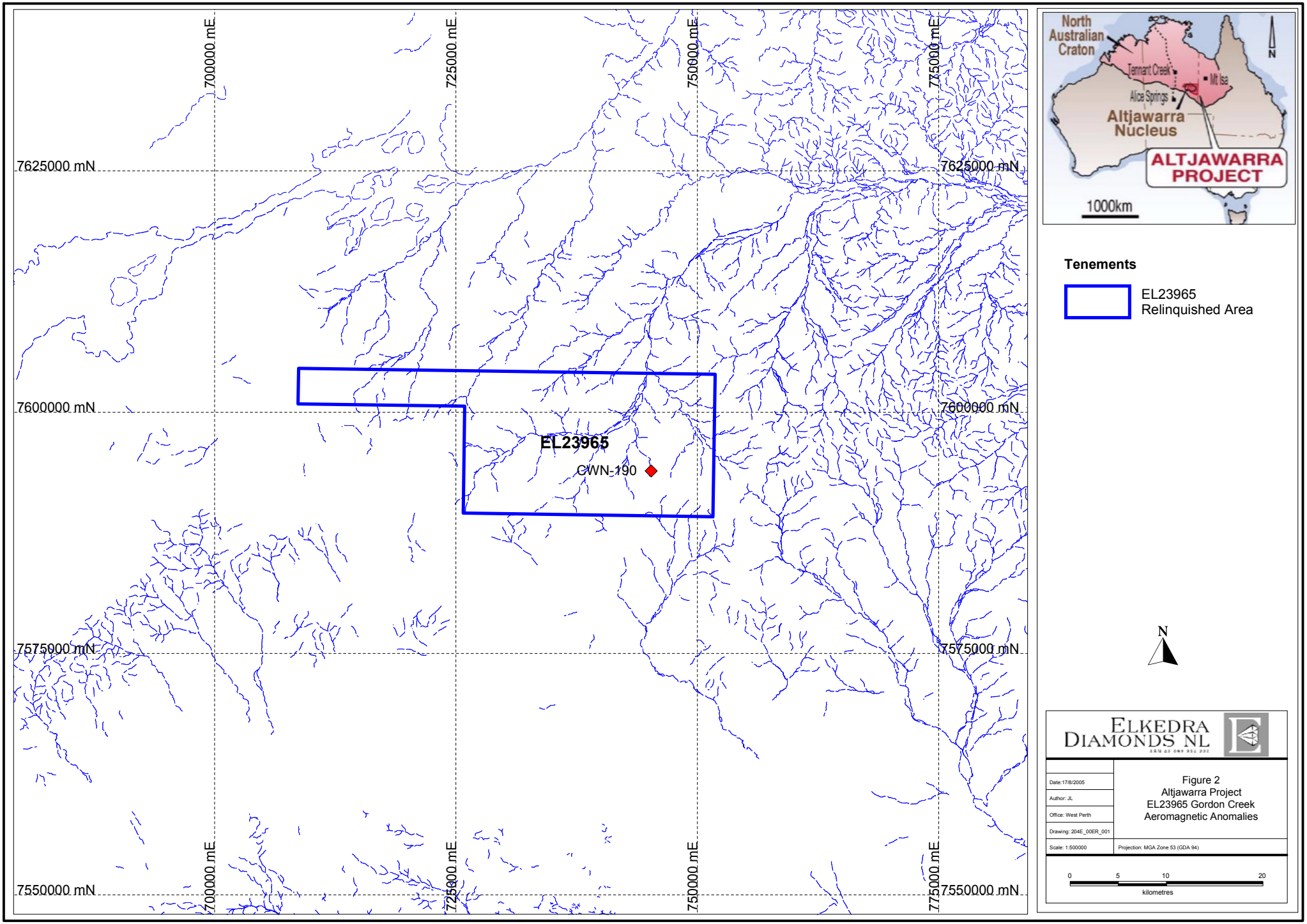
The focus was on identifying possible kimberlite targets in the presence of significant intrasedimentary background noise due to maghemite channels, areas of ferricrete, clay-pans and sinkholes and cultural sources. The altimetric DTM and radiometric data were used to assist in anomaly screening. Identifying possible kimberlite magnetic anomalies in an area of extensive drainage and palaeo-surface 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.

One low priority aeromagnetic anomaly identified from the aeromagnetic data set (Figure 2) which was never followed up. A summary of results is presented in Appendix 1.

3.2 Aerial Photography Interpretation

A regional aerial photography interpretation study was undertaken by Dr. Nick Lockett of Nick Lockett & Associates Pty Ltd, Perth to identify possible outcropping manganese deposits and any potential geomorphic anomalies that may be related to possible intrusive pipes.

No anomalous areas were defined within the relinquished tenement.


700000 mE
725000 mE
750000 mE
775000 mE
7625000 mN
7600000 mN
7575000 mN
7550000 mN
EL23965
CWN-190
North Australian Craton
Tennant Creek
Mt Isa
Alice Springs
Altjawarra Nucleus
ALTJAWARRA PROJECT
1000km
N
Tenements
EL23965
Relinquished Area
N
ELKEDRA DIAMONDS NL
Date:17/8/2005
Author: JL
Office: West Perth
Drawing: 204E_00ER_001
Figure 2
Altjawarra Project
EL23965 Gordon Creek
Aeromagnetic Anomalies
Scale: 1:500000
Projection: MGA Zone 53 (GDA 94)
0 5 10 20
kilometres

4 CONCLUSIONS

The ground covered by EL23965 is considered to be of low priority for exploration. No further work is proposed by Elkedra Diamonds NL and the entire tenement area is relinquished.

5 REFERENCES

Debayle, E. and Kennett, B.L.N. (2000) The Australian continental upper mantle: Structure and deformation inferred from surface waves. *Journal of Geophysical Research*, 105B11, 25423-25450.

Kennett, B.L.N. (1997) The mantle beneath Australia. *AGSO Journal of Australian Geology & Geophysics*, 17(1), 49-54.

Van der Hilst, R.D., Kennett, B.L.N. and Shibutani, T (1998) Upper mantle structure beneath Australia from portable array deployment. In: J. Braun et al, editors. *Structure and Evolution of the Australian Continent*. 39-57.