

CLOSED REPORT: CONFIDENTIAL

EL24693 Field River Annual Report for period 01-May-2006 to 11-Dec-2006

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Gravity, GypsumMap Sheets:Hay River (SF53-16)Copy To:1. Mines and Energy, Darwin, Northern Territory
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Digital Data Files:

Data Description	Digital Data File Name
Helicopter-assisted	EL24693_2006_A_02_Gravity.dat
Gravity survey	EL24693_2006_A_02_Gravity.dfn

SUMMARY

This report details exploration work carried out by Elkedra Diamonds NL within its Field River tenement (EL24693) in the Northern Territory for part of the 2006 field season since cessation of the previous combined reporting period on 30th April 2006.

A review of the base metals potential of the Field River area and adjacent tenements to the north was completed in August 2006. An in-fill gravity survey was completed over a dipolar magnetic anomaly. Subsequently, planning commenced for a helicopter-based electromagnetic (EM) survey proposed for the 2007 field season.

1 TENEMENT STATUS

The tenure details for EL24693 Field River are listed in Table 1.

Table 1. Tenement Summary							
Tenement No	Tenement Name	Date Granted	No of Blocks				
EL24693	Field River	12/12/2005	488				

 Table 1: Tenement Summary

2 LOCATION AND ACCESS

The EL is located approximately 400 km east-northeast of Alice Springs in the Northern Territory. The EL falls within the Hay River 1:250,000 sheet (SF53-16).

Physiography of the area consists of low hills and ridges interspersed with alluvial plains and sand plains. Two river systems: Marqua Creek – Grave Hole Creek – Field River and Large Creek transect the tenement. Dunes systems of the Simpson Desert encroach from the south. The vegetation ranges from sparse savanna woodland and annual grasslands to perennial spinifex dominated grassland. The vegetation is consistent with a continental desert regime.

Access is via the Plenty Highway and Marqua Station road. The tenement is accessible by a number of station tracks.

3 GEOLOGICAL SETTING

3.1 Regional Geology

The project area is part of the southern Georgina Basin, comprising Neoproterozoic to Cambro-Ordovician platform cover of sedimentary rocks (dominantly sandstone, shale, limestone, dolostone) overlying the Precambrian basement of the North Australian Craton. This Precambrian basement is exposed along major fault systems on the southern margin of the basin.

The Northern Territory Geological Survey (NTGS) has recognized the mineral potential of the southern Georgina Basin and recently prepared a comprehensive review of both government and private exploration undertaken, and has now developed from various authoritative sources applicable ore genesis models (Dunster et al., 2007).

Since the 1960's, the basin has been considered prospective mainly for Mississippi Valley Type (MVT) lead-zinc mineralization. More recently, however, the potential for other commodities in a variety of geological settings has been envisaged, and the basin is now regarded as having potential for the following styles of mineralization:

- Mississippi Valley Type Pb-Zn (MVT);
- Carbonate-Hosted Pb-Zn (Irish Type);
- Stratiform Shale-Hosted Base Metals;
- Sediment Hosted Copper;
- Sandstone Hosted Lead, and
- IOCG (Iron Oxide, Cu-Au, e.g. Olympic Dam).

The area is also envisaged as having potential for phosphate hosted in Cambrian phosphorite, calcrete associated uranium, and to a much lesser extent, sediment hosted gold, as well as quartz vein hosted gold.



Figure 1. Location plan for EL24693.

3.2 Tenement Geology

The Field River project area is located in the structurally complex southeastern portion of the Georgina Basin which is comprised of basement granitoids, Neoproterozoic tillites and arkosic sedimentary rocks together with some Cambrian and Cambro-Ordovician limestone, dolostone, and clastic sedimentary rock units (Figs 2, 3). These units have been disrupted by multiple folding and faulting events. Faulting in the project area generally trends northwest and individual faults have been locally offset by later northeast trending faults.

The regionally significant Toomba Fault Zone lies within the northeastern corner of the EL and segregates a structurally complex zone dominated by arkosic sediments to the south from limestone, dolostone and sandstone of the Toko Syncline to the north (Fig. 2). The Toomba Fault Zone is a reverse fault which dips ~45° towards the southwest and lies in close proximity to a number of parallel folds. The Toomba Fault Zone is associated with numerous low angle splays which bisect both the footwall carbonates and hanging wall arkoses.

The Yardida Tillite (Figs 2, 3), which comprises diamictite, siltstone, sandstone, and arkose is exposed within the Field River Anticline. The Field River Anticline extends to the south subparallel with the Toomba Fault Zone. South of the Field River Anticline, within the curvilinear Desert Syncline, there is a repetition of the Cambrian stratigraphy found further north at Boat Hill. Sandstones of the latest Neoproterozoic Grant Bluff Formation and the early Cambrian Red Heart Dolostone are present within the core of the Desert Syncline. Desert Syncline is bound to the north and south by two significant curvilinear fault zones: the Adam Fault Zone in the north and the Gnallen-a-gea Fault Zone in the south (Fig. 3). Basement granitoids of the Mt Dobbie complex are exposed in the southwest part of the EL.

Younger rock units that typically form hill capping plateaus and mesas include the Tertiary Austral Downs limestone, a partly silicified lacustrine limestone underlain by a lateritic palaesol, and Cretaceous clastic sedimentary rocks.



Figure 2. Simplified regional geological map for EL24693 and adjacent tenements.

4 EXPLORATION COMPLETED DURING REPORTING PERIOD

Exploration activities undertaken during the reporting period included:

- 1) Review of economic mineral potential of the area
- 2) Helicopter-supported gravity in-fill survey
- 3) Planning for aerial EM survey
- 4) Reconnaissance Field Visit

4.1 Review of Base Metals Potential

The compilation of historical data focusing on all mineral commodities within the project area was continued during the reporting period.

Previous work by Elkedra and other companies has shown that base metal anomalies occur within the Thorntonia Limestone, Red Heart Dolostone and overlying carbonaceous shales of the lower Arthur Creek Formation which are all stratigraphic units within the southern Georgina Basin. These units are of early to middle Cambrian age (about 520 million years old), a time recognised around the world for deposition of metal-rich, black shales and phosphorite. The prospective units occur over large strike lengths. In the Boat Hill Corridor to the north of the EL, the prospective stratigraphy is excess of 33km in length and has an outcrop width of up to 1.5km (Fig. 2). This zone is structurally repeated in the Desert Syncline on Field River EL (Fig. 3).

Elkedra Diamonds previously reported Pb-Cu-U vein mineralisation from the Mt Dobbie area in altered and ferruginous granite. Assay results for vein samples gave up to 83 ppm U with associated cerium (675 ppm) and percent levels of Cu and Pb. Also previously described were numerous polyphase hydrothermal quartz veins that cross-cut mainly Neoproterozoic strata in the Marqua-Field River area which contain anomalous levels of Au and Cu.

Biogenic accumulation accounts for widespread phosphate in Cambrian units in the tenement area. The middle Cambrian Red Heart Dolostone within the Desert Syncline is mildly phosphatic and has a uranium content of up to 166 ppm U, plus 170 ppm Ni and 1610 ppm Zn (previously reported rock chip results).



Figure 3. Geological map of the EL area (Hay River - Mt Whelan Special Sheet) showing site locations mentioned in the text. Put = Yardida Tillite, Pun = Gnallen-A-Gea Arkose, Pus = Black Stump Arkose, Pua = Grant Bluff Sandstone, Puy = Yackah Beds, Cld = Red Heart Dolostone, JK = Cretaceous beds, Ta = Austral Downs Limestone. Locations shown for BMR holes HR11B and HR10, Desert Syncline core, magnetic anomaly CWN-169, Yardida North uranium anomalous locality, and an occurrence of gypsum at Danny's Dam.

4.2 Magnetics Interpretation

During the reporting period NTGS magnetic survey data was stitched and reprocessed by Dr D.R. Cowan (geophysics consultant). The separation filter product was found to be the most useful for highlighting structural elements and an interpretation of magnetic linears is shown below in Fig. 4. A previously identified dipolar magnetic anomaly, CWN-169, is located within the Adam Fault Zone and has a modelled depth to source of 120m. The anomaly is considered to be of interest for follow-up action.



Figure 4. Separation filtered magnetics for EL24693 (stitched from several NTGS surveys) showing interpreted magnetic linears (yellow) and Toomba Fault Zone (red).

4.3 Radiometric Interpretation

During the reporting period NTGS radiometric survey data was stitched and reprocessed by Dr D.R. Cowan (geophysics consultant) to give the imagery presented below (Fig. 5). The Yardida Tillite has a high total count radiometric response. U anomalies of interest were identified at the Yardida North and Desert Syncline sites (see Fig. 3).



Figure 5. RGB (red = K, green = Th, blue = U) radiometrics draped over total count radiometrics. Zones high in Th and K are outlined and uranium anomalies of different intensity are identified.

4.4 Regional Gravity Interpretation

During the reporting period the NTGS East Arunta Gravity Survey data was reprocessed by Dr D.R. Cowan (geophysics consultant) to give the residual gravity image presented below (Fig. 6). Of interest the linear gravity high associated with the NW-trending Adam Fault Zone.



Figure 6. Residual gravity image processed by Dr D.R. Cowan from the 2006 East Arunta Gravity Survey data.

4.5 Gravity Infill Survey

A helicopter-supported in-fill gravity survey at 500m spacing over magnetic anomaly CWN-169 was undertaken in conjunction with the 2006 NTGS East Arunta Gravity Survey. The gravity data was processed by Dr D.R. Cowan giving the imagery presented below (Fig. 7).



Figure 7. Residual gravity image draped over separation filter magnetic image. Centroid of magnetic anomaly CWN-169 is identified (777513E, 7439706N, MGA94, zone53).

The area around magnetic anomaly CWN-169 consists of a gravity high with a steep gradient and a local elliptical gravity low. The gravity anomaly trend is parallel to the NW-trending Adam Fault Zone as seen in the magnetic imagery (Fig. 4). The interesting elliptical gravity low is located approx. 200m south of the anomaly CWN-169 centroid.

4.6 Reconnaissance Field Visit and Gypsum Occurrence

A brief field visit was undertaken in part to assess ground conditions for a planned aerial EM survey in 2007. The survey is principally aimed at targeting shale-hosted sulphide mineralization and will be discussed next reporting period. During the field visit an occurrence of coarse

crystalline gypsum was noted at Danny's Dam (see Fig. 3); coordinates 773384E, 7442576N (MGA94, zone53).

5 SUMMARY

A review of the base metals potential of the Field River area and adjacent tenements to the north was completed in August 2006. This included reprocessing of available magnetic, gravity and radiometric data. A helicopter-supported in-fill gravity survey was completed over dipolar magnetic anomaly CWN-169. Subsequently, planning commenced for a helicopter-based electromagnetic (EM) survey proposed for the 2007 field season.

6 **REFERENCES**

Dunster JN, Kruse PD, Duffett ML & Ambrose GJ (2007) Geology and resource potential of the southern Georgina Basin. DIP 007, Northern Territory Geological Survey.