Titleholder	Geotech International Pty Ltd
Operator	Minemakers Australia Pty Ltd
Tenement	EL26693 (Barkly)
Report name	Partial Relinquishment Report for EL26693 (Barkly) for the period ending 23 October, 2012
Personal authors	A. Pellatt
Corporate author	Minemakers Australia Pty Ltd
Target commodity	Phosphate
Date of report	7 December 2012
Datum/Zone	GDA94, Zone 53
250,000 mapsheet	ALROY SE53-15
100,000 mapsheet	DALMORE 6058 and FAVENC 5958
Contact details	Fulton, R. Minemakers Australia Pty Ltd PO Box 1704 West Perth WA 6874 Fax: (08) 9264 7099 Ph: (08) 9264 7000
Email for technical details	anniep@minemakers.com.au

ABSTRACT

This partial relinquishment report describes exploration activities completed over a relinquished portion, (comprising 54 blocks), of EL26693 (Barkly prospect). EL26693 is a joint venture between Minemakers Australia Pty Ltd (MAPL) and Geotech International Pty Ltd. Exploration is aimed at the discovery of economic phosphate deposits proximal to the Alice Springs-Darwin railway. Such deposits are known to occur in shallow marginal marine sediments at the western edge of the Georgina Basin, similar to MAPL's Wonarah project located approximately 85 km to the southeast. The tenement is located 150 km east of Tennant Creek and lies on the 1:250,000 ALROY SE53-15 sheet. It covers flat to undulating land on Dalmore Downs station with access via the Barkly and Tablelands Highways. Access within the tenement is limited to station tracks. The tenement was granted on 24 October 2008 to Geotech International Pty Ltd for a period of six years and is the subject of a joint venture between Geotech (20%) and Minemakers Australia Pty Ltd (80%). It is located on the eastern edge of the Palaeoproterozoic Tennant Creek Inlier and covers undeformed Middle Cambrian sedimentary rocks on the southern edge of the Georgina Basin. It is approximately 100 km to the southwest and along strike from the Alexandria, Alroy and Buchanan Dam phosphate deposits. Early Cambrian deposition is represented by the Helen Springs Volcanics which unconformably overlie folded rocks of the South Nicholson Basin. Target stratigraphy is the Wonarah Formation of the Lower Cambrian Barkly Group which consists of dolomudstone, siltstone, chertified limestone, mudstone and grey massive limestone. This formation has been mapped to the east of the tenement and is assumed to underlie Cenozoic cover rocks in the tenement. Regolith is dominated by aeolian sand, travertine, claypans and ferruginous deposits. Preliminary research involved geochemical and geophysical analysis to identify ground targets. Gravity survey data indicated a basement high within the tenement. Exploration sampling is based on the premise that any near-surface phosphorite could be identified by a geochemical signature utilizing soil or maglag media. A total of 52 geochemical samples were collected on the relinquished part of the tenement, comprising 21 soil samples, 1 rock chip sample and 30 maglag samples. Due to the low order assay results, this portion of the tenement was relinquished.

CONTENTS

FIGURES

1. INTRODUCTION

This partial relinquishment report describes exploration activities completed on a relinquished portion of EL26693, which is Minemakers Australia Pty Ltd's (MAPL) Barkly Project (Figure 1). MAPL is a wholly owned subsidiary of Minemakers Limited which listed on the ASX on 10 October 2006. Exploration is aimed at the discovery of economic phosphate deposits proximal to the Barkly Highway and close to the Alice Springs-Darwin rail link.

2. LOCATION

EL26693 is located 150 km east of Tennant Creek in the Northern Territory (Figure 1). The tenement lies on the 1:250,000 ALROY SE53-15 and the 1:100,000 FAVENC 5958 and DALMORE 6058 map sheets. The tenement covers generally flat to undulating pastoral land falling within Perpetual Pastoral Lease 988 Dalmore Downs NT Portion 773. The project is subject to a Native Title Claim (Dalmore Downs Title Claim NTD 6030/01) through the Northern Land Council. Accommodation is provided by the Barkly Homestead located at the junction of the Barkly and Tablelands Highways.

Access within the tenement is limited because of vegetation. The better access is north of the Barkly Highway off the Tablelands Highway where station tracks provide ready access to water bores for grazing stock. There is no access to the central and western parts of the tenement where both magnetic and gravity anomalies are known to exist with a high phosphate prospectivity.

3. TENURE

EL26693 was granted on 24 October 2008 to Geotech International Pty Ltd for a period of six years and covered 144 blocks (465.6 km^2). In 2011, a total of 36 blocks were relinquished, leaving 108 blocks for the retained tenement. A further 54 blocks has been relinquished and this report details exploration activities completed on these blocks. The retained tenement now comprises 54 blocks.

The tenement is the subject of a joint venture between Geotech (20%) and Minemakers Australia Pty Ltd (80%) with Geotech being free-carried from expenditure contributions until a decision to mine. NT Portions 1415 (Telecom tower) and 1993 (Barkly Roadhouse) are excluded.

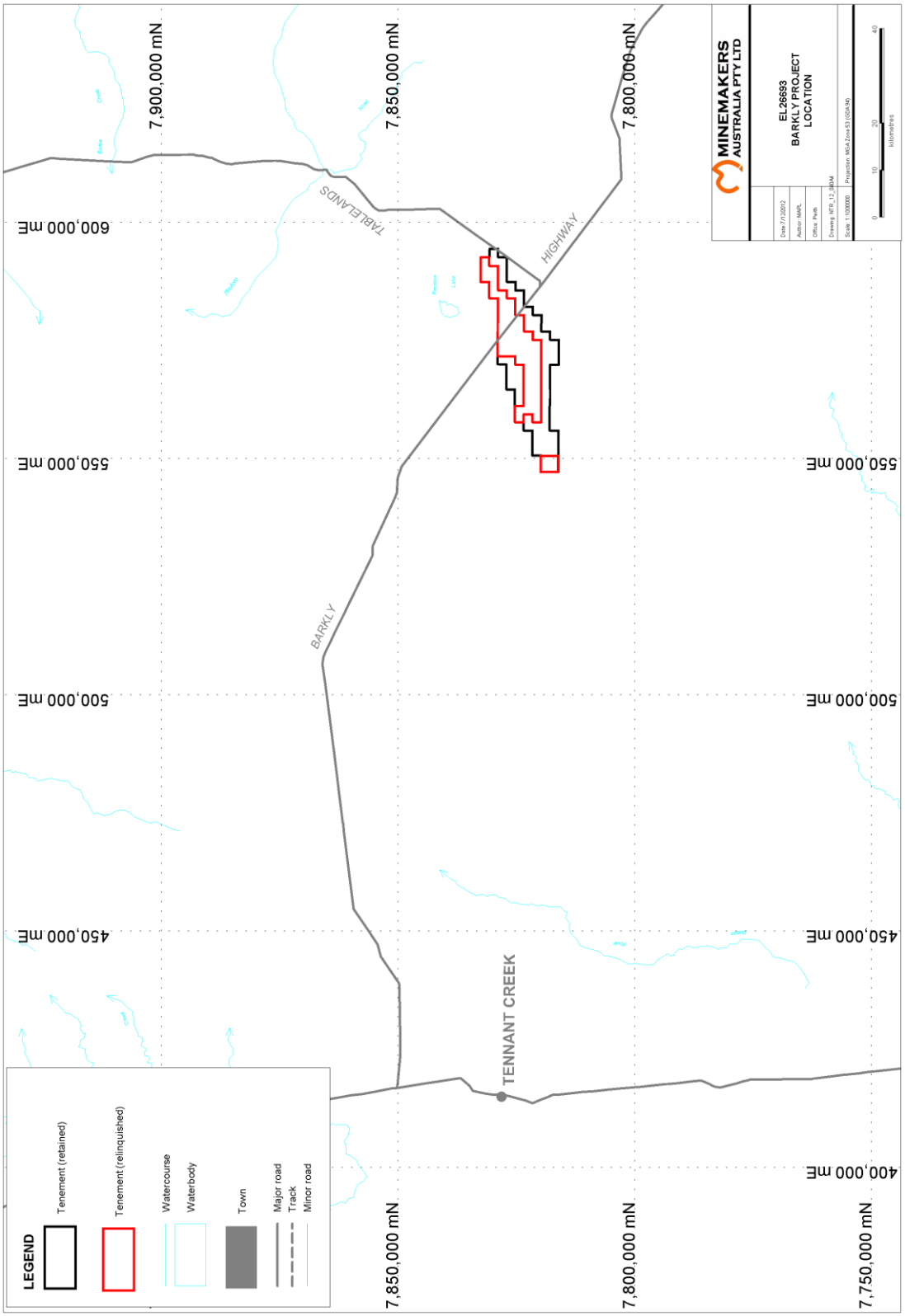

Figure 1: Location of EL26693.

4. GEOLOGY

The first edition of the ALROY 1:250,000 geological sheet was published by the Bureau of Mineral Resources in 1966 (Randal & Nicholls, 1966). The second edition was compiled by the Northern Territory Geological Survey and published in 2009 (Kruse PD & Maier RC, 2010) with explanatory notes (Kruse et al., 2010).

The Barkly prospect is located on the eastern edge of the Palaeoproterozoic Tennant Creek Inlier and undeformed Middle Cambrian sedimentary rocks on the southern edge of the Georgina Basin (Figures 2 & 3). It is approximately 100km to the southwest and along strike of Phosphate Australia's Alexandria, Alroy and Buchanan Dam phosphate deposits.

Early Cambrian deposition is represented by the Helen Springs Volcanics which consist of amygdaloidal tholeiitic basalt and a basal sandstone unit. These rocks unconformably overlie folded rocks of the South Nicholson Basin (Kruse PD & Maier RC, 2010). Phosphatic rocks are associated with the Gum Ridge Formation which was deposited in shallow shelf epicontinental seas and subjected to episodic peritidal influence. Lithologies comprise predominantly tabular chertified rocks, derived from the silicification of bedded impure calcareous mudstone or marl. Occasional trilobites, brachiopods and sponge spicules occur in this formation.

There is little or no outcrop of Proterozoic basement rocks within the tenement. Some siliceous lag pebbles/cobbles have been found during fieldwork and these might have originated from underlying near-surface basement.

The tenement is dominated by aeolian sand (Czs) reflected in northwest-trending longitudinal sand dunes readily identified in satellite imagery. Travertine (Czk) outcrops are common and claypans (Qp) have developed in low-lying areas. Minor ferruginous deposits are scattered throughout the tenement. The Wonarah Formation of the Lower Cambrian Barkly Group consists of dolomudstone and siltstone, chertified limestone, mudstone and grey massive limestone. This formation has been mapped to the east of the tenement and is assumed to shallowly underlie Cenozoic cover rocks in the tenement (Kruse PD & Maier RC, 2010).

Total magnetic intensity indicates a higher magnetic domain flanking the southern tenement boundary. Isolated magnetic highs occur in the western sector of the tenement. North of the tenement, magnetic values are depressed, possibly indicating deeper sedimentation.

Results of the Northern Territory Geological Survey gravity survey indicate an elongated basement high trending in a southwest-northeast direction and partly influenced by a northwest-southeast development (Figure 5). Phosphate deposits are known to occur over basement highs where upwelling currents provide source solutions for phosphogenesis.

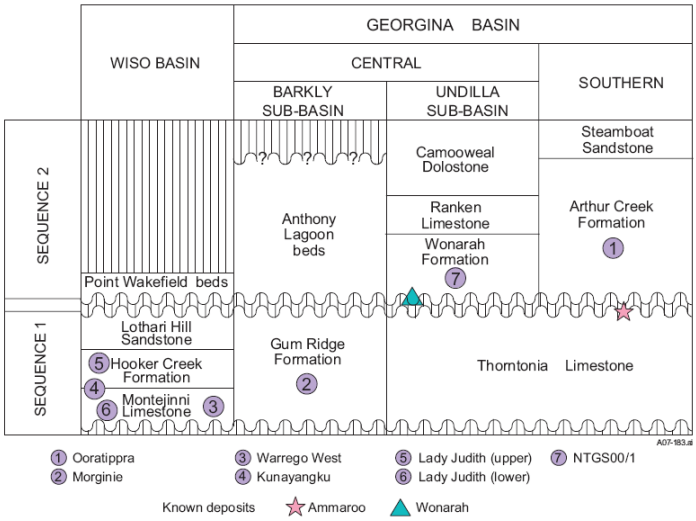

Figure 2.Stratigraphy and phosphate occurrences of the Georgina Basin (after Khan et al, 2007).

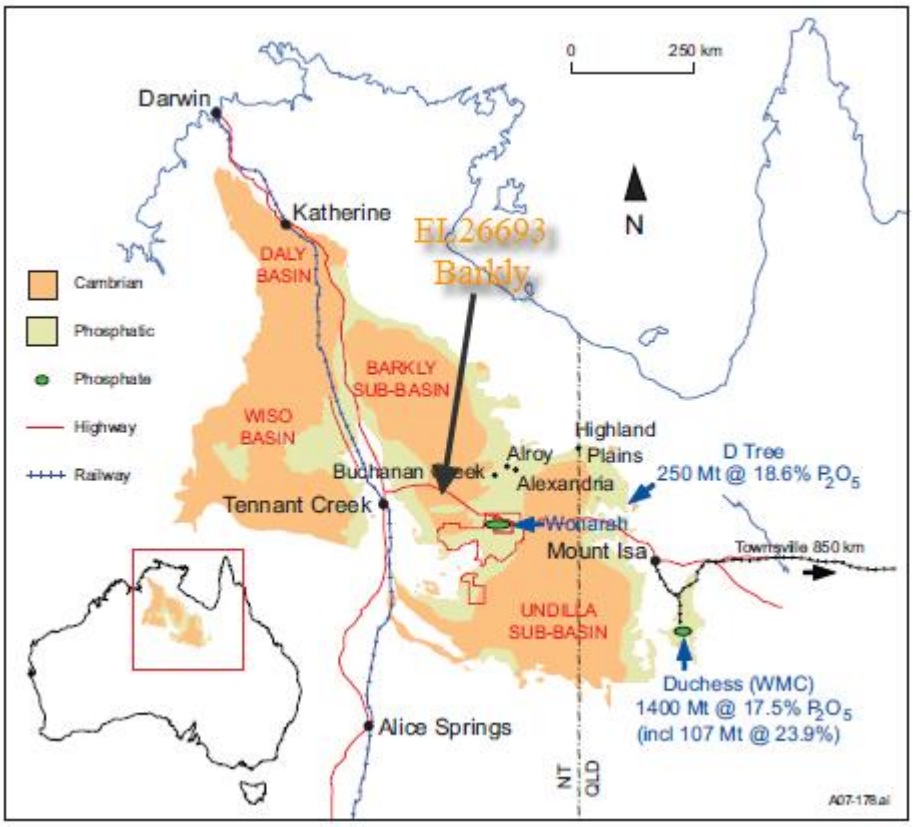

Figure 3. Location of EL26693 in the Barkly Sub-Basin of the Georgina Basin (after Khan et al, 2007).

5. WORK COMPLETED

5.1 Office Research

Preliminary research involved geochemical and geophysical analysis to identify ground targets over the entire tenement for field investigations. The initial focus was on identifying water bores in the immediate area and ascertaining whether these had been tested for phosphate (Khan et al., 2007). According to this study there are no water bores that have been tested for phosphate within the tenement.

The 2009 Barkly Gravity Survey indicated a basement high within the tenement and the margins of this basement high are considered to be prospective for phosphorite deposition. Proposed exploration sampling was based on the premise that any near-surface phosphorite could be identified by a geochemical signature utilizing soil or maglag media.

5.2 Geochemical survey

A geochemical survey was conducted over station tracks within the tenement during late January and early February 2010. A total of 52 geochemical samples were collected on the relinquished part of the tenement (Figure 4), comprising 21 soil samples, 1 rock chip sample and 30 maglag samples.

Two uniquely numbered soil samples were collected from each site and marked “A” and “B”. Only one set was submitted for assay with the other kept in reserve. Soil samples were collected from a depth of about 15 cm with an average sample weight of 1350 gm. Maglag samples were not always available at each site with the majority of sample weights falling in the range 15-25 gm. Low weights reflect low maglag populations and long collection times.

The soil and rock samples were forwarded to ALS Laboratory, Mt Isa. The soil samples were sieved to -80#, pulverised and digested in a multi-acid digest and assayed using ME-MS41, ICP-MS, ICP-AES techniques for the following 51 elements: Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn and Zr. The rock samples were pulverised and digested in a multi-acid digest and assayed using ME-MS41, ICP-MS, ICP-AES techniques for the same 51 elements listed above. The results are reported in Laboratory Reports MI10020779 (rocks) and MI1024320 (soils).

Due to a misunderstanding the maglag samples were not submitted to Genalysis Laboratories Pty Ltd, Perth until November 2010. For samples ≤ 25 gm (no preparation); samples >25 gm were pulverised. An aqua regia digest was used and the following elements were assayed: ICP-OES for P, Fe, Mn; ICP-MS for As, Cd, Ce, La, Pb, U and T.

In addition, magnetic susceptibility and scintillometer readings were recorded at each sampling site using an SM-30 magnetic susceptibility meter and a RadEye PRD scintillometer.

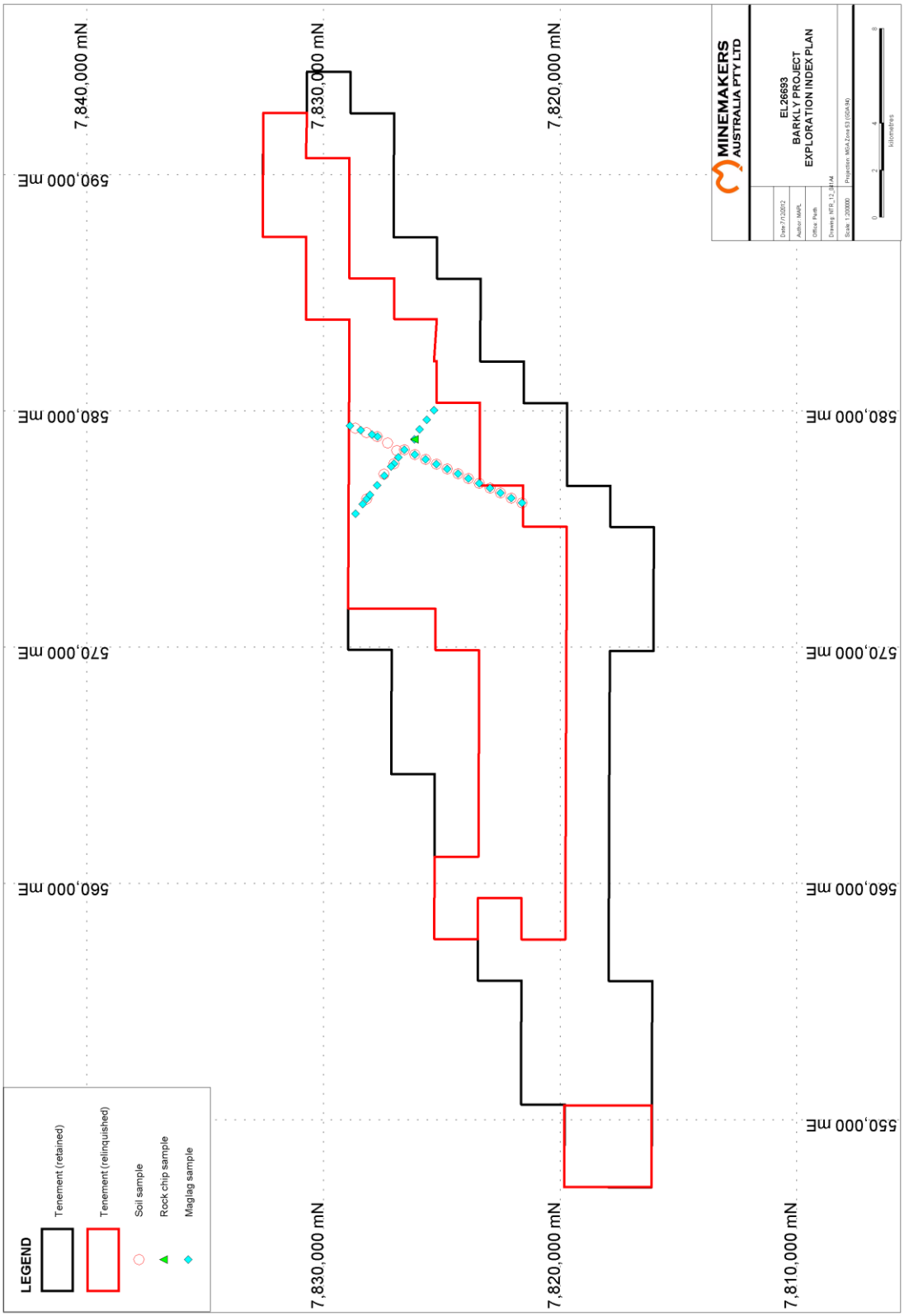

Figure 4: Exploration Index Plan.

6. CONCLUSIONS

Based on the low order surface geochemical sampling results, it was decided to relinquish this portion of EL26693.

7. REFERENCES

Khan M, Ferenczi PA, Ahmad M & Kruse PD (2007) Phosphate testing of waterbores and diamond drillcore in the Georgina, Wiso and Daly basins, Northern Territory. Northern Territory Geological Survey, Record 2007-003.

Kruse PD & Maier RC (2010) Alroy, Northern Territory (Second Edition). 1:250,000 geological map series, SE53-15. Northern Territory Geological Survey, Darwin.

Kruse PD, Maier RC, Khan M & Dunster JN (2010) Walhallow-Brunette Downs-Alroy-Frew River, Northern Territory. 1:250,000 geological map series explanatory notes, SE53-07, SE53-11, SE53-15, SF53-03. Northern Territory Geological Survey, Darwin.

Randall MA & Nichols RAH (1966) ALROY Sheet SE53-15. 1:250,000 geological map series. Bureau of Mineral Resources, Geology and Geophysics, Canberra, ACT.