



.....Partial Surrender Report EL4496

For the period ending 30 May 2014

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Distribution: Endeavour Copper Gold Pty Ltd
DMITRE

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1. SUMMARY OF ACTIVITIES

EL4496 is highly prospective and has been targeted for nickel and gold during the period 31 May 2010 to 30 May 2014.

EL4496 forms part of the Tarcoola Project Amalgamated Expenditure Agreement which requires a proportion of the project area to be relinquished annually.

To comply with the Agreement 243 sq kms of EL4496 was relinquished on 30 May 2014. The relinquished area was chosen because it lies within the Yellabina reserve, a sensitive conservation zone in sandy country with a lack of tracks and access issues.

Within the relinquished area Mobile Metal Ion (MMI) and biogeochemical sampling and analysis has been completed. A total of 126 MMI and 312 biogeochemical samples were collected.

Endeavour Copper Gold had hoped to be able to use the MMI and vegetation sampling to vector to drill targets. However it was concluded that surface geochemistry (vegetation being the better) with detailed regolith studies can be only partially successful in areas of variable shallow cover. In other words, drill testing is required and only in limited areas is surface geochemistry useful. Vegetation seemed to “penetrate” a little better and be quicker and easier to collect. MMI was inconclusive and the data should be disregarded as we failed to localise the sample collection technique to adjust for the low % of fines.

This surface geochemistry program was part of a collaborative research project established between Endeavour Discoveries Limited and The Adelaide University.

2. INTRODUCTION

2.1 Tenure

Exploration License EL 4496 consisting of a total area of 436 sq km was granted 31 May 2010. On the 30 May 2014 243 sq kms of the tenement was relinquished, see Figure 1.

2.2 Location

The tenement is located 410km NW of Port Augusta, and only 100km west of Kingoonya. It lies geologically in the Archaean-Mesoproterozoic Harris Greenstone Belt of the central Gawler Craton.

The project is accessed from the Glendambo to Tarcoola Road, which runs parallel to the Trans-Australian railway line. Within the project area access is via numerous unsealed roads and station tracks.

The terrain consists of flat, scrubby saltbush plains and sand dunes.

3 SURFACE GEOCHEMISTRY

During the period 31 May 2010 and 30 May 2014 in the partially relinquished section of EL4496 Endeavour Copper Gold Pty Ltd completed a program of vegetation and MMI sampling as outlined in Table 1 below.

A collaborative research project was established between Endeavour Discoveries and Adelaide University to test plant biogeochemistry over varying regolith terrains (aeolian sand dunes, alluvial/colluvial cover and residual saprolite). This surface geochemistry program was part of a collaborative research project established between Endeavour Discoveries Limited and The Adelaide University.

Table 1: Summary of samples collected, by type

Sample type	Number samples collected
Vegetation	312
MMI	126

3.1 Mobile Metal Ion (MMI) Samples

MMI was used across the aeolian dunes in the Yellabina conservation zone due to its low impact nature and its effectiveness over the Tunkillia deposit as demonstrated by Fabris 2010. The difference between our setting and Tunkillia is the lack of pronounced inter-dune swales. At Tunkillia the swales are almost a palaeosurface whereas in our tenement there are poorly developed swales. As such in our area there is very little soil horizon development and a very low fraction of fines – perhaps as low as 3%. This is important as in most areas of Australia where MMI has been effective, there is a well-developed B-horizon in the soil profile. In our study area the B-horizon was only faintly discernable or non-existent in many places.

SGS guidelines (2011) for the use of MMI methods suggest a sample mass of 250-350 g of bulk soil and that sieving should be avoided to prevent cross-contamination of samples. This was the method used to collect the 126 MMI samples on foot in the western edge of EL4496 inside the Yellabina conservation zone. In retrospect, not sieving may have been a mistake due the low % of fines.

It appears that a greater response is registered when smaller size fraction is sieved (<75 µm) from the work of Fabris (2010). The below normalisation of the data to allow comparison to the Tunkillia results requires effectively a multiplication of the value by approximately 40 times, from very close to detection limits and error.

Endeavour Copper Gold regards the data set collected as inconclusive. Refer Appendix 1 for full results.

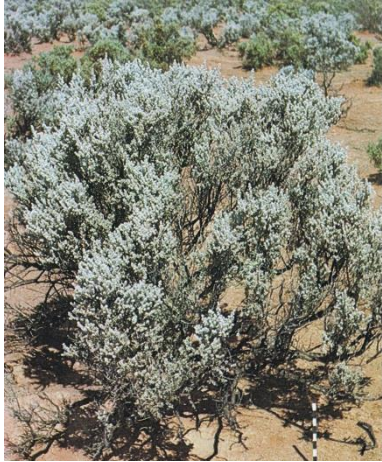
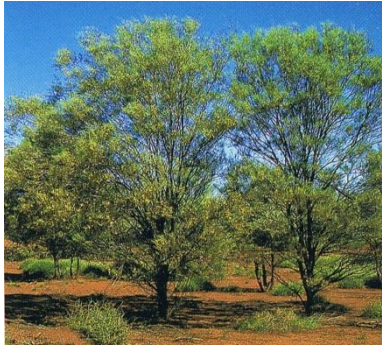
3.2 Plant Biogeochemistry Samples

Vegetation samples were taken at each point an MMI sample was collected for a direct comparison. Samples were submitted to SGS for analysis using an MMI-ME digest with DRC ICP-MS. Plant biogeochemistry involved the collection by gloved hand or sterile secateurs, approximately 200 gram samples of plant material (in this circumstance leaf material was collected) from a widespread plant species across the program area (collection subject to availability and/or distribution). Mulga Acacia was the predominant sampled species. A total of 312 vegetation samples were collected (see Table 2).

Plant samples were dried and sorted at the Adelaide University before being sent for analysis to ACME labs. Plant analysis included plant maceration to 1mm followed by Aqua Regia Digestion and ICP-MS finish (1VE2-1VE6).

Refer to Appendix 2 for full results.

Table 2: Plant Species Selected For Sampling

Common Name	Scientific Name	Image
Bluebush, Low	<i>Maireana astrotricha</i>	
Bluebush, Pearl	<i>Maireana sedifolia</i>	
Mulga	<i>Acacia aneura</i>	
Mulga, Horse*	<i>Acacia ramulosa</i>	

4 ENVIRONMENT

Vegetation samples collected on foot require only a small handful of leaves be removed from a bush or tree by hand, and this quickly re-grows without damaging the plant. MMI samples were collected on foot, from a shallow hole approximately 30 cm maximum depth, with a small trowel used to collect a small 200 gram sample – the disturbance was indiscernible once back-filled by hand.

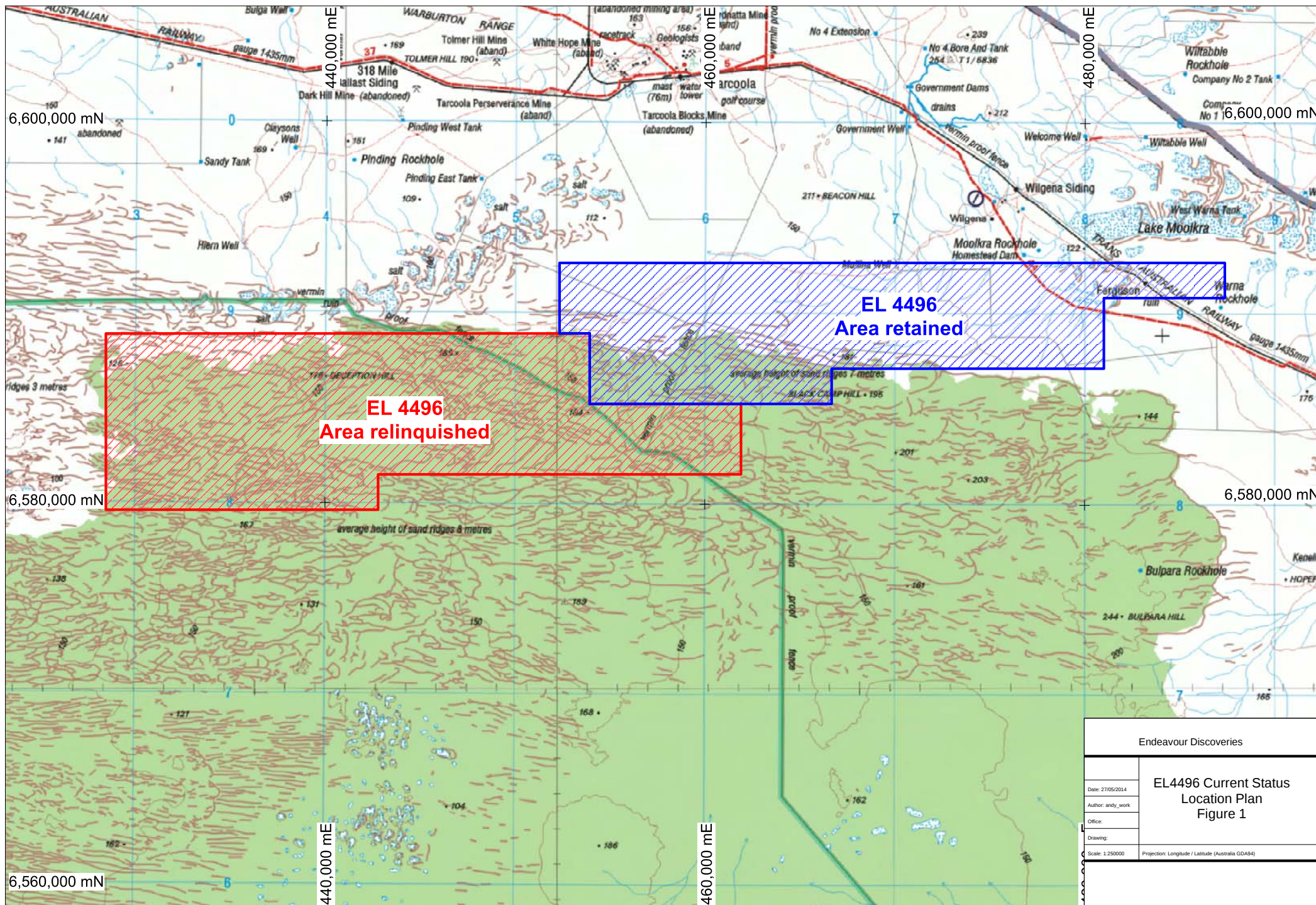
All field personnel were accommodated at the Kingoonya Hotel, hence no long term field camp was established. However a small fly camp for five nights for two people was established in EL4496 when the MMI sampling program was carried out in the western end of the tenement due to the long travel times from Kingoonya.

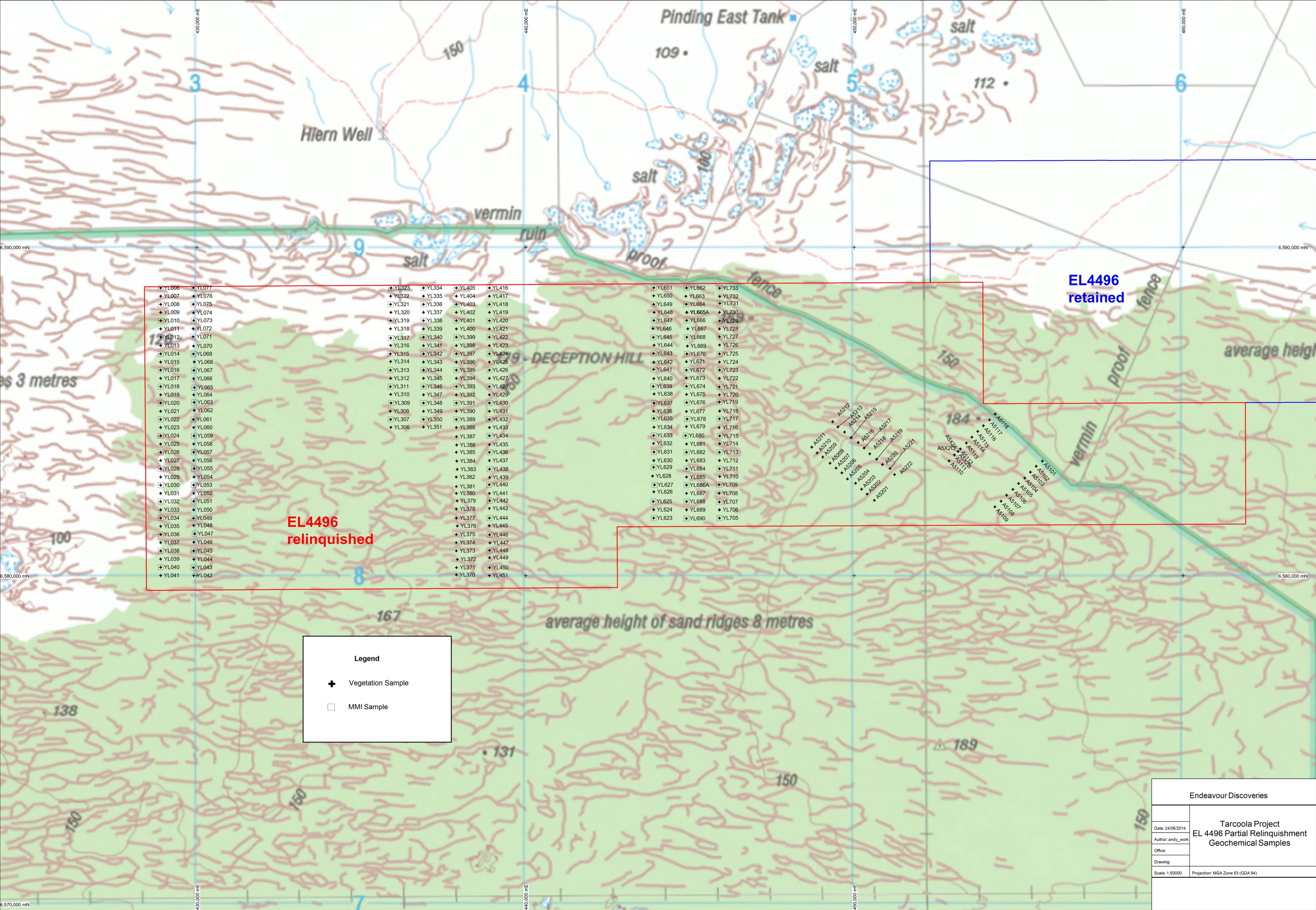
5 REFERENCES

FABRIS A. J. 2010. Investigation of partial leach soil surveys at the Tunkillia Gold prospect, SA. *Primary Industries and Resources South Australia Report Book 2010/01*.

SGS 2011. Mobile Metal Ions (MMI™) Sampling Guide

<<http://www.sgs.com/~media/Global/Documents/Flyers%20and%20Leaflets/SGS-MIN-WA002-MMI-Sampling-Guide-EN-11.pdf>>. (retrieved March 23 2012)





Legend

+

Vegetation Sample

□

MMI Sample

Endeavour Discoveries	
Date: 24/06/2014	Tarcoola Project EL 4496 Partial Relinquishment Geochemical Samples
Author: andy_work	
Office:	
Drawing:	
Scale: 1:50000	Projection: MGA Zone 53 (GDA 94)

APPENDIX 1

MOBILE METAL ION (MMI)
ASSAY RESULTS

APPENDIX 2

PLANT BIOGEOCHEMISTRY
ASSAY RESULTS

