

# Deep Yellow Limited

ABN 97 006 391 948

## PARTIAL RELINQUISHMENT REPORT

**EPM 15070**

**PROSPECTOR**

**28 March 2006 – 27 March 2014**

<b>Holder:</b>	Superior Uranium Pty Ltd
<b>Operator:</b>	Deep Yellow Ltd
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<b>1:100,000 Mapsheets:</b>	Kennedy Gap, Mammoth Mines & Prospector
<b>Target Commodity:</b>	Uranium
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## 1. SUMMARY

Exploration Permit for Minerals 15070 (Prospector) is situated at 139° 39' 00"E and 20° 11' 00"S centred approximately 65 km north of Mount Isa, Queensland. The tenement is held by Superior Uranium Pty Limited, a wholly owned subsidiary of Deep Yellow Limited (DYL).

Pursuant to the requirements of Section 139 of the *Mineral Resources Act 1989*, EPM15070 was due to be reduced to 24 sub-blocks at the end of the eighth year of term. A partial relinquishment in compliance with that requirement was forwarded to the Department of Natural Resources and Mines on 28 February 2014. We were advised that EPM15070 was reduced to 24 sub-blocks with effect from 13 January 2015.

The aim of this report is to document exploration activities carried out over 15 sub-blocks which were relinquished from EPM 15070 at the end of the eighth year of term.

DYL's primary exploration target was uranium hosted within the Haslingden Group rocks which comprise intercalated basic volcanics and psammitic sediments. The targeted uranium deposit style is metasomatic hosted analogous to the Valhalla Deposit (held by Paladin Energy Ltd/Summit Resources Ltd).

Work to date on the relinquished sub-blocks has included geological reconnaissance, hand-held scintillometer survey and a scout RC drill programme of 7 holes for 700m.

This work failed to identify any significant targets within the relinquished sub-blocks and hence the sub-blocks have been selected for relinquishment.

In 2011, DYL entered into a farm-in joint venture with Syndicated Metals Ltd (Syndicated) known as the Mt Isa Other Minerals Joint Venture. The agreement, currently covering three EPMs including EPM 15070, provides Syndicated the right to explore for all minerals other than uranium. Syndicated's exploration target is copper-gold mineralisation.

Syndicated's exploration on the relinquished area has been limited to data review in order to plan an exploration program for EPM 15070.

## 2. INTRODUCTION

### 2.1. Tenure

Exploration Permit for Minerals 15070 (Prospector), comprising 220 blocks, was granted for a term of five years to Superior Resources Limited (Superior) on 28 March 2006. Superior assigned its 100% interest in EPM 15070 to Superior Uranium Pty Ltd (SUPL), a wholly owned subsidiary of Deep Yellow Limited (DYL), on 24 January 2007.

The area of the permit was reduced to 100 sub-blocks effective 28 March 2007. Variations to the relinquishment schedule were approved for the third and fourth years of term. At the end of the fourth year of term, nine (9) sub-blocks were relinquished.

EPM15070 was renewed on 24 June 2013 effective from 28 March 2011 for a further five year period ending 27 March 2016 over an area of 39 sub-blocks.

Pursuant to the requirements of Section 139 of the *Mineral Resources Act 1989*, EPM15070 was due to be reduced to 24 sub-blocks at the end of the eighth year of term, 28 March 2014. A partial relinquishment in compliance with that requirement was forwarded to the Department of Natural Resources and Mines on 28 February 2014. We were advised that EPM15070 was reduced to 24 sub-blocks with effect from 13 January 2015. The 15 relinquished sub-blocks are listed in Table 1.

**Table 1: EPM 15070 relinquished sub-blocks.**

BIM	Block	Sub-blocks
Normanton	3400	C S W
Normanton	3401	W X
Normanton	3402	V W
Cloncurry	16	F G
Cloncurry	18	B
Cloncurry	87	E J O
Cloncurry	90	N S

### 2.2. Location and Access

The Prospector project area is centred at 139° 39' 00"E and 20° 11' 00"S about 65 km north of the city of Mount Isa in northwest Queensland. The tenement lies within the Kennedy Gap (6757), Mammoth Mines (6758) and Prospector (6857) 1:100 000 scale sheets on the Camooweal (SE 5413), Mount Isa (SF 5401) and Cloncurry (SF 5402) 1:250 000 sheets. Figure 1 shows the Prospector tenement boundaries.

The project lies within the City of Mount Isa Local Government Authority area and the Mining District of Mount Isa.

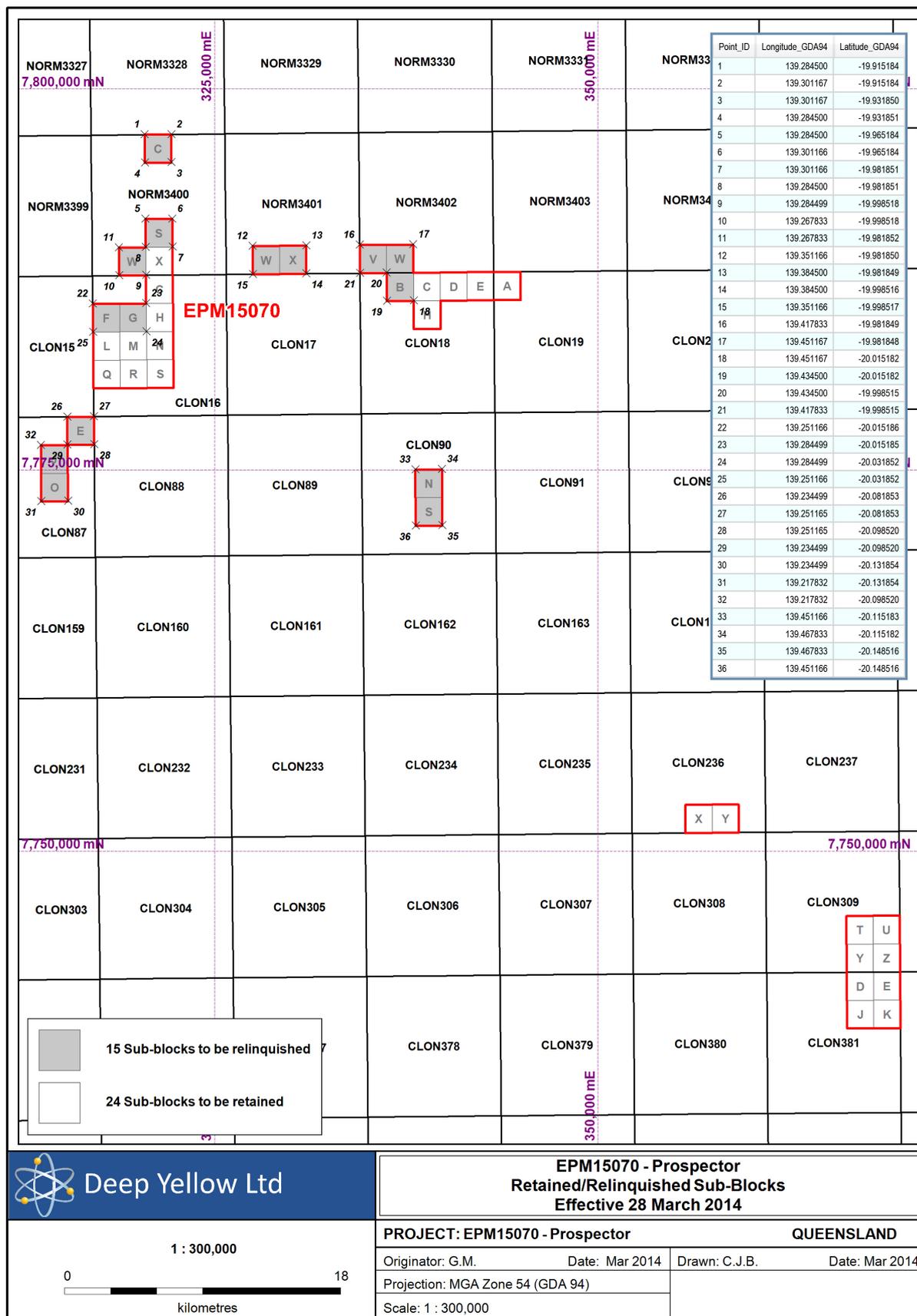


Figure 1: EPM15070 Retained and Relinquished Blocks 2014

### 3. GEOLOGY

The Prospector project lies within the Western Succession of the Mt Isa Inlier, northwest Queensland. The rocks in the project area are dominated by units of the Haslingden Group with a large portion of the EPM being mapped as metabasalt and psammite units of the Eastern Creek Volcanics. Detailed geology of the project area is shown in Figure 2.

More than 107 known uranium occurrences have been recorded in Palaeoproterozoic metasediments and mafic volcanics belonging to the Leichhardt River Fault Trough (MacKay and Mieziotis, 2001). Mary Kathleen is the only significant uranium deposit that has been mined to date in Queensland and the fourth largest of the known Australian uranium resources is located nearby at the albitite-hosted Valhalla deposit. Other significant uranium deposits include Skal and Andersons Lode and these, as well as a number of prospects in the district, are currently being assessed and actively investigated by small number of mineral resource companies.

Uranium in the Mount Isa Inlier usually occurs as either calc-silicate skarn related deposits as at Mary Kathleen or as metasomatic related mineralisation hosted in basaltical sedimentary rocks. At Valhalla, a ferruginous tuff bed is partly mineralised while at Skal a brecciated, carbonated and silicified siltstone is mineralised and at the Andersons Lode a mylonitised, carbonated, magnetite bearing greywacke is the host rock.

#### ***Valhalla Uranium Deposit***

The albitite-hosted Mesoproterozoic uranium deposit is 40km north of Mt Isa, Queensland. The uranium mineralisation is hosted in metasediments (sandstone, arkoses and gritty siltstones) bounded by Eastern Creek Volcanics in the Western Succession. Two vertical dipping bodies of mineralisation are known. The main stage of mineralisation is associated with multiple episodes of brecciation. The dominant mineral assemblages are brannerite, apatite, zircon, albite, reibeckite, calcite and hematite. Lithogeochemical assessment of whole rock data showed the removal of K, Ba and Si and addition of Na, Ca, U, V, Zr, P, Sr, F, and Y. Fluid sources are to be believed to be either basinal from metasediments that underlie the Eastern Creek Volcanics or magmatism during pegmatite dykes intrusion during the Isa Orogeny (Polito, 2007).



## **4. EXPLORATION COMPLETED**

### **4.1. Calton Hills**

The Calton Hills surface geology consists of clean orthoquartzites which apparently are faulted against successions of brecciated limonitic quartzites and sandstone interbedded with ironstone.

A hand-held scintillometer survey was carried out over a 400 m x 500 m area of the ironstone unit. The survey consisted of eight 40 m spaced east-west traverses with 10 m reading centres. Three infill east-west traverses with 10 m reading centres were undertaken in the central area closing the traverse spacing to 20 m.

The survey gave a strong response of above 500 cps (max.1,437 cps, <100 cps background) over an area of approximately 200 m x 150 m with a broad north-northeast trend (Appendix 1).

The ironstone unit dips shallowly to the north, outcropping just south of the top of the ridge and it is exposed down the northern side of the ridge. This appears to exaggerate the apparent size of the uranium bearing ironstone unit. Abundant uraniferous float sheds to the northeast of the outcropping ironstone unit towards the nearby gully flat and this adds to the apparent size of the airborne radiometric anomaly.

In October 2007 a scout RC percussion drilling programme of 7 holes for 700 m was completed to test the anomalies as indicated by the airborne radiometric and ground radiometric surveys. The drill hole location plan is included as Appendix 2. All holes were surveyed with a down-hole gamma logger. The down-hole gamma logger survey results for each hole are attached as Appendix 3. Because the gamma logging survey showed low counts no assaying was undertaken. Drill hole cross sections displaying geology are attached as Appendices 4 to 7.

Drill hole lithology markedly differs from mapped surface lithology. The dominant rock type encountered was a highly weathered altered mafic rock overlain by massive (30 m thick) kaolinitic clays. At the base of the weathering (80 m) massive dolerite units were intersected, which were occasional sheared. An interval of hematite altered felsite was intersected, which may suggest that Calton Hills could be a faulted mafic dyke.

The extent of the leaching of uranium from the ironstones is a matter of speculation as the uranium mineralisation could be either scavenged by the ironstone or it could be leached by acid generated by oxidation of sulphides.

Appendices 8, 9 and 10 display digital details of the drill hole collar, down-hole surveys and drill hole geology data. Appendix 11 explains the geological codes.

### **4.2. Calton Hills South (Anomaly 12)**

The radiometric 'Anomaly 12' is located approximately 1.5 km south of Calton Hills Prospect. The geology is generally the same as seen at Calton Hills with the sedimentary succession coarsening upwards from preferentially ferruginised (to ironstone) finer-grained sediments (originally mudstones) cleaning upwards into clean sandstones and quartzites.

The mapped outcrop is cut by an approximately 20-30 m wide, east-west trending, brecciated fault zone that juxtaposes anomalous finer grained ferruginised sediments (ironstones) against clean orthoquartzites in a manner very similar to that seen at Calton Hills. Mineralisation is associated with fracture surfaces and as such increasing count measurements towards fault zone indicating increasingly more intense fracturing and brecciation. Radiometric surveys showed a maximum measurement of ~17,000 cps within strongly brecciated quartzites.

The fault zone can be traced for approximately 200 m before it disappears under scree cover.

A hand-held scintillometer survey was carried out over a 200 m x 100 m area of the ironstone unit. The survey consisted of six 20 m spaced east-west traverses with 10 m reading centres. The survey revealed a small anomaly with a maximum reading of 350 cps. Appendix 12 displays the survey readings.

## **5. BIBLIOGRAPHY**

McKay AD, Mieзитis Y, 2001. Australia's uranium resources, geology and development of deposits, Geoscience Australia, Canberra, Mineral Resources Report 1, p71.

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