



PARTIAL RELINQUISHMENT REPORT FOR EL31820

VAUGHAN SPRINGS

NGALIA REGIONAL PROJECT

PERIOD ENDING 29th March 2019

EL31820_2019_P.pdf

1:250K Map Sheet: Mount Doreen SF52-12

1:100K Map Sheet: Vaughan 5053

Commodities: Uranium, Vanadium

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SUMMARY

Exploration Licence 31820 “Vaughan Springs” is part of the 100% owned Energy Metals Ltd (EME) Ngalia Regional Project situated approximately 360km northwest of Alice Springs and 20km southwest of the Bigrlyi uranium project.

EL31820 was a replacement title for EL31636 & original title EL24533 and came into effect in March 2018. The EL is located west of the Bigrlyi deposits and includes the Autobahn uranium prospect and the Yuendumu Thrust West uranium prospect. The tenement borders the tightly folded Vaughan Springs Syncline of the Treuer Range to the west, and in the south and east, comprises mainly of Mt Eclipse Sandstone under sand cover of variable thickness.

Exploration activities on EL31820, and its predecessors, have been limited by Aboriginal heritage sites where ground disturbing works were either not permitted or restricted. The heritage area covers all of the Treuer Range and part of the surrounding sand plain.

Due to assessed low prospectivity for uranium mineralisation, six blocks along the northern boundaries of EL31820 and four along the south-eastern boundary were relinquished. This report covers exploration activities that occurred on the relinquished area during EME’s period of tenure.

INTRODUCTION

The Ngalia Regional Project comprises nine 100% Energy Metals Ltd (EME) owned exploration licences (total area approx. 3,000 km²) located in the Ngalia Basin and immediate surrounds, between 180 and 350 km northwest of Alice Springs in the Northern Territory (Figure 1). The tenements surround the Bigrlyi joint venture uranium project and include a number of satellite and regional uranium deposits such as the Camel Flat and Walbiri deposits (Figure 2).

Most of the EL31820 tenement area is covered by an aeolian sand plain, alluvial flats and outcrop of Vaughan Springs Quartzite with minor basement granite. In July 2017 EL24533 which was subject to an amalgamation of two adjacent blocks was replaced by EL31636. In March 2018, further adjacent blocks of EL24453 were amalgamated with EL31636 and replacement title EL31820 was issued.

This report covers the partial relinquishment of ten blocks along the northern & southeastern boundaries of EL31820 (Figure 3).

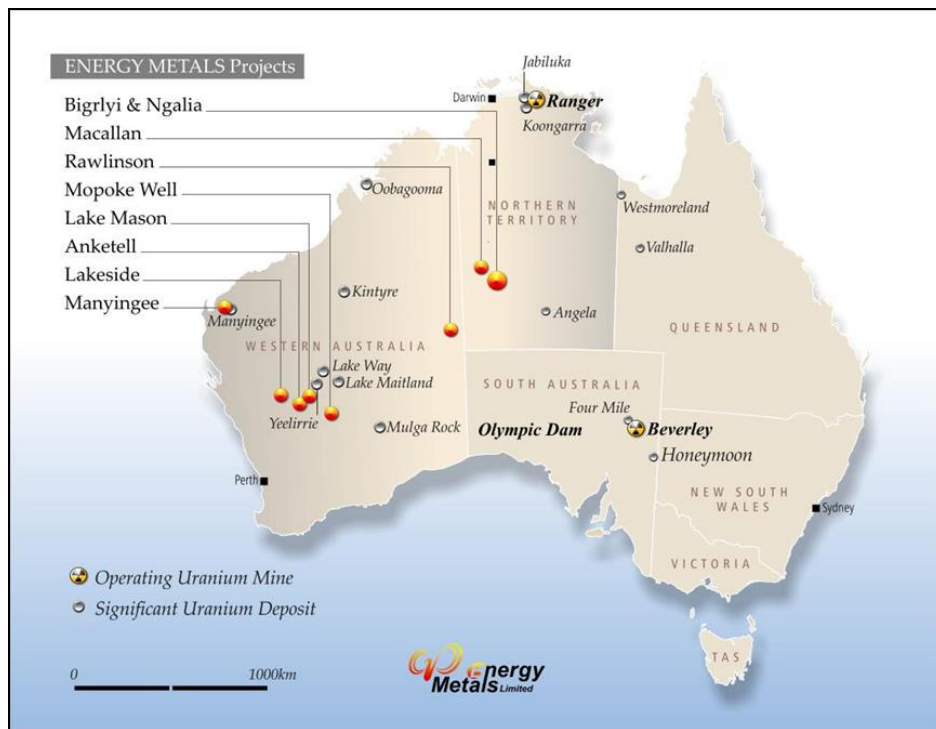


Figure 1: Location of the Bigrlyi and Ngalia Regional Projects (NT).

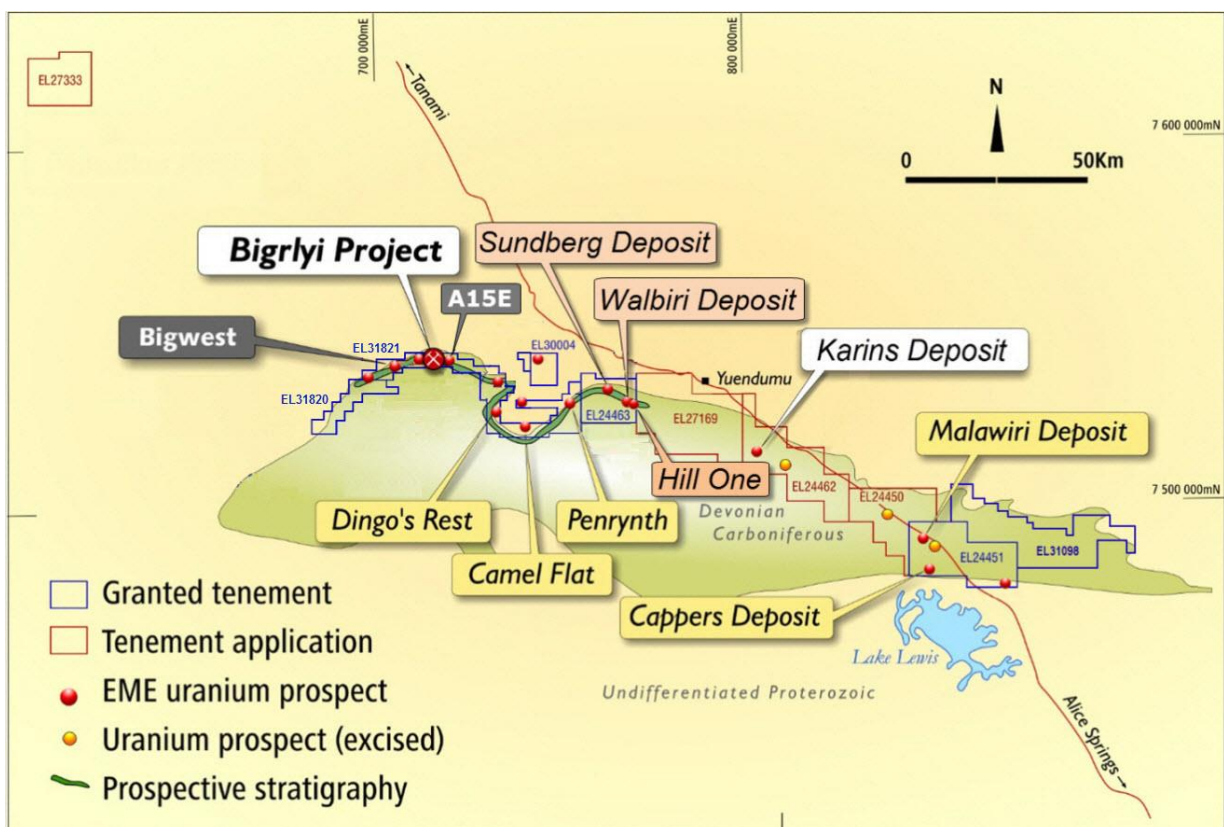


Figure 2: Granted tenements within the Ngalia Regional project area (in blue) and tenement applications (outlined in red). Labeled prospects and deposits are located along the northern margin of the Ngalia Basin with the prospective Mt Eclipse sandstone unit shown in dark green. The Ngalia Basin extent is shown in light green.

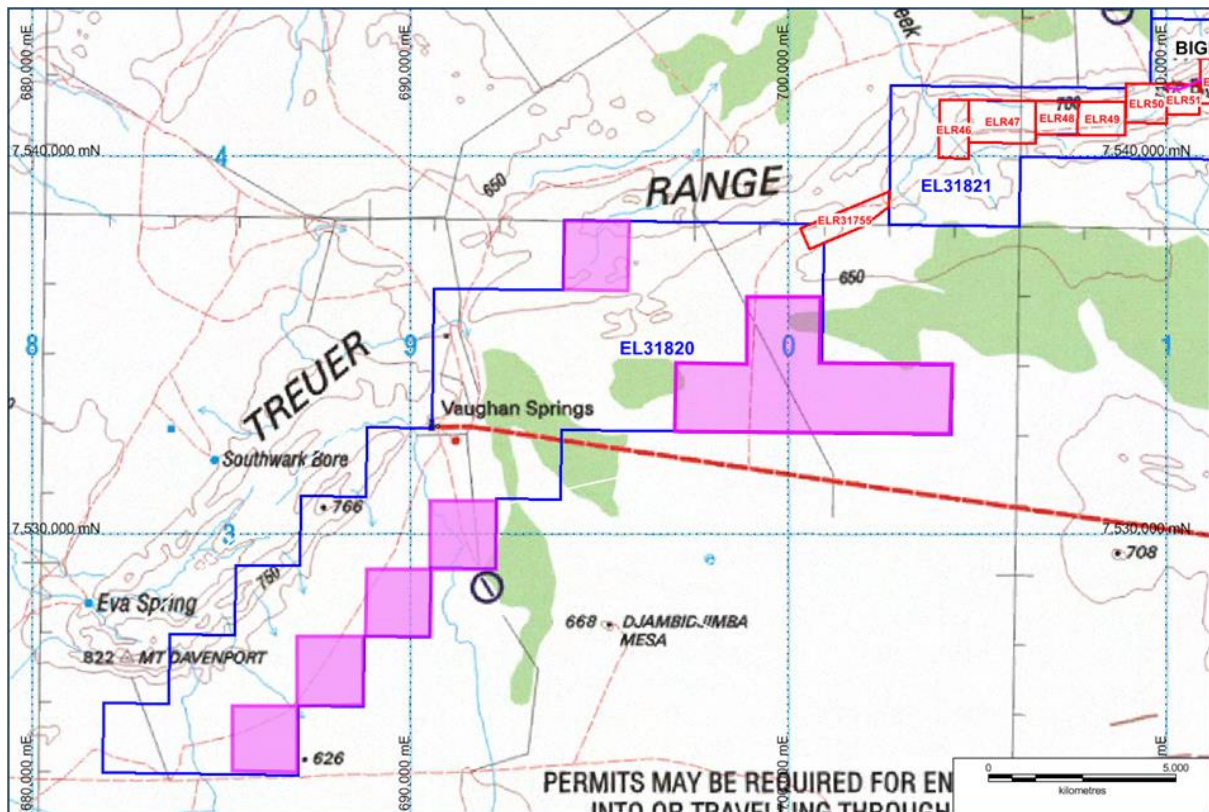


Figure 3: Location map showing EL31820 tenement and neighboring EL31821, Bigwest and Bigryli deposit ELRs in red. Surrendered blocks in pink. Access to the tenement is via the main Mt Doreen Station access road (red dash line).

GEOLOGY & MINERALISATION

The Ngalia Basin is a large 300 km by 70 km east-west elongate intracratonic basin covering an area of approx. 15,000km². The basin contains sediments up to 6,000m thick ranging in age from Neoproterozoic to Palaeozoic which are preserved in an elongate structure that is remnant of a much more extensive, polyphase intracratonic basin (Young et al. 1995).

Within the Ngalia Basin the Neoproterozoic Vaughan Springs Quartzite is the oldest unit and mostly forms ridges along the northern and southern basin margins and contains the Treuer Member, a less-resistant interbedded siltstone and sandstone. The Carboniferous Mount Eclipse Sandstone unconformably overlies the Vaughan Springs Quartzite in the northwest part of the basin and intervening Neoproterozoic and Palaeozoic units, present to the east in the Patmungala Syncline, are missing from the northwest.

The Mount Eclipse Sandstone has a maximum thickness of more than 3,000m and contains the sandstone-hosted uranium mineralisation. It is a medium to coarse-grained feldspathic sandstone, commonly with carbonate cement. Conglomerate, arkose, calcareous sandstone and shale are present as lenses. The rocks are dominantly red (oxidised), although restricted zones of light to dark grey (reduced) sandstone are present mainly near the base of the unit.

The most prominent geomorphological feature within the tenement is the Treuer Range which comprises a range of hills composed largely of Vaughan Springs Quartzite including subordinate shale and quartz sandstone of the Treuer Member. The main outcrop is located within the doubly plunging Vaughan Springs syncline that is fault bound on its northwest and southeast margins (Figure 4). The Treuer Range is surrounded by sand plain and is drained by a number of creeks which in the southeast are associated with runoff areas forming alluvial outflow plains. There are minor areas of granitic basement outcrop in the north and west (Southwark Granite Suite) and in the southeast there is minor outcrop of Mt Eclipse Sandstone with most of this unit buried under sand cover. The Mt Eclipse Sandstone is the primary target for uranium mineralisation in the Ngalia Basin.

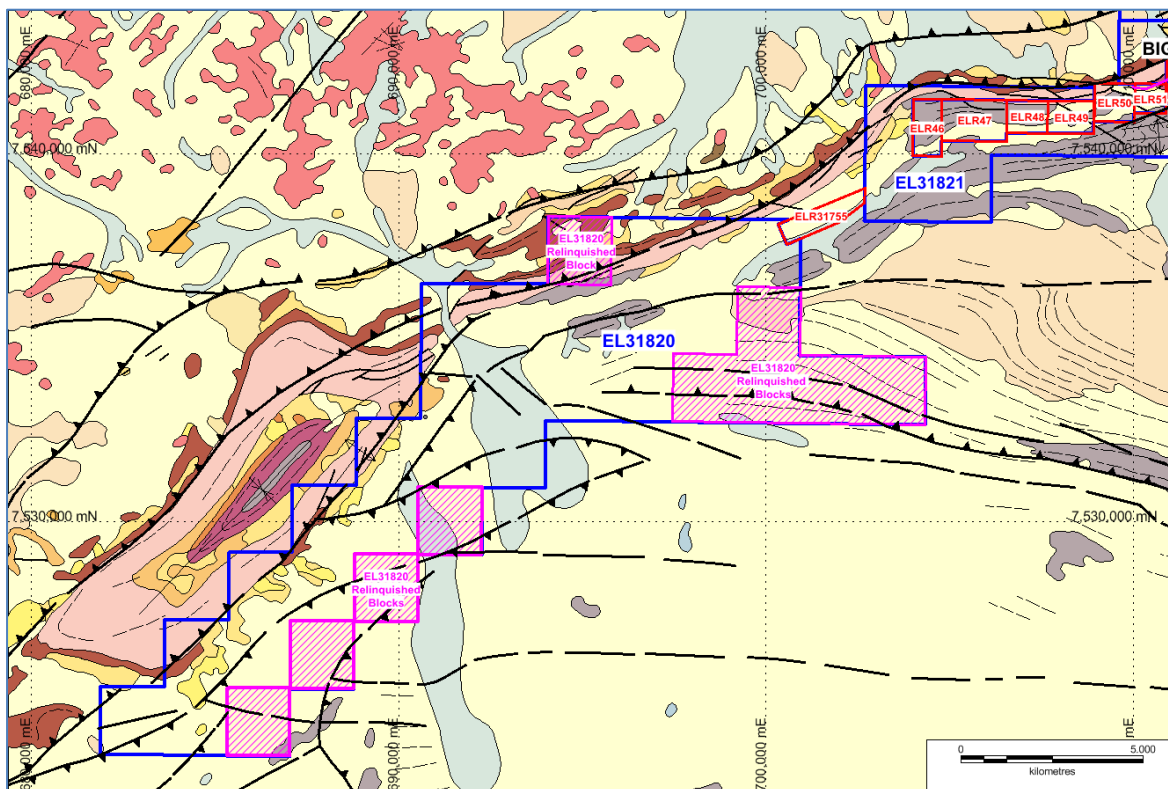


Figure 4: Geological map showing the location of EL31820 area retained (blue outline) and relinquished (pink hatch) on Mount Doreen 250K geology map-sheet background. Mt Eclipse Sandstone outcrop in grey, Vaughan Springs Quartzite in pink. The main features are the Vaughan Springs Syncline & Treuer Range on the northwestern margin of the tenement.

HISTORICAL EXPLORATION

The northern margin of the Ngalia Basin and the Arunta Inlier basement to the north, have been the focus of substantial regional exploration programs since the discovery of uranium mineralisation in the region in the early 1970s. Exploration for various commodities, including diamonds, gold, base metals as well as uranium, has been undertaken in both the Ngalia Basin sedimentary rocks and the adjacent Arunta Inlier granites and metasediments.

Uranium exploration in the Ngalia Basin commenced in 1971 by Central Pacific Minerals NL (CPM) on behalf of various joint venture partners including Magellan Petroleum Australia Ltd, Agip Nucleare Pty Ltd, Urangesellschaft GmbH & Co. and the Atomic Energy Commission.

Sandstone-hosted uranium was initially discovered at the Walbiri and Dingo's Rest South prospects in 1971 followed by Bigrlyi in 1973. Extensive exploration work was undertaken throughout the 1970s involving geological mapping, airborne, carborne and ground radiometric surveying, trenching and drilling. The initial years of CPM exploration focused on defining the Walbiri deposit. Regional exploration throughout the Ngalia Basin occurred simultaneously on a number of other prospects. During 1974 a shift in focus away from Walbiri led to exploration and resource definition work at the Bigrlyi deposit.

At Bigrlyi, radiometric surveying, mapping and trenching identified uranium mineralisation at a series of anomalies, now known as Anomalies 1 to 15 and these comprise the Bigrlyi Project. The anomalies occur intermittently over 11.5 km of strike length, and are hosted by the Carboniferous Mt Eclipse Sandstone south of prominent strike ridges formed by the Proterozoic Vaughan Springs Quartzite. Mineralisation occurs as steeply dipping lenses near or at the boundaries of reduced and oxidised zones within Mt Eclipse sandstone. From 1974 to 1981, drilling programs resulted in definition of a uranium resource in excess of 2,000 tonnes U_3O_8 .

Elsewhere, Afmeco Pty Ltd and AGIP Nucleare explored the Ngalia Basin for uranium at the Dingo's Rest and Camel Flat prospects respectively. During 1977 discovery of the Minerva deposit led to extensive exploration in the southeast margins of the Ngalia Basin followed by the discovery of the adjacent Malawiri prospect in 1978. Joint Venture agreements existed between AGIP, CPM and Urangesellschaft GmbH.

In 1997, Rio Tinto carried out an airborne radiometric and magnetic survey that covered the northern flank of the Ngalia Basin and part of the Arunta Inlier, to the north, including the Bigrlyi Project and the Dingo's Rest prospects. Fifteen anomalies were identified and six were followed up by ground investigations. The most significant uranium anomalies were hosted in fault zones in granitic basement rock, including a best result of 3,950 ppm uranium from east of the Patmungala Syncline.

Energy Metals assumed management of the Bigrlyi Project in May 2005 following the purchase of a 53.3% interest in the project. The Ngalia Regional tenements EL24451, 24453, 24463, 24533 and 24807 were granted in 2006.

Historic work carried out at the largely sand covered and deeply weathered Autobahn prospect included mapping of outcrop to the north and a few short drill holes.

SUMMARY OF ENERGY METALS EXPLORATION ACTIVITIES ON EL31820 (FORMERLY EL24533 & EL31636)

EL31820 contains outcrop of the prospective Mount Eclipse sandstone which is the main host of uranium mineralisation in the northern Ngalia Basin including the Bigrlyi deposit. Exploration on EL31820 was aimed at locating extensions of Bigrlyi style mineralization within Mt Eclipse beds projected southwest from Anomalies 1 & 2 as well as potential Camel Flat-style mineralisation along extensions of the Yuendumu thrust fault system.

Following grant of tenement EL24533 in 2006, activities during the first two years included camp establishment and access works at Bigrlyi, land access negotiations, and validation-digitisation of the extensive historic exploration data.

In years three to six, activities principally involved heritage surveys, geological mapping & reconnaissance, review of Quickbird imagery, and geophysical surveys (magnetic and radiometric survey flown in 2007). An aerial photographic survey was undertaken in 2011. The EL was also part of the joint CSIRO-NTGS-Company Ngalia Basin mineral systems study which ran from 2010 to 2011.

During 2012 to 2013 a program of Gradient Array Induced Polarisation (IP) surveys were undertaken at Bigrlyi and at the Autobahn and BigWest prospects. IP results were encouraging and in 2013 prospective IP anomaly targets were drilled. Twenty-two drillholes were completed at Autobahn prospect, however, although prospective reduced sandstone was intercepted, no drill-holes encountered mineralisation of significance. Collar pick-ups by DGPS and rehabilitation works were finalised in 2014.

As part of ongoing tenement refinement to focus on the most prospective areas, EME systematically undertook a process of tenement reduction in 2016 (refer Taylor, 2016), amalgamation and replacement in 2017 and again in 2018.

Additional details on the works completed over the relinquished blocks during tenure are discussed below. Refer also to group annual reports by Kerr & Liu (2015, 2016) Jordan et al. (2017) and Jordan & Taylor (2018, 2019).

Geophysical Survey 2007

An airborne geophysical survey, providing radiometric, magnetic and topographic data, was conducted over Energy Metals' Ngalia Regional tenements in September 2007 by GPX Airborne. A total of 14,932 line kilometres was flown. The data were processed by Southern Geoscience Consultants (SGC), who meshed the new data with previous Rio Tinto survey data. SGC were subsequently contracted to interpret the imagery in terms of structural and radiometric features.

Figure 5 shows the SGC interpretation of processed magnetic imagery and Figure 6 shows that interpretation overlain on geological outcrop. Radiometric imagery is shown in Figures 7 and 8. Features of note include the strong combined U+Th+K response of the Southwark Granite terrain to the north and west; the weak response of the Vaughan Springs quartzite; the association of drainage-related regolith features with potassium (likely illite-rich clays) and minor thorium-related anomalies west of the

Treuer Range which are probably associated with ferruginous debris shedding from the range (see Figures 6, 7 & 8). No uranium-specific anomalies of any significance were identified.

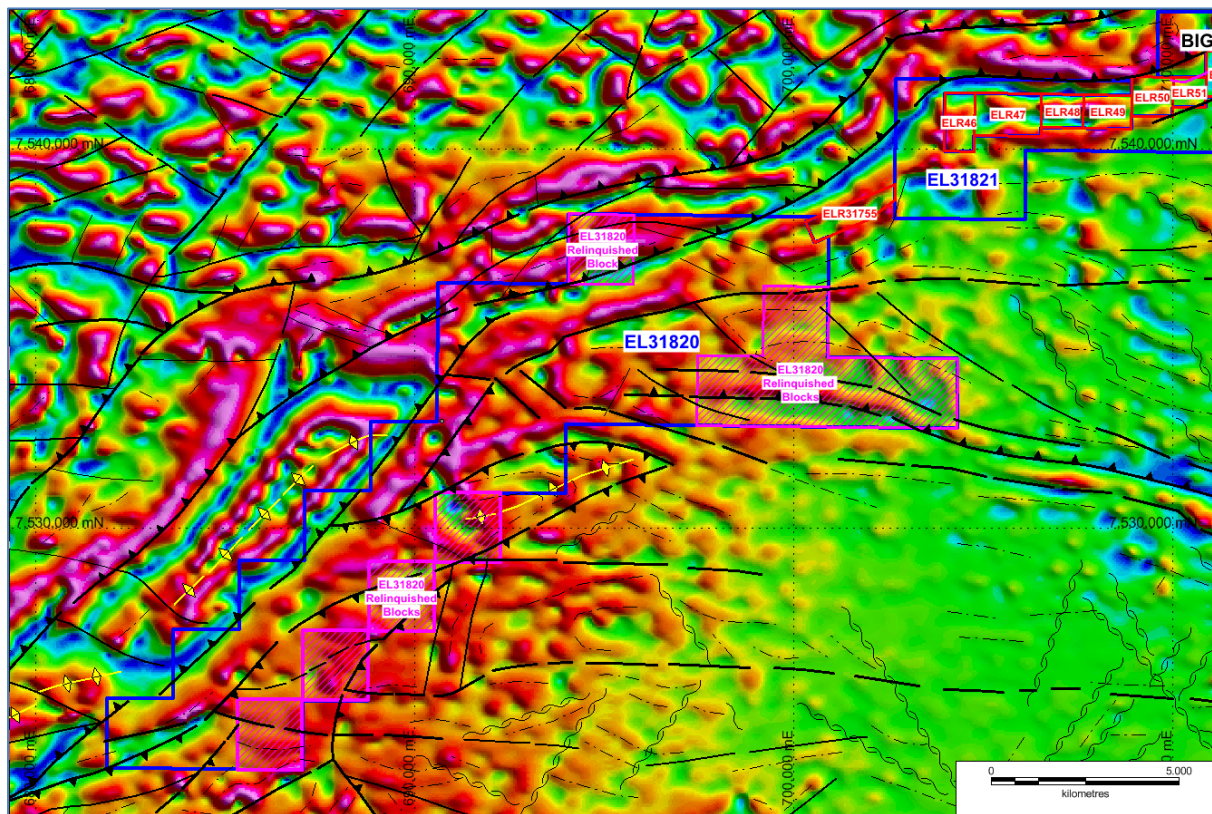


Figure 5: Colour-shaded TMI-RTP magnetic imagery with tilt derivative filter (TDR) applied. Structural interpretation provided by SGC including thrust faults (direction of overthrust indicated), major and minor faults (black lines), fold axes (yellow), fracture zones (S-pattern lines) and bedding or lineament trend directions (dot-dash lines). EL31820 boundary (blue), Relinquished blocks (pink hatch).

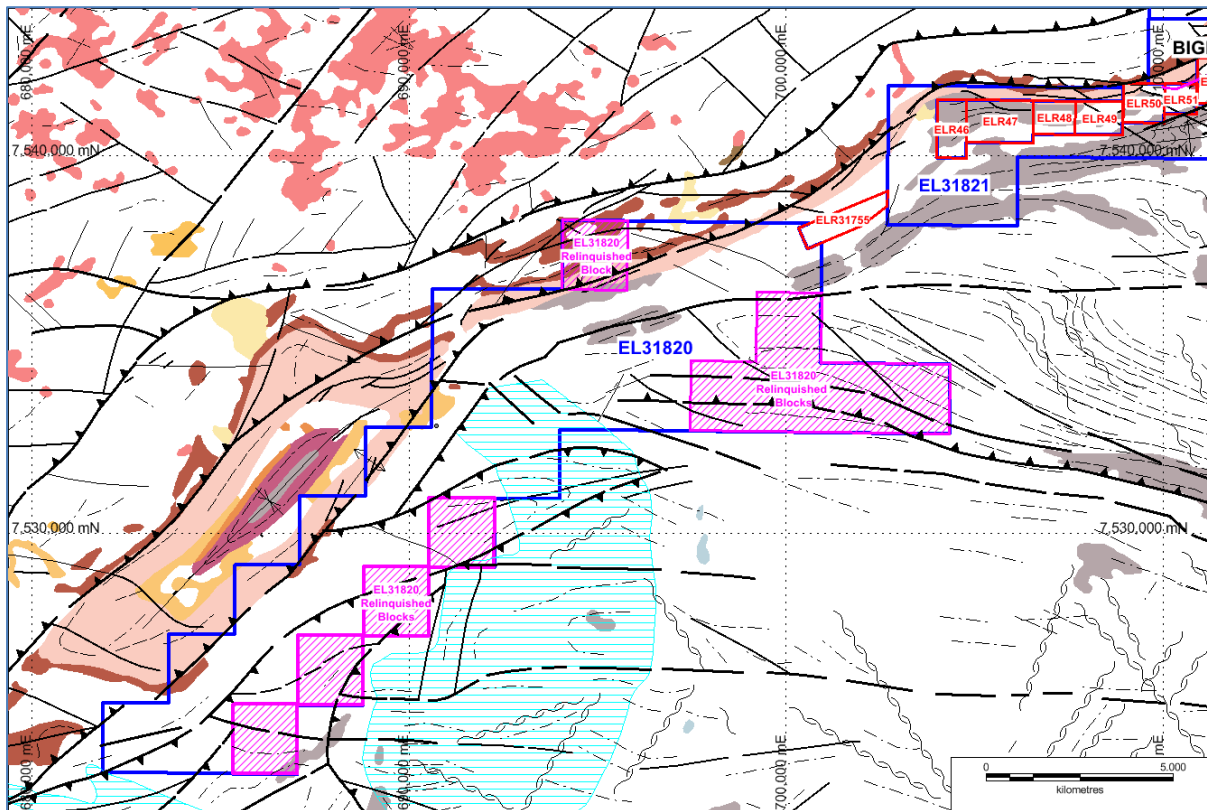


Figure 6: Outcropping geological units from Mt Doreen 250K map-sheet shown in relation to SGC structural interpretation (see Figure 4). Red = Southwark Granite; pink = Vaughan Springs Quartzite; brown = Treuer Member; Purple = Djagamara Formation; Grey = Mt Eclipse sandstone; Orange colours = Cenozoic deposits; Blue stripe area = drainage-related radiometric feature, EL31820 boundary (blue), Relinquished blocks (pink hatch).

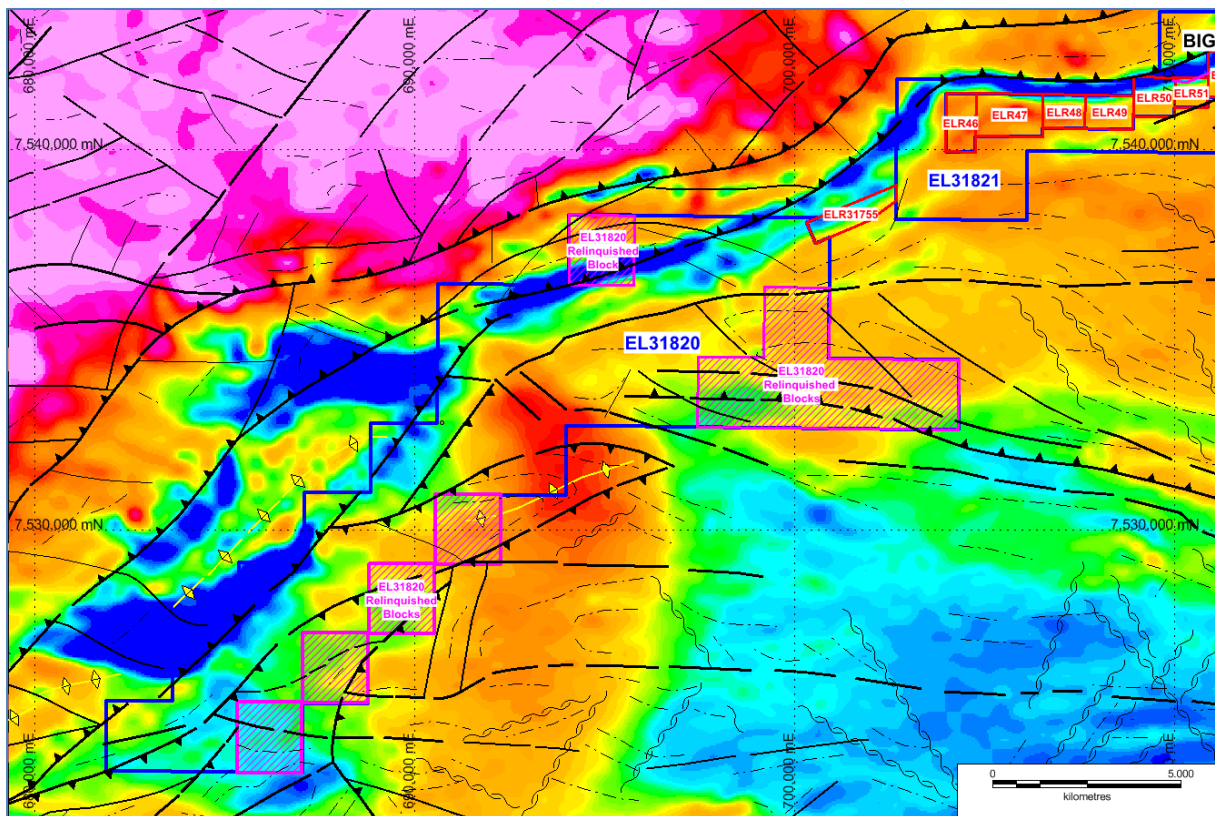


Figure 7: Total-count radiometric response map with overlaid structural interpretation. Note the strong response (pink colours) of the granite terrain to the west and north; weak response of the Vaughan Springs Quartzite (blue) and regolith features in red/orange colours, EL31820 boundary (blue), Relinquished blocks (pink hatch).

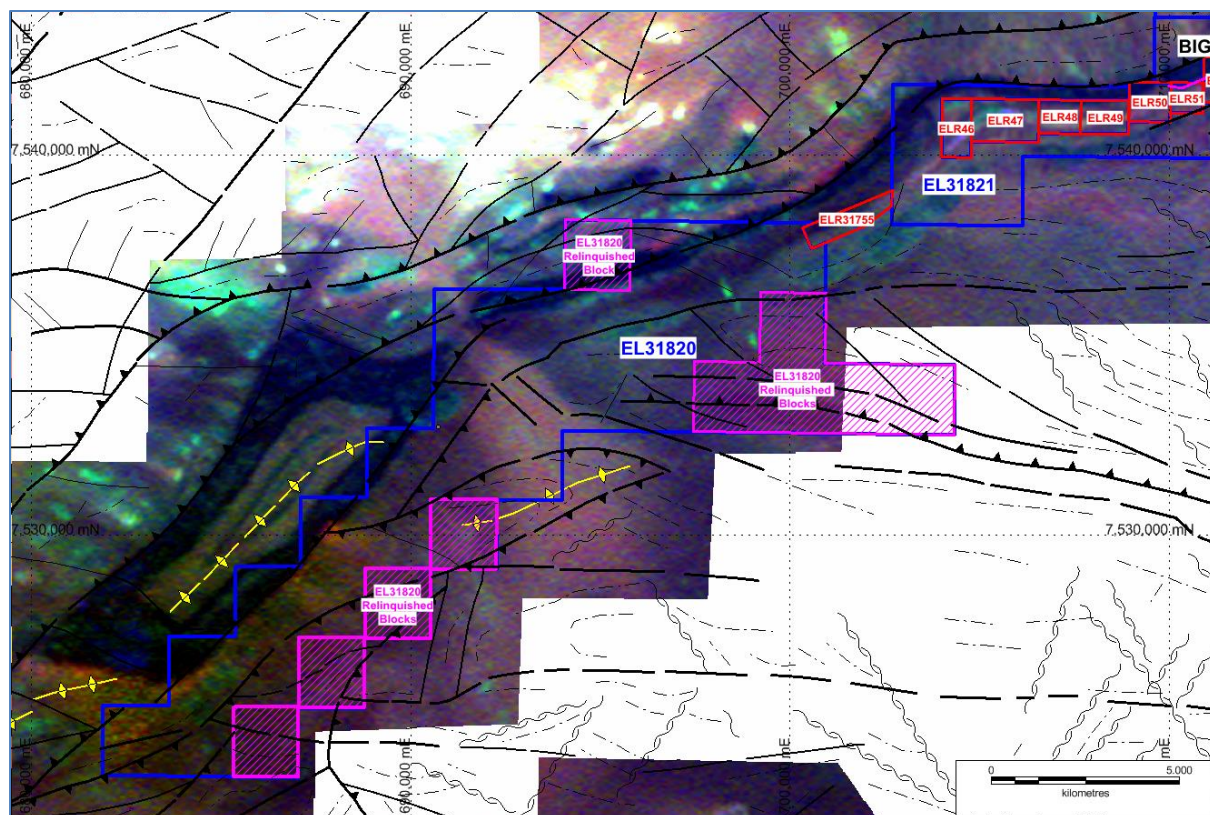


Figure 8: Ternary RGB radiometric map with overlaid structural interpretation. R(red) = potassium; G(green) = thorium; B(blue) = uranium. Note the strong U+Th+K response of the Southwark Granite terrain to the north and west; weak response of the Vaughan Springs Quartzite (dark); association of drainage-related regolith features with potassium (red-brown colours) and minor thorium-related anomalies west of the Treuer Range which are probably associated with ferruginous debris shedding from the range. EL31820 boundary (blue), Relinquished blocks (pink hatch).

High Resolution Satellite Imagery 2008

Quickbird High Resolution satellite imagery was obtained for a large portion of EL24453 and EL24533. This was to generate exploration maps/targets for step out drilling from the Bigirlyi deposit into 100% Energy Metals tenements. The imagery was also used for regional reconnaissance exploration activities.

Research Collaboration 2010-2011

The CSIRO-JSU Ngalia Basin mineral systems study, a uranium mineral systems analysis of the Ngalia Basin by the CSIRO in collaboration with the NTGS, Energy Metals Ltd, Thundelarra Ltd and Cauldron Energy Ltd was completed in mid-2011. As part of the program, the compilation and interpretation of all the existing data across the Ngalia basin including: seismic; gravity, magnetics, EM & radiometrics; drill hole

data; petrophysics; mapping, surface sampling, available airborne & satellite-borne data and any existing 3D geological interpretations was undertaken by CSIRO. The study report is available via NT DPIR.

Digital Aerial Photography Acquisition 2011

A digital aerial photographic survey over the Bigirlyi Project and parts of the Ngalia Regional Project area was undertaken by Fugro Spatial Solutions Pty Ltd in July 2011 at a pixel resolution of 10cm. Southern Geoscience Consultants processed the survey data which included; GIS format aerial photographic imagery and DEMs.

Negotiations with Traditional Owners

CLC heritage notifications were lodged for drilling activities at various times. The clearance programs involved the Traditional Owners who identified a significant number of cultural sites mainly located within the Treuer Range area; a large sensitive zone was outlined as shown in Figure 9. In some areas of this zone, ground disturbing activities are not permitted. The site covers most of the Treuer Range and surrounds and has significantly impacted exploration activities, including drilling programs on the tenement.

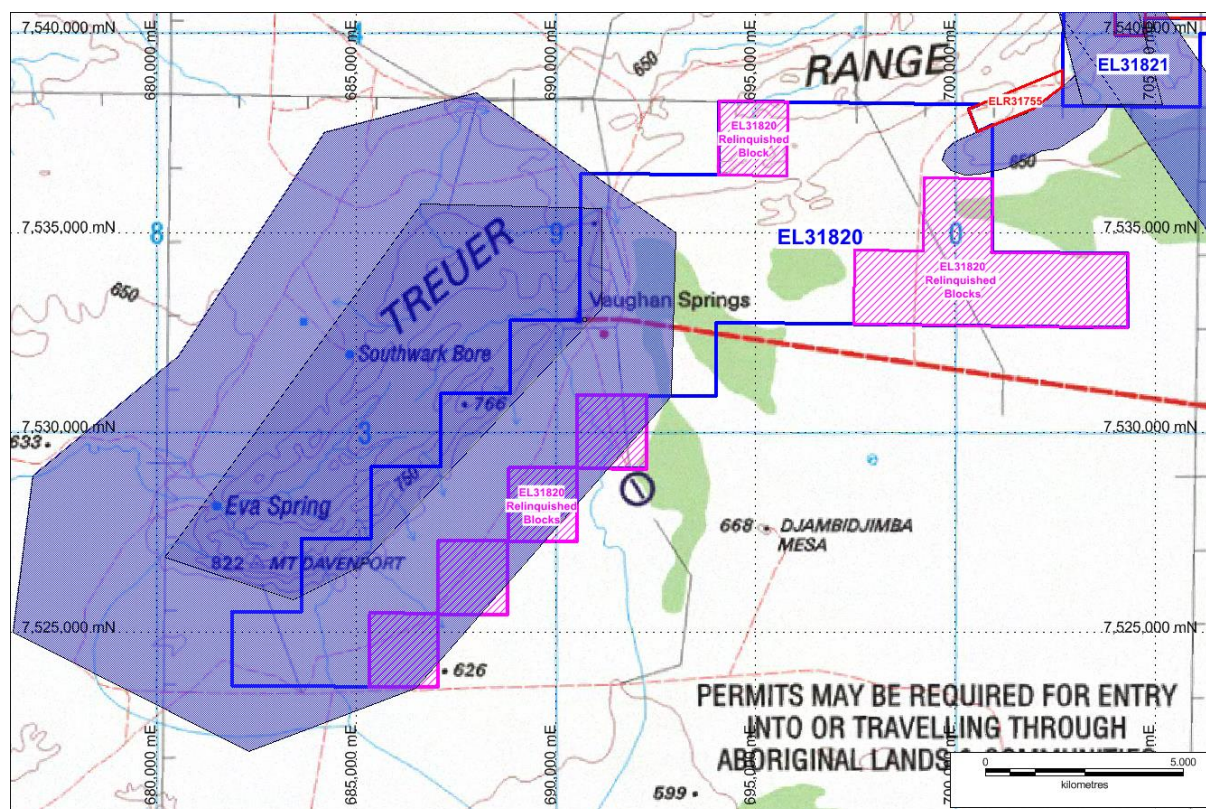


Figure 9: EL31820 areas surrendered (pink hatch) in relation to Aboriginal Heritage Areas (in blue stipple) and the retained area (in blue).

On 30th June 2017 EME received a Notice of Intention to issue a Replacement Title to EL24533 due to its amalgamation with two adjacent blocks of EL30006. On 20th July 2017 EL31636 took effect. Upon issue of the Exploration licence EL24533 was automatically cancelled.



During 2017 a number of Mount Eclipse Sandstone locations were selected and visited for reconnaissance assessment. The primary reason for these investigations was to get a better understanding of the geology, especially the structure and stratigraphy as outcrop is sparse in some areas and the 1:250K mapping of this unit is undifferentiated.

Outcropping Mt Eclipse Sandstone located just south of EL31820 was visited (Table 1) to confirm stratigraphic relationships. The outcrop was determined to be conglomerate of the basal Mt Eclipse which is too low in the stratigraphy to contain any prospective mineralised beds.

Table 1: Field reconnaissance near EL31820 - Basal Mount Eclipse Outcrop

Waypoint Name	MGA_E	MGA_N	Radeye (cps)	Comments/Notes
Wpt85	679103	7521035	20	Low hill consisting of clast-supported cobble conglomerate; matrix comprises coarse sand and kaolinite. Outcrop strikes 030 – shallowly dipping to flat lying massive conglomerate beds. Clasts up to 80cm size of well-rounded cobbles & boulders of quartzite, metamorphic rocks, granite, silicified sandstone and mudstone. Assigned to basal Mt Eclipse conglomerate - fluvial outwash proximal to older basement. Some hills 1.5km to SE are capped by highly ferruginised sandstone. All units have background radiometric signatures.

Tenement Replacement 2018

In late March 2018, following a review, Energy Metals elected to relinquish four southernmost blocks of EL31636 deemed to be non-prospective and retain those parts of the tenement that includes the prospective Mount Eclipse Sandstone which is primarily undercover in the area. Occurring simultaneously with the partial relinquishment, four blocks of EL24453 were amalgamated with EL31636 and a replacement title (EL31820) issued (Figure 11).

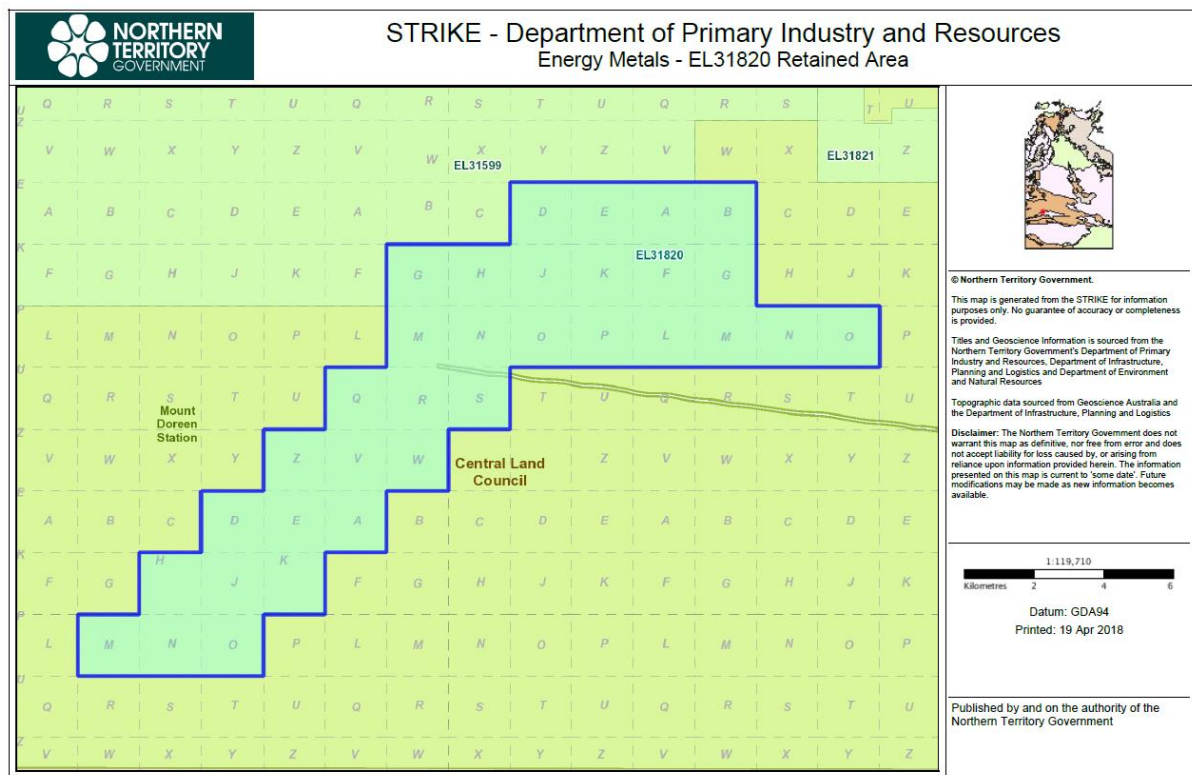


Figure 11: 2018 Tenement map showing replacement title (EL31820) of EL31636 which includes amalgamated blocks of EL24453.

Exploration Activities on Relinquished Blocks of EL31820

Since grant the ten relinquished blocks of EL31820 which largely comprise regolith-cover over Mt Eclipse Sandstone and basement metamorphic rocks, have had no on-ground exploration works conducted on them. This includes the 2012 to 2013 Gradient Array IP surveying and 2013 drill testing at the Autobahn prospect which do not overlap any relinquished areas. In 2018 a prospectivity review was conducted by EME and three areas were recommended for relinquishment (refer Figure 12).

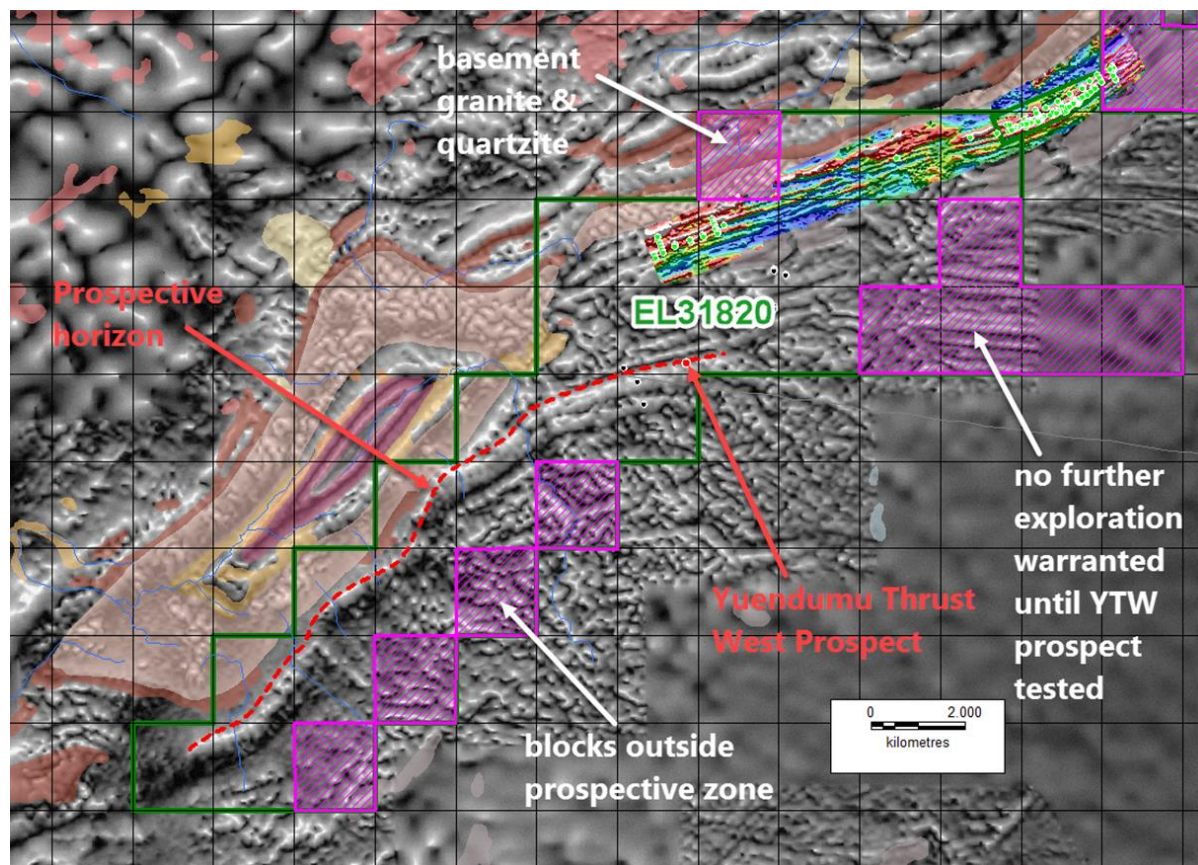


Figure 12: The area of 10 blocks shown above (pink hatch) is targeted for surrender because it comprises non-prospective Proterozoic metamorphic basement in the north, blocks outside the prospective zone and blocks east of the Yuendumu Thrust West (YTW) prospect where further exploration depends on positive drill testing of the YTW prospect.

CONCLUSIONS

Due to assessed low prospectivity for uranium mineralisation, ten blocks of EL31820 have been nominated for relinquishment. The areas consist of one block on the northern boundary comprised of non-prospective Proterozoic metamorphic basement, four blocks along the northeastern boundary east of the Yuendumu Thrust West prospect & four blocks down the southeastern boundary comprised of regolith covered Mt Eclipse Sandstone which are outside the prospective horizon.

Since grant the ten relinquished blocks of EL31820 have had no on-ground exploration works conducted on them.

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