ANNUAL TECHNICAL REPORT for the period

29th November 2012 to 28th November 2013

Exploration License 29616

OPERATED BY

NORTHERN MINERALS LIMITED

ANNUAL REPORT

TENEMENT	EL29616
NAME	ANNUAL EXPLORATION REPORT EL29616 FROM 29TH NOVEMBER 2012 TO 28TH NOVEMBER 2013
ACTIVITIES	EXPLORATION
PREPARED BY	ROBERT JEWSON
DATE	JANUARY 2014
NTU-REPORT NO	2014-03

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Declaration

To the best of our knowledge, this document conforms to the format outline for an annual report, as shown by the Northern Territory Geological Survey- Minerals and Energy Division website.

SUMMARY:

Location: The tenement is located in central Northern Territory. The town of Tennant Creek is located approximately 80km northwest of the project area.

Geology: In the region, there are no outcrops of Archaean or late Precambrian lithologies, and the Phanerozoic sediments in the Middle Precambrian have been age dated by fossil samples. During the Palaeozoic era, the sediments and igneous lithologies of Precambrian age from the Davenport and Murchison Ranges created a semi-barrier separating the Wiso Basin from the Georgina Basin.

Work Done: There was an interpretation of the geophysics (magnetics) which formed the basis of a structural interpretation. The radiometrics imagery for the project area was used to understand the underlying lithologies and their composition. A compilation of all historical exploration data was conducted.

Conclusions: Through the process of the structural and lithological interpretation conducted using the available magnetic data a detailed understanding of the underlying geology was attained. The historical exploration data will require analysis and interpretation in order to determine if targets warranting further investigation occur within the tenure.

Results: An updated geological interpretation of the project area has been constructed which will assist with future exploration targeting and planning. In addition it is proposed that an analysis and interpretation of the historical exploration activities conducted across the project area in order to determine the potential of hosting economically significant mineralisation.

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1. SUMMARY

This report is the Annual Report for tenement EL29616 to the Northern Territory Department of Mines and Energy. The report details the exploration activities between 29th November 2012 and 28th of November 2013.

2. INTRODUCTION

The project is located in central Northern Territory. The registered holder is Northern Minerals and Tungsten West NL is the operating company.

3. LOCATION, CLIMATE AND ACCESS

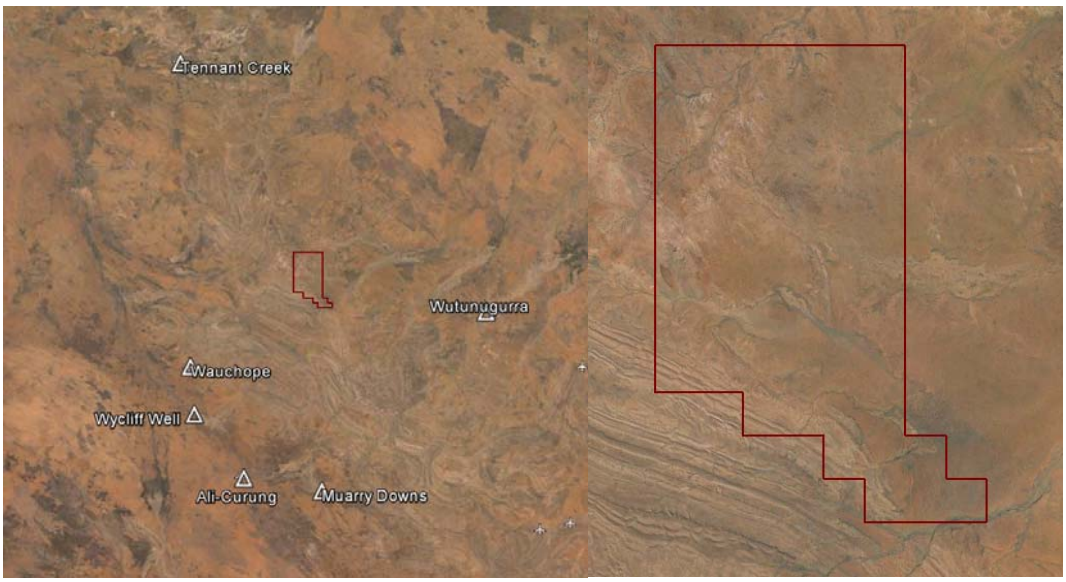

Figure 1 Satellite Imagery

The tenement is located in central Northern Territory. The township of Tennant Creek is located approximately 80km north-west, Wutunugurra is situated approximately 57km east, Murray Downs is 68km south and Alice Springs is located 372km south of the project. The project is covered by the Ooradidgee 1:100,000 map sheet of (5857) and the Bonney Well 1:250,000 map sheet (SF 53-02).

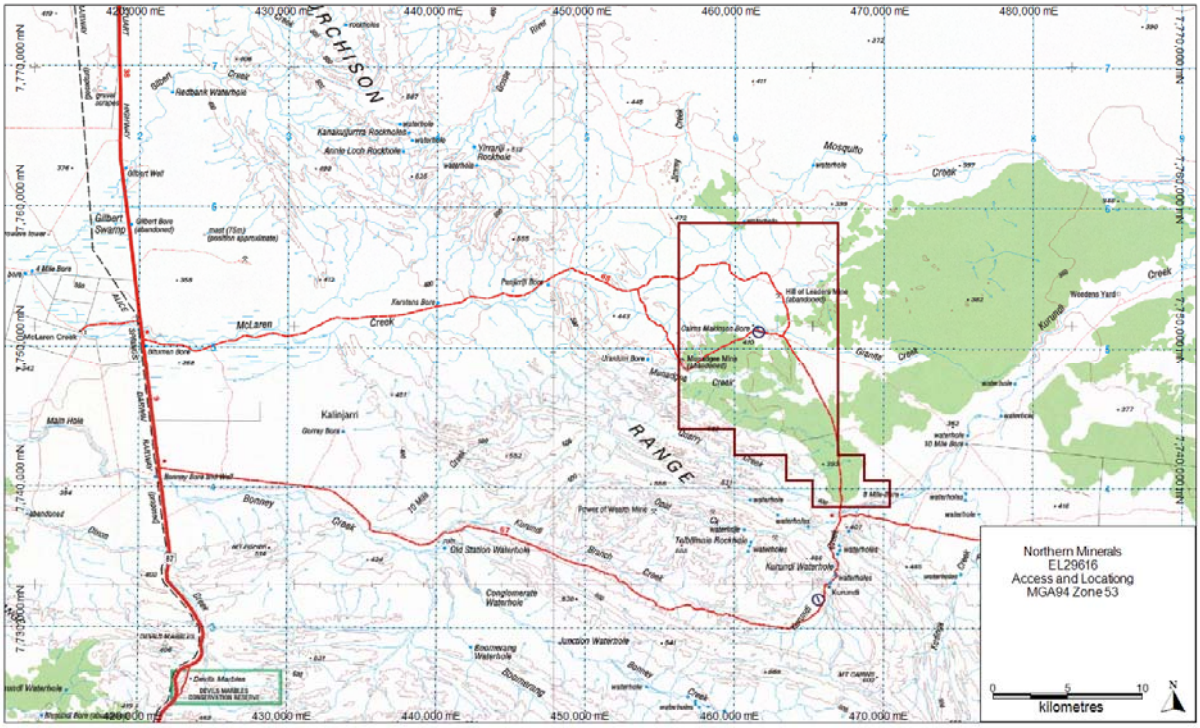

Figure 2 Access and Location

The Stuart Highway leaves Tennant Creek in a southerly direction and passes to the west of the area by 36km. Unsealed roads, station tracks, fence lines, abandoned mine roads and water bore tracks off Stuart Highway are used to access the tenement and the entirety of its area. It is necessary to take a vehicle with four wheeled drive capabilities (4WD).

Topographically, the southern area overlies part of the Murchison Range with long, steep – sided, narrow to broad, ridges and valleys. Adjacent to the Murchison Range are areas of dissected terrain consisting of low ridges and hills of sedimentary, volcanic and granitic rocks. An erosional, weathered surface with little organised drainage covers the area in the eastern third of the tenement. Kurundi and Whistleduck Creeks are areas of alluvium and may have surrounding areas of dune fields and sand plains.

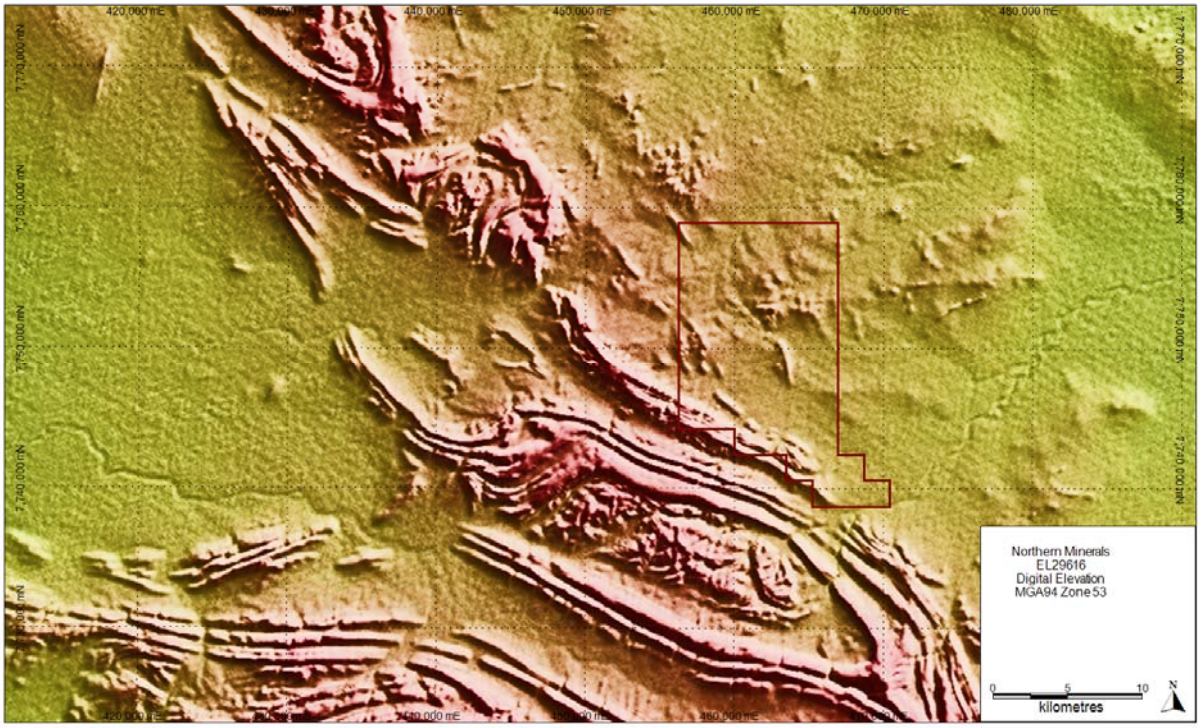

Figure 3 Digital Elevation Model

Elevation ranges from 350m in the east to over 500m in the southwest of the project area. The southwestern and southern ranges display a mostly erosional regime grading to residual in the northwest, to more depositional in the drainage channels in the northeast. All areas can be overlain by Quaternary colluvial and alluvial cover. Intermittent lateritic duricrust and back slope material of uncertain age is also evident, in particular in the central tenement area. The laterite often displays a vermiform texture and a relatively vuggy matrix. The texture indicates an in-situ lateritic duricrust that has undergone little deflation due to top-loading.

The eastern margin of the tenement is characterised by broadly undulating woodland with intermittently spinifex covered plains. Vegetation is generally most dense in drainage areas and an increase in termite mounds can also be observed in these regions.

The southern area is occupied by prominent hills belonging to a portion of the northeastern boundary of the Murchison Range. Skeletal soils and scree form the dominant regolith type over many of the more elevated ridges and ridge slopes. Ridge caps are often outcrop exposures while hill sides generally consist of uphill sourced colluvial material.

The northern area of the license is dominated by granite which forms prominent tors in several places. The granite is thinly mantled by unconsolidated dominantly quartz and feldspar sands. A number of large quartz ridges also transect this area.

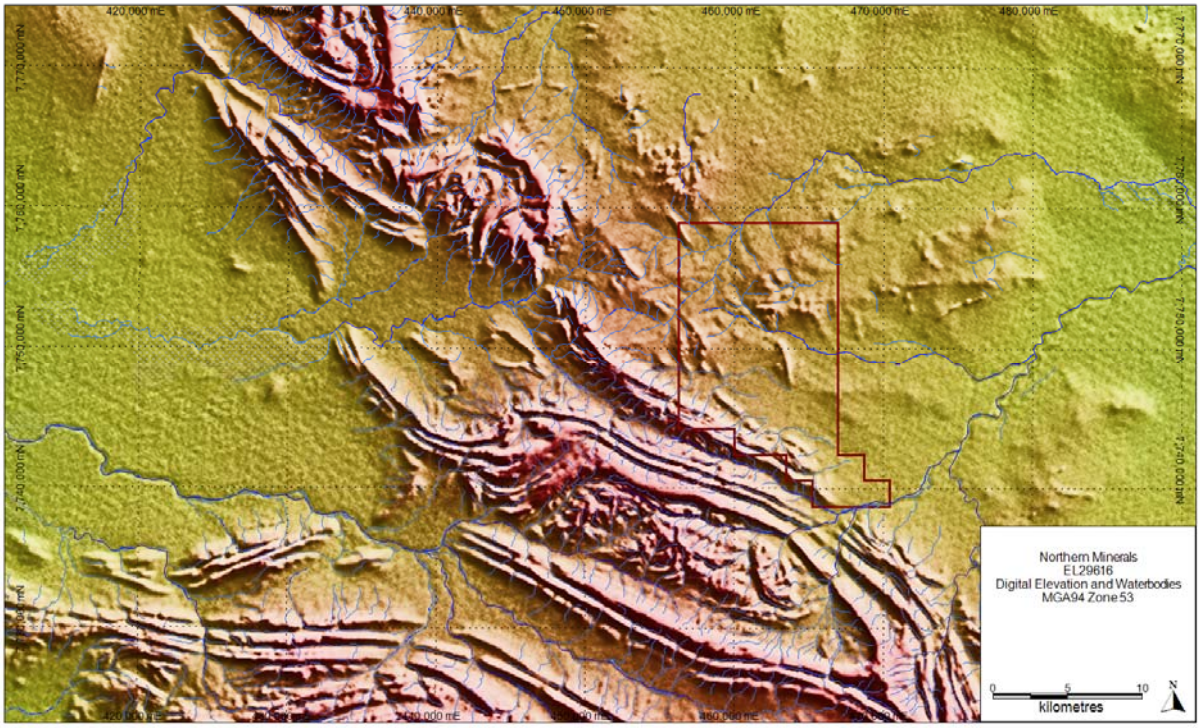

Figure 4 Elevation and Waterbodies

Major streams are bound by extensive open grasslands and often provide the best access into areas. The southwest to northeast oriented Kurundi Creek drains and lies immediately south of the project area. It is fed by the centrally located, east flowing Granite Creek on its western flank. The Mosquito Creek, situated near the northern boundary of the license, merges with the Kurundi Creek in the Fork Creek Bore area and forms a large floodplain, significantly east of the project area. Steep gullies and gorges drain the Murchison Range while gentle silt filled depressions as well as steeply incised creeks form the main tributaries on the plains.

All streams flow intermittently during the ‘wet’ season which ranges from October to March. Numerous waterholes are located along the individual streams, although few are permanent. Annual rainfall is in the region of 300mm.

4. TENURE

The tenement is held by Northern Minerals and the company managing the project is Tungsten West NL. The area was granted on the 29th of November 2012, and expires on the 28th of November 2014. The area of the project is 190.5km^2.

Table 1 Tenement Summary

Tenement#	Project#	Holder#	Commence#	Expiry#	Area#	Units#
EL29616	Kurundi	Northern Minerals	29/11/2012	28/11/2014	66	BL

5. REGIONAL GEOLOGY

In the region, there are no outcrops of Archaean or late Precambrian lithologies, and the Phanerozoic sediments in the Middle Precambrian have been age dated by fossil samples. During the Palaeozoic era, the sediments and igneous lithologies of Precambrian age from the Davenport and Murchison Ranges created a semi-barrier separating the Wiso Basin from the Georgina Basin.

Archaean rock units are perceived to lie under sand cover in the west. Sub-cropping lithologies include quartz, feldspar and garnet gneiss, amphibolite and magnetite rich rocks . These units are interpreted as forming part of the Arunta Complex which crops out over a large part of the southern Northern Territory.

The tenement lays within the Davenport Province on the southern part of the Tennant Creek Inlier. The regional basement rocks are Proterozoic (1870Ma) deep water marine inter-bedded greywacke, siltstone and minor porphyritic felsic volcanics of the Warramunga Group, which were moderately to tightly-folded about 1810Ma. The Warramunga Group is intruded by members of the Tennant Creek Supersuite. This includes the Hill of Leaders Granite (Pgb) which crops out extensively in the northwest of the tenement area. It is a multi-phase, fractionated granite and is characterized by large (+5cm) orthoclase phenocrysts. The observed coarse-grained biotite granite may represent another phase of the Pgb. The easterly flowing Munadgee Creek and the NW flowing Kurundi Creek mark the southern boundary of the Granite which is otherwise enclosed within Warramunga Group.

The Kurundi Anticline lies in the south west corner of the tenements and the nose of the McLaren Syncline wraps around its northern side. This marks the northern boundary of the Wauchope Fold Belt. This area is composed of the Hatches Creek Group (HCG), which is composed of shallow water sedimentary rocks (arenites, felsic and mafic volcanic, siltstone, mudstone, shale, carbonates and possible evaporates) deposited sometime between 1810Ma and 1640Ma. Quartz arenites usually occur as ridges and lithic or feldspathic arenites often have a clay or micaceous matrix and are recessive. Three subgroups of the Hatches Creek Group, including theHanlon Subgroup, Wauchope Subgroup and Orradidgee Subgroup, are present in the tenements.

The Pre-Cambrian outcrops of the region are the Warramunga Group and the HCG, including intrusions. The Warramunga Group is the elder of the two groups, and presents as low peaks and mesas along the margins of the Murchison Range, as well as low rises in the northeast.

The HCG overlies the Warramunga Group, with an angular unconformity between the two stratigraphic successions. These groups outcrop in several locations within the region, yet detailed surveys of the individual lithologies within these groups and their extents has not been completed. The outcrops of the Hatches Creek Group present as prominent strike ridges, and in valleys separating the ridges. The ridges consist of mainly coarse to medium grained silicified quartz sandstone, sub-rounded with thick to medium bedding or cross bedding. There is also a ripple marked feldspathic sandstone, with minor pebble conglomerate near the base of the sequence. The valleys lithologies are described as softer sandstone, with greywacke, shale, siltstone and lavas. In terms of volume, basic lava predominates, yet the acid volcanics crop out more prominently. The basic lithologies are dark, fine grained and strongly epidotized.

The intrusive rock units consist of varieties of Precambrian granite and some porphyritic intrusions in the Warramunga group. The main granitic outcrops are in the north east. The rocks in the north east are foliated, coarse grained porphyritic muscovite, biotite adamellite. There are phenocrysts of microcline and perthite and are generally about an inch long. There are numerous xenoliths of dark grey and black basic rocks, and extends discontinuously. The granite intrudes the Warramunga Group but not the Hatches Creek Group.

Several late mafic and aplitic dykes as well as pegmatites intrude the Hill of Leaders granite and can be inferred in the aero magnetics. These may form an important association with wolframite and scheelite mineralisation in the Mosquito Creek Tungsten Field. Large linear and curvilinear quartz- and quartz hematite veins appear to define the contacts of the major granite phases. The veins often display cataclastic breccia clasts up to decimeter scale suggesting a relatively high level of emplacement.

Middle Cambrian shallow marine and sub-aerial sediments including siltstones, micaceous arenites and minor grit and conglomerate phases overlie the earlier lithologies in the northeast.

Tertiary and younger sediments are widespread and together cover a large proportion (approximately two thirds) of the area. The Tertiary rocks crop out in the long belt trending northwest, and consist of white and brown limestone and chalcedonic limestone. The outcrops are low and sporadic, with the true thickness and length being unknown. The age of the limestone is unknown, but they appear lithologically similar to those confirmed as being of Tertiary age in other areas.

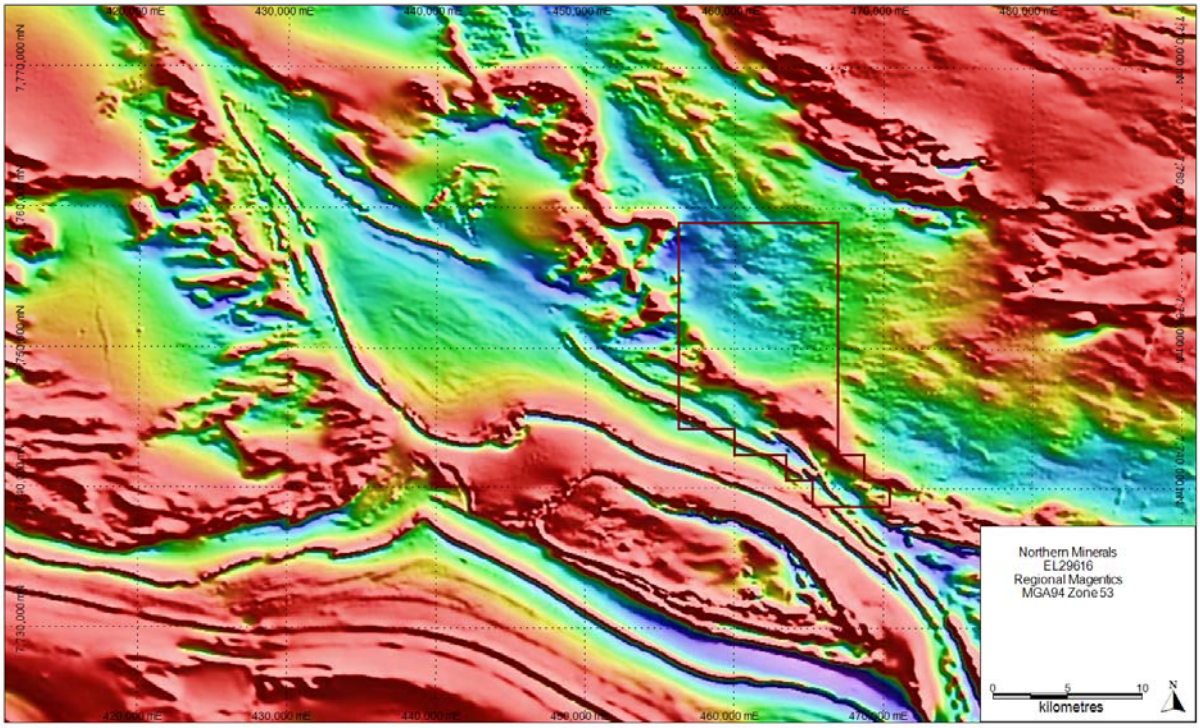

Figure 5 Regional Magnetics

Overlying the tertiary sediments is a mixture of sand, soil, gravel, alluvium, clay and poorly consolidated arkose. The thicknesses of these loose sediments vary.

The region has undergone poly-phase deformation and been moderately- tightly folded (especially obvious in the Murchison Ranges to the south). Regional northwest – southeast trending shear zones inferred by the NTGS transect the south western quadrant of the tenement. The more intense deformation appears to have affected the Ooradigee group with several intense zones of shearing evident on the ground and backed by linear features on the aero magnetics. Some of the contacts with the Hatches Creek Group may in fact be structural.

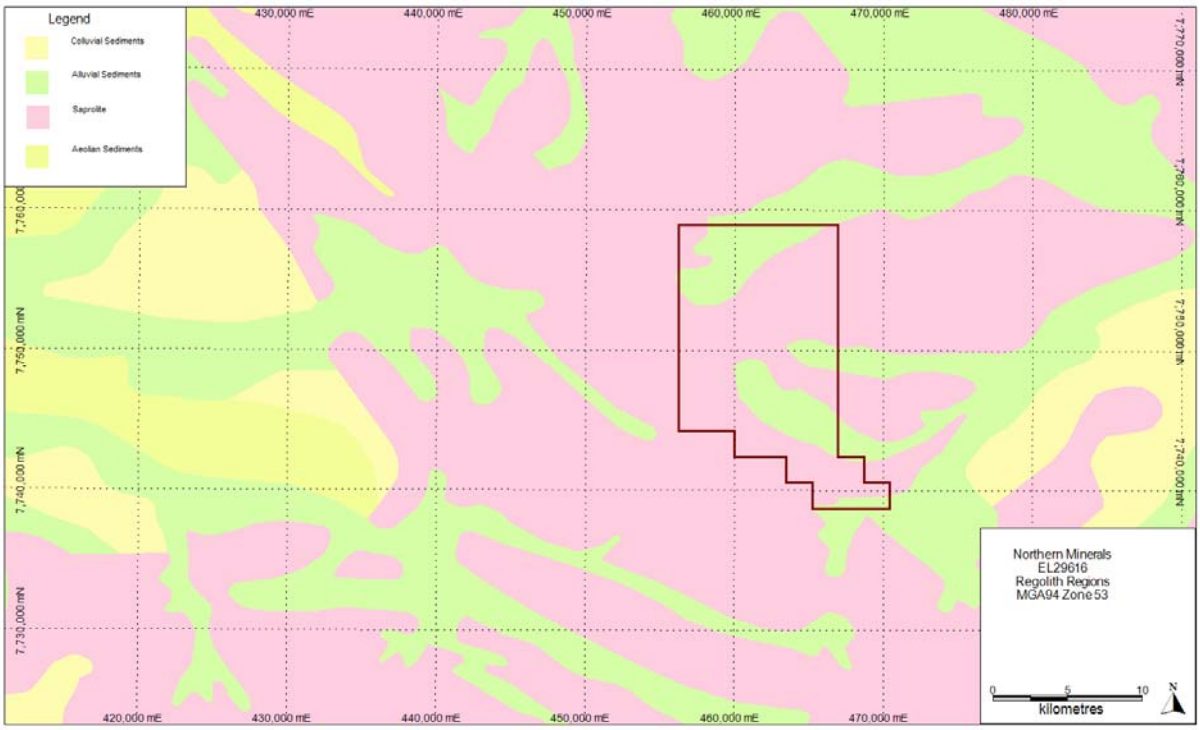

Figure 6 Regional Regolith Geology

A large structure is evident on the aero magnetics with a southeast – northwest trend crossing the Hill of Leaders granite in the vicinity of the old tungsten mines. It is expressed as a linear magnetic low trending over several kilometers. Warping of lithologies associated with late granite intrusions may have occurred locally and affected orientations of the regional structures locally. The strength of these signatures is relative to the size and distance from the intrusive bodies.

Late brittle faults with a roughly north-northwest to north orientation offset lithologies by tens of meters. This is particularly evident in the HCG sediments where drainage channels often exploit these fault zones.

6. LOCAL GEOLOGY

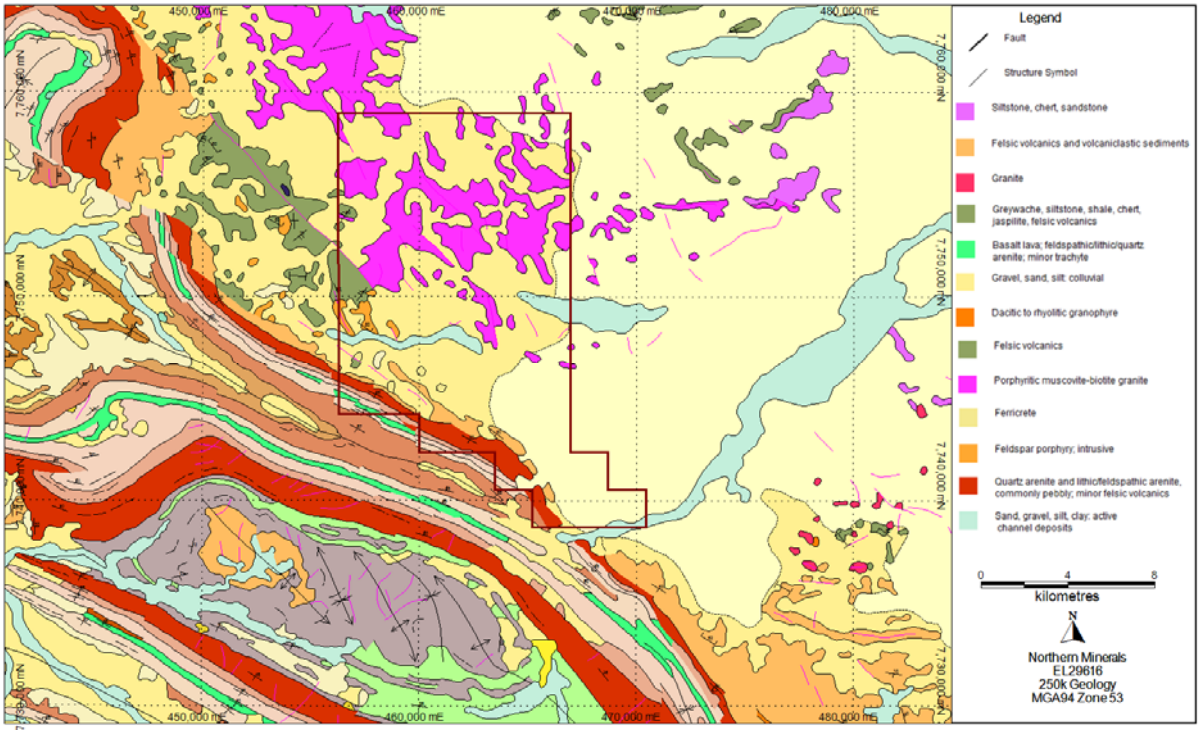

Figure 7 1:250,000 Geology Data Set

6.1 Lithology

Four distinct rock packages have been recognized in the Munadgee area namely, the Warramunga Group, volcanics of unspecified origin, the Hill of Leaders granite suite and the overlying Hatches Creek Group. The Hill of Leaders granite forms an elongate body trending sub parallel to the regional NW – SE strike. It appears to be of relatively uniform composition and is traversed by several late dykes and structures.

Warramunga Group sediments are situated in an anastomosing belt, wedged between the Hill of Leaders granite to the NE and the younger Hatches Creek Group sediments to the southwest. HCG sediments dominate the southwestern corner of the area investigated. Several conglomerate outliers have been mapped although the main contact between the former and Warramunga sediments appears to be faulted. Volcaniclastics with an unspecified grouping dominate the southeastern extension of the Warramunga sedimentary package. The NTGS has placed the volcanics into a suite younger than the Hill of Leaders granite, however aeromagnetic and structural data indicates that they are heavily deformed and folded and precede the granitoid. Minor volcanic units are present elsewhere in the Warramunga Group and it is likely that the lithologies belong to this rock suite.

Volcanic and sedimentary lithologies dominate in the immediate vicinity of Munadgee . A northwest to north-northwest trending extensive quartzite ridge delineates the southwestern contact of volcanic units with sedimentary rocks. Petrological work has identified the volcanics as feldspathic porphyry intrusives, however locally there is evidence to suggest that the rocks may be of volcaniclastic origin, mainly in the form of textural evidence near the mine.

Hatches Creek Group conglomerate and sandstone overlie the older lithologies 400m southeast of the main anomalous area. The sediments form part of an unconformity surface in this area.

On second vertical derivative aeromagnetic imagery, a circular zone of diffuse magnetic anomalism is apparent centered approximately 1km east of the Munadgee workings. This has been inferred to be an unexposed granitoid with dimensions of approximately 3 x 2km with a NW- SE long axis. The depth of the intrusion below the current surface is unknown. A relatively shallow depth of emplacement (3-4km depth) is suggested by the large amount of cataclastic brecciation found in peripheral quartz veining.

In the eastern portion of the mapped area large quartz veins and breccias have intruded major inferred structures which form the eastern contact of the volcanic units. Quartz veins fall into three main categories in the immediate Munadgee area:

(i) sheeted vein systems, generally discontinuous but strike extensive and in zones up to 10m wide;

(ii) tension veins, not as extensive, millimeter– to decimeter-scale, cross-cutting the rock package and often containing peripheral breccia clasts;

(iii) large (meter-scale) quartz veins, possibly very early and following original lithological contacts. In the quartzite these veins take on the shape of centimeter- to meter-scale sheeted vein system almost exclusively hosted in the latter.

A late hematite (or potassic) altered quartz porphyry has intruded one of the early large meter-scale quartz veins ~700m SSE of the Munadgee shaft. This rock has a cherty appearance with weakly developed quartz (or altered feldspar) porphyroblasts. It contains a millimeter-scale, grey – clear quartz vein stockwork that is the main host of the known uranium mineralisation on the prospect. The dyke has been mapped discontinuously over approximately 200m and forms the main target-style for uranium mineralisation in the project area at this stage.

6.2 Structures

Three major structures transect the Munadgee area:

1. A sinistral strike – slip fault forms the contact between the Hatches Creek Group and Warramunga Group sediments south of the mapped area. The unconformity between these two units obscures the attitude of the fault. In the project area the unconformity surface does not appear faulted with the main structural contact referenced above possibly forming part of an original extensional fault system.

2. A second major structure is located along the contact of the Hill of Leaders granite and the Warramunga Group. This is marked by an extensive quartz breccia ridge and appears to have offset the volcanic units dextrally by approximately 2km. The structure also bounds the northern contact of the inferred small intrusive east of Munadgee.

3. The third and most important feature is an anatomising fault network that links the forementioned structures in a NW – SE direction. The network forms an approximately 500m wide corridor and transects the southern half and contact of the inferred intrusive as well as the overlying volcano-sedimentary package. Major movement on these structures is dextral as evidenced by tension vein arrays and folding. All significant uranium mineralization found to date lies within this fault system.

All units are steeply (southwest?) dipping in the immediate Munadgee vicinity. The pre – HCG volcano-sedimentary rock package is tightly folded with a steep northerly plunge displayed in some areas. A dominant sinistral movement can be inferred from mapped evidence as well as magnetic linears.

A large scale synformal fold closure has been mapped 1km east of Munadgee, here sandstone and volcanic units are folded about a NW trending fold axial surface. North of Munadgee the western limb of the synform displays dextral (S-shaped) symmetry. A number of parasitic fold closures have been mapped in this region.

In many cases lithologies and early structures are heavily overprinted by a late, steeply northwest striking regional penetrative foliation. This hinders recognition of early contacts, structures and bedding planes on the ground especially in the volcanic units. Note that the tension veins in particular often display some degree of folding as well as the late penetrative foliation overprint. At least a 10% compression of the rock package is inferred from the evidence related to the formation of the penetrative foliation event.

Late faults displaying offsets over several meters are evident in the quartzite and larger quartz veins. These appear to be of little economic importance although they should be kept in mind due to their offsetting characteristics in any drilling operations. A flat fabric is also often locally developed in the volcaniclastic unit. This may be an effect of top loading of the now eroded younger Hatches Creek Group.

7. EXPLORATION COMPLETED BY NORTHERN MINERALS

During the reporting period, Northern Minerals completed a review of the historical data over the tenement and its surrounding areas. This included a compilation of the drill holes and information collected from drilling, as well as the surface sampling and interpretations.

The geophysical data was collected over the area, and has been reprocessed and interpreted. The reprocessed magnetics form the basis of a revised structural interpretation. Radiometrics, thorium and uranium counts were processed and compared with the 1:250,000 mapping sheets to understand the composition of the underlying geology.

8. CONCLUSIONS & RECOMMENDATIONS

The revised structural and lithological interpretation resulting from the reprocessed available magnetic data provided a detailed understanding of the underlying geology. The historical exploration data will require analysis and interpretation in order to determine if targets warranting further investigation occur within the tenure.

An updated geological interpretation of the project area has been constructed which will assist with future exploration targeting and planning. In addition it is proposed that an analysis and interpretation of the historical exploration activities conducted across the project area in order to determine the potential of hosting economically significant mineralisation.

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