# BENMARA PROJECT

## EL 32228 Benmara

## Annual Technical Report for the Period 29 March 2021 to 28 March 2022

A Hodgson and C Lawley

May 2022

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|---|---|
| **Title Holder:** | Xavier Resources Pty Ltd |
| **Operator:** | Resolution Minerals Ltd |
| **Tenement Agent:** | Tanya Cole – All Aspects Mining Tenement Management |
| **Titles:** | EL 32228 |
| **Project:** | Benmara Project |
| **Target Commodities:** | Base Metals, Uranium, Gold |
| **Datum:** | GDA94 Zone 53 |
| **250k Map sheets:** | Calvert Hills SE5308, Mount Drummond SE5312 |
| **100k Map sheets:** | Nicholson River 6362, Coanjula 6262, Boxer 6261 |
| **Distribution:** | Northern Territory Department of Industry, Tourism and Trade<br>Resolution Minerals Ltd. |
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# Abstract

This report is a technical summary of all the work carried out by Resolution Minerals Ltd (RML) tenement EL 32228 (Benmara) during the reporting period 29/03/2021 – 28/03/2022.

EL 32228 is one of the tenements which comprises RML's Benmara Project in the northeast of the Northern Territory, around 320km NE of Tennent Creek. The Benmara Project comprises the western end of the exposed east-west-trending Murphy Tectonic Ridge ("Inlier"), which marks the south-eastern margin of the McArthur Basin and northern edge of the time-equivalent South Nicholson Basin.

Most of the previous exploration in the tenement area has focussed on diamonds and uranium, with less work concentrating on gold and base metals until more recently. RML's focus at Benmara is on Base Metals, Uranium and Gold.

In 2021, Resolution commenced exploration on permit EL 32228 to substantiate the area's prospectivity with reconnaissance field trips, an airborne EM survey (VTEM Max) and a scout RC drilling program with follow up geochemistry, petrology and total organic carbon analysis (TOC).
The airborne EM survey identified km-scale conductors along the margin of the basin. A number of these conductors were tested by the RC drilling, the best of which intersected thick (194 m) pyritic, carbonaceous, laminated mudstone and shale units akin to Barney Creek Formation (southern McArthur Basin).

This preliminary work supports the potential for sedimentary-hosted base metal mineralisation deposition within the project area. The evidence includes:

- prospective-aged package of reduced sediments with TOC content in the order of 1–3%
- petrographic evidence for significant diagenesis and alteration
- geochemical vectors including elevated Tl
- favourable basin margin position
- proximity to the intersection of regional scale structures, which are demonstrated conduits for base metal mineralisation along strike

The combination of these geological ingredients make this a standout greenfield exploration project with an unconstrained search space.

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## Copyright

# 1. Introduction

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- favourable basin margin position
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## 1.1. Location and Access

EL 32228, which is part of the Benmara Project, is located in the north-eastern corner of the Northern Territory (Figure 1) close to the Queensland border on the Calvert Hills and Mount Drummond map sheets. As the crow flies Tennant Creek is around 320km to the southwest and Mount Isa is about 400km to the southeast.

The tenement lies largely within Pastoral Lease 963, Benmara, which is owned by Holt Transport Pty Ltd. The very western portion of the tenement extends into Pastoral Lease 1163, Cresswell Downs (Figure 2).

Access to the tenement area is via the Stuart Highway north from Tennant Creek to the Barkly Homestead turnoff. The Barkly Highway is then followed east for 186km before turning north onto the unsealed Tablelands Highway for 205km. The graded Calvert Road is then taken north-east for 110km before heading south-east into the Benmara Homestead. Access to specific areas within the project is largely along unsealed station tracks or cross country with some all-weather gravel roads between areas. 4WD is necessary for all parts of project access.

The area is seasonally inaccessible due to rain and wet ground, with field work possible between May and November in most years.

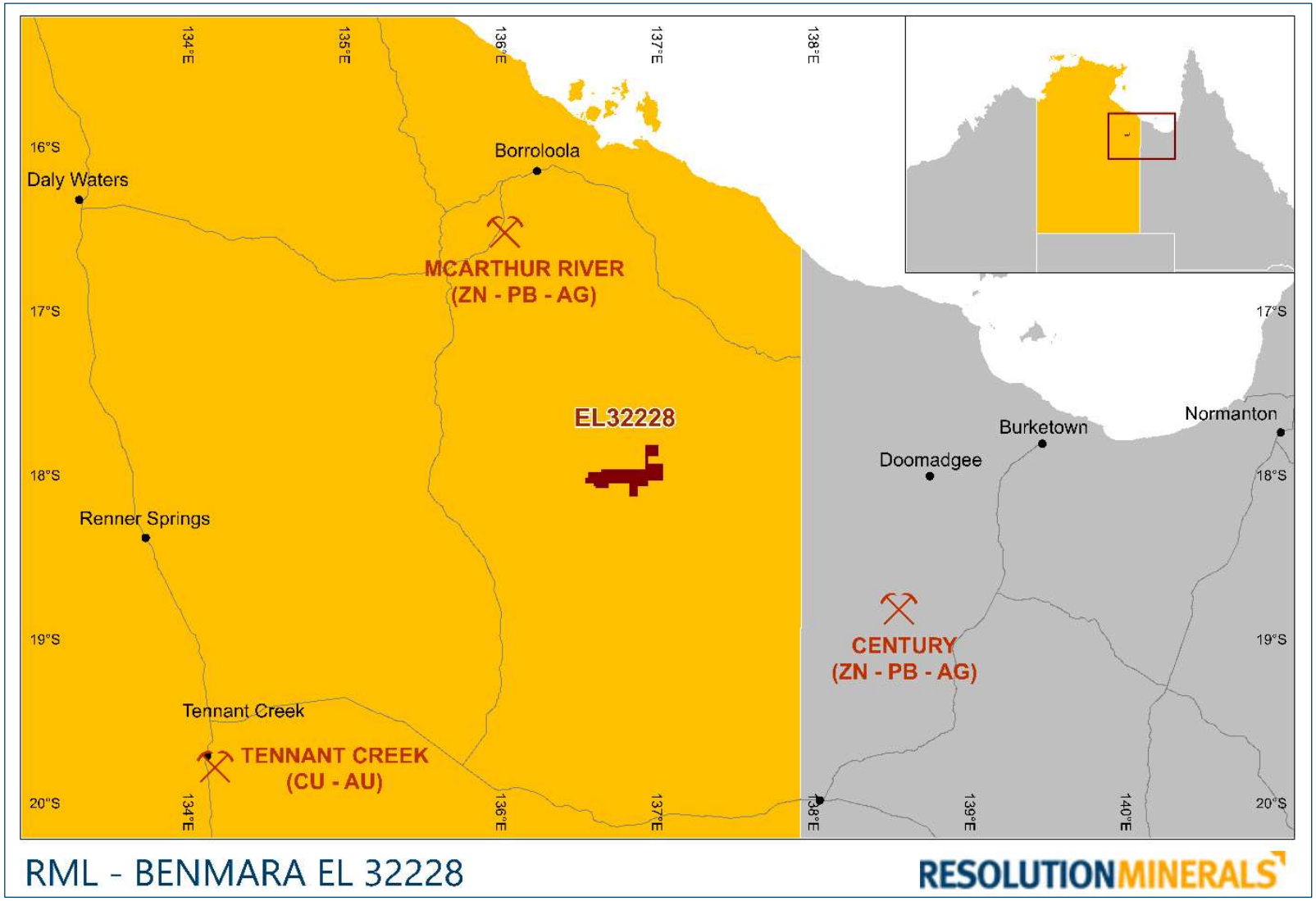


*Figure 1: Benmara EL 32228 Location Map*

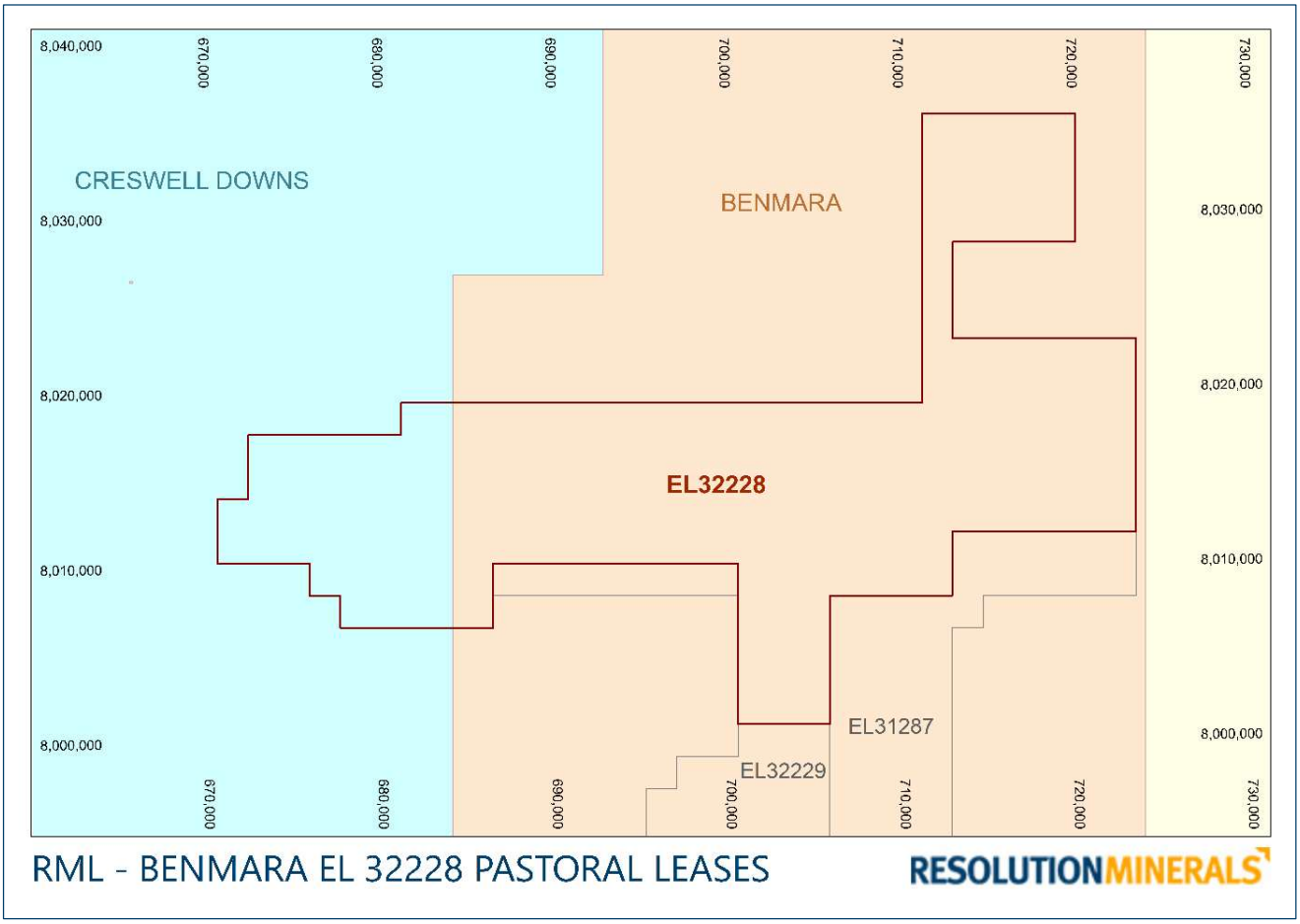


*Figure 2: EL 32228 Tenement map with relation to Pastoral Leases - Other RML Tenements making up Benmara Project during reporting period shown in grey.*

## 1.2. Tenement

The tenement covers a total of 663.24km² of pastoral land and is held 100% by Xavier Resources Pty Ltd. Details of the tenement schedule are outlined in Table 1.

*Table 1: Tenement Schedule for EL 32228*

| Tenement | Name | Area km2 | Blocks | Grant | Duration |
|---|---|---|---|---|---|
| EL 32228 | Benmara | 663.24 | 203 | 29/03/2021 | 6 years |

## 1.3. Physiography and climate

Much of the project area is flat, featureless and vegetated only by grasses and therefore is easy to traverse. Conversely the eastern half is more heavily vegetated with moderately uneven terrain. The pastoral properties are well-maintained with good infrastructure, enabling relatively simple exploration operations. Geological exposures are limited, particularly in the west of the project, but are only thinly covered.

# 2. Geological Setting

## 2.1 Regional Geology

The Benmara Project comprises the western end of the exposed east-west-trending Murphy Tectonic Ridge ("Inlier"), which marks the south-eastern margin of the McArthur Basin and northern edge of the time-equivalent South Nicholson Basin (Figure 3 and Figure 4). The oldest rocks of the inlier are ~1900 Ma Murphy Metamorphics, comprising green-schist facies metasedimentary and meta-volcanic rocks, including BIF and carbonaceous schists. These are overlain by the felsic Cliffdale Volcanics and intruded by fractionated comagmatic intrusions of ~1850 Ma

Nicholson Granite. Along each edge of the Murphy Inlier, these basement rocks are unconformably overlain by moderately dipping belts of sandstone and basalt, belonging to the basal part of the McArthur Basin (north) and South Nicholson Basin (south). The McArthur Basin within the project is covered by a thin veneer of Mesozoic aged Carpentaria Basin sediments. These Palaeo- to Mesoproterozoic basins comprise a 12km thick unmetamorphosed sedimentary succession containing dolostone, sandstone and shale units with minor felsic and mafic volcanics. They are both highly endowed with world-class base-metal deposits and are now the subject of intensifying exploration for hydrocarbons. (Rawlings, 2019)

## 2.2 Regional Prospectivity

Within or nearby to the project there are a number of important prospects, mineral occurences and regional mineralisation:

- Gold, copper and uranium occurrences are widespread in the Murphy Metamorphics and Westmoreland Conglomerate to the east. Detrital gold and uraninite have been recorded in the conglomerate. These provide abundant “smoke” for a large hydrothermal mineral system operating in the region. Only a limited amount of historic work has been focussed on the base metal and gold endowment of the project as most has concentrated on uranium and diamond exploration.
- The Walford Creek Deposit (Aeon Metals Ltd - www.aeonmetals.com.au/projects/#walfordcreek) lies 120 km to the east in western Queensland (Figure 4). This large stratiform pyrite-hosted base metal deposit was discovered by WMC in the 1980s. While primarily a Zn-Pb-Cu-Ag deposit, in recent times it has been recast as a Copper project with a JORC resource of 73Mt at 0.4% Cu, 0.85% Pb, 0.85% Zn, 813ppm Co and 23 g/t Ag. Importantly, the Walford Creek deposit lies along the fertile Fish River Fault that continues westward into the Benmara Project. This is tracked by numerous base metal and uranium occurrences to the east of the Project area as well as untested geochemical anomalies and EM conductors within the Project. Clearly this is a deep-rooted structure that is prospective for various styles of mineralisation, including giant SEDEX deposits.
- The Westmoreland uranium project lies 120 km to the northeast in the same belt of rocks, Figure 4. This prospect comprises a number of individual deposits (inc Redtree, Junnagunna and Huarabagoo) that occur along the Redtree dyke that intrudes the basal sandstones of the McArthur Basin. Laramide have published indicated resources - 8.0 Mt @ 0.088% U308, for 7100 t U308 plus inferred resources - 16.0 Mt @ 0.094% U308, for 14 800 t U308.
- Uranium occurrences at “Anomalies 30” and “4901” that occur in iron-rich rocks within the Murphy Metamorphics 8 km east of the tenement, the magnetic trends of which continue into the Project (Figure 3.
- Uranium prospect at “Anomaly 1” is located within the Project (Figure 3. This was discovered by the Mines Administration Branch during follow up of airborne radiometrics by surface prospecting and was subsequently drilled and found to be associated with dilated faulted contact between the Murphy Metamorphics and Nicholson Granite. Rockchip samples of float at Anomaly 1 by Mines Adminstration Branch returned U308 grades up to 0.74%.
- The nearby Eva uranium-gold prospect/mine (Figure 4) was discovered and drilled by BHP in 1958 and was later re-investigated by Nupower Resources in 2009. It contains a small published resource of 535,000 t ore at 0.12% U3O8 for 650 t U3O8, and 102,000 t ore at 3.77 g/t Au for 12,300 oz Au. Although too small and isolated for development, it demonstrates the potential for high-grade basement-hosted mineralisation, and a close genetic association between gold and uranium in the region.
- The enigmatic Coanjula diamond prospect lies 5 km west of the Project (Figure 3 and Figure 4), along the same structure (Fish River Fault system). This is a complex geological association of micro-diamondiferous and barren intrusives, breccias, volcaniclastics and sediments of various ages (but mostly ~1850Ma) that is widely interpreted as the source of the largest surface microdiamond accumulation in Australia. No macrodiamonds have been found during the various exploration phases by a number of companies including Ashton, Aberfoyle and Stockdale.

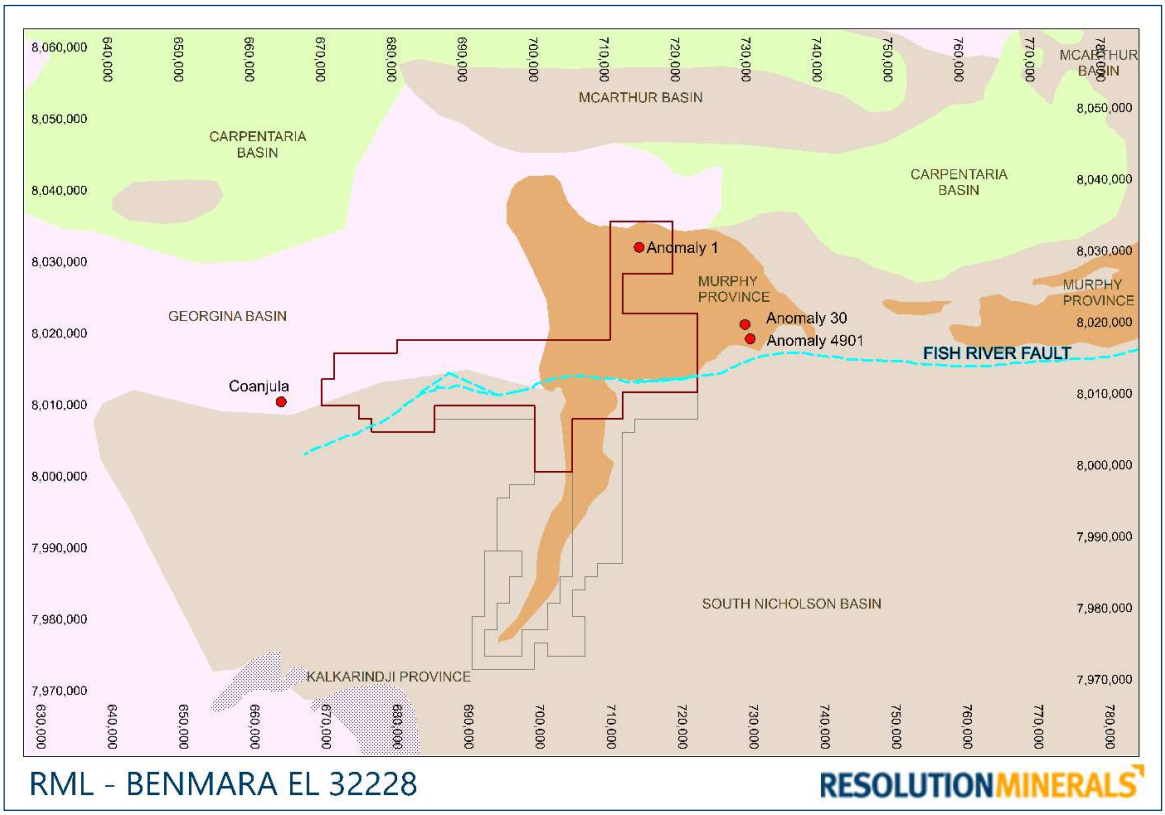


*Figure 3: Tenement EL 32228 location over geological regions. Mineral Occurrences in close proximity to tenement shown in red*

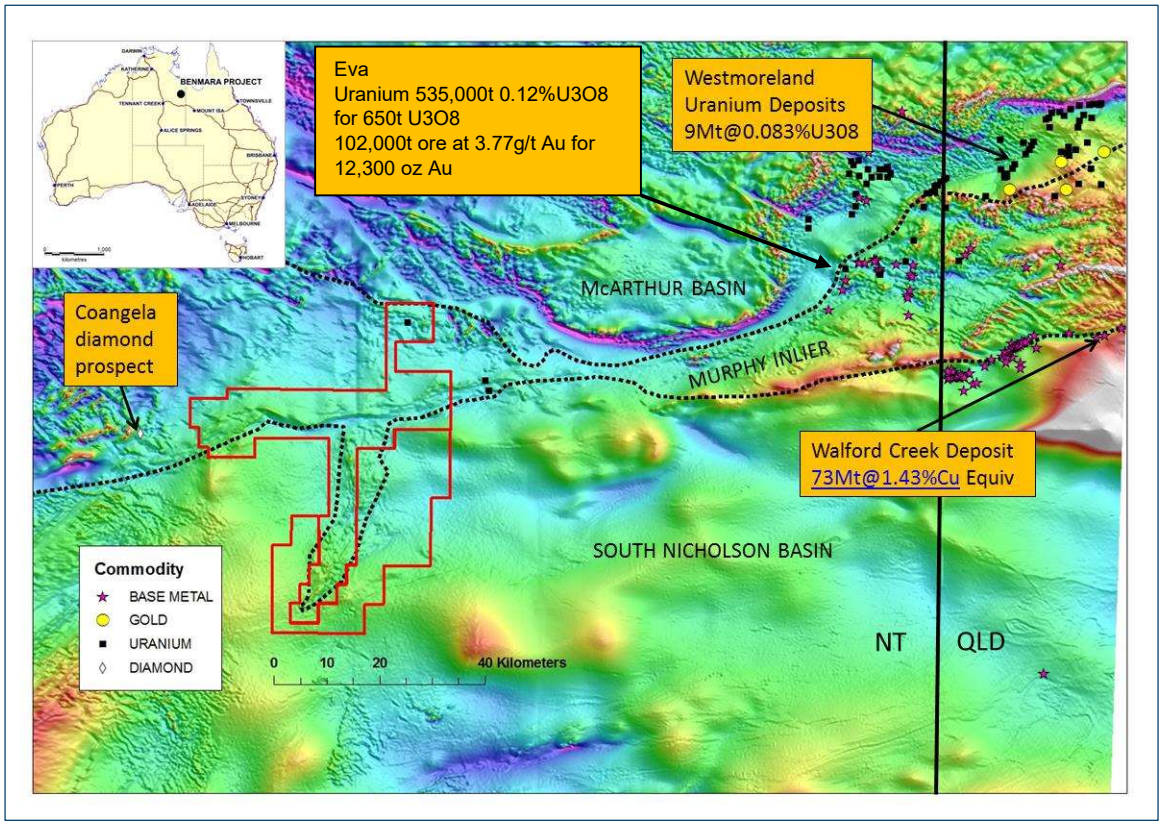


*Figure 4: Benmara Project (red) as it stood in early 2019, with main geological division (dotted line) with regional prospects/ deposits over TMI magnetic image (Rawlings 2019)*

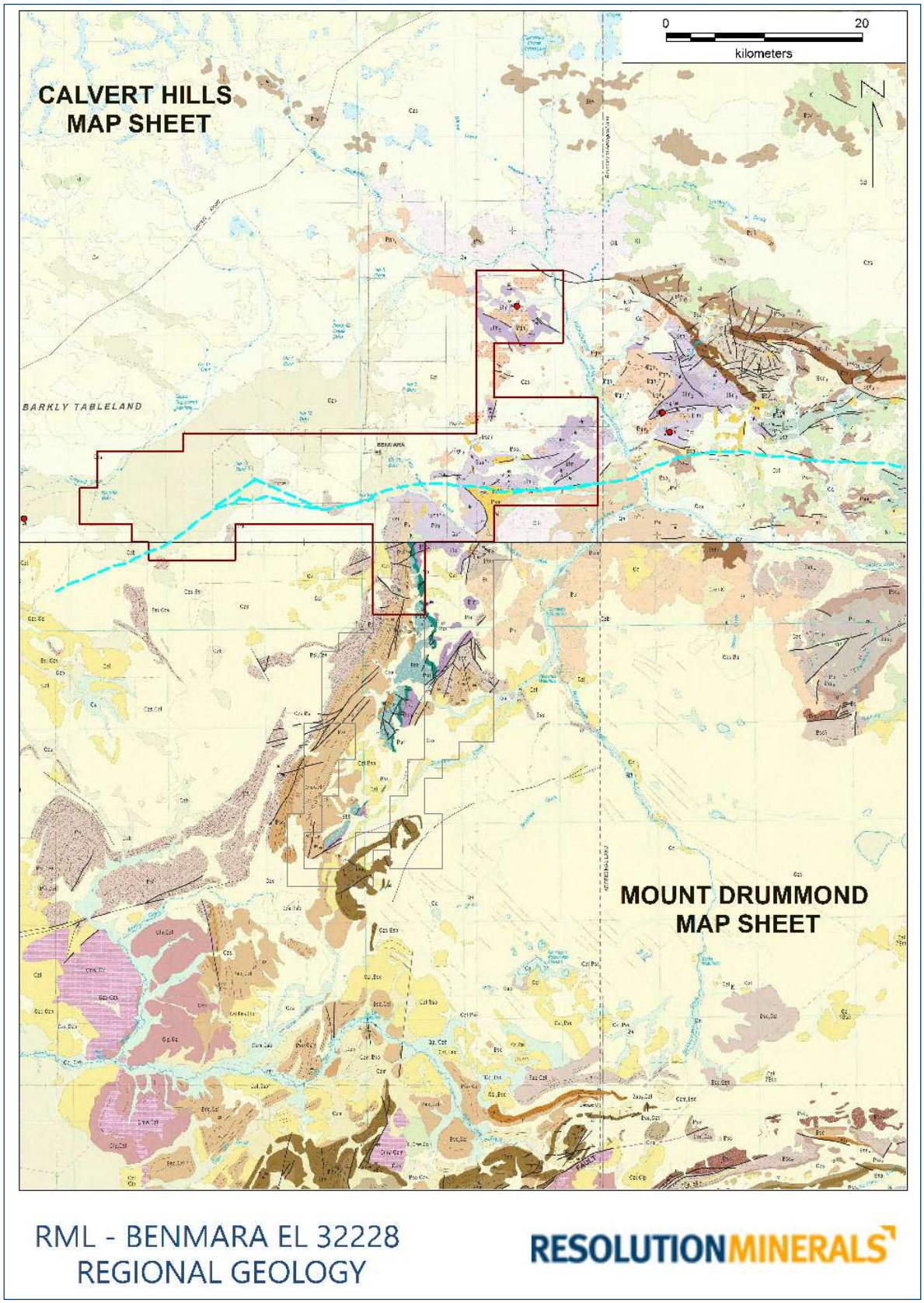


*Figure 5: EL 32228 Regional Geology Map*

# 3. Previous Exploration

Most of the previous exploration in the tenement area has focussed on diamonds and uranium, with less work concentrating on gold and base metals until more recently. With the exception of some drilling in the far NE of the project, drill holes were Ashton targeting kimberlite pipes. A summary of all previous work is included in Table 2.

Cedar Resources Pty Ltd (Cedar) held most of the tenement area from 2015 to 2019 and focussed on base metal, gold and uranium target generation. Cedar undertook a complete review of all historic including the compilation of all available historic geochemical and drilling data through compiling of the existing digital data and georeferencing and keypunching non-digital data and results (Figure 6). The outcomes of Cedar's work is discussed further in Section 4.

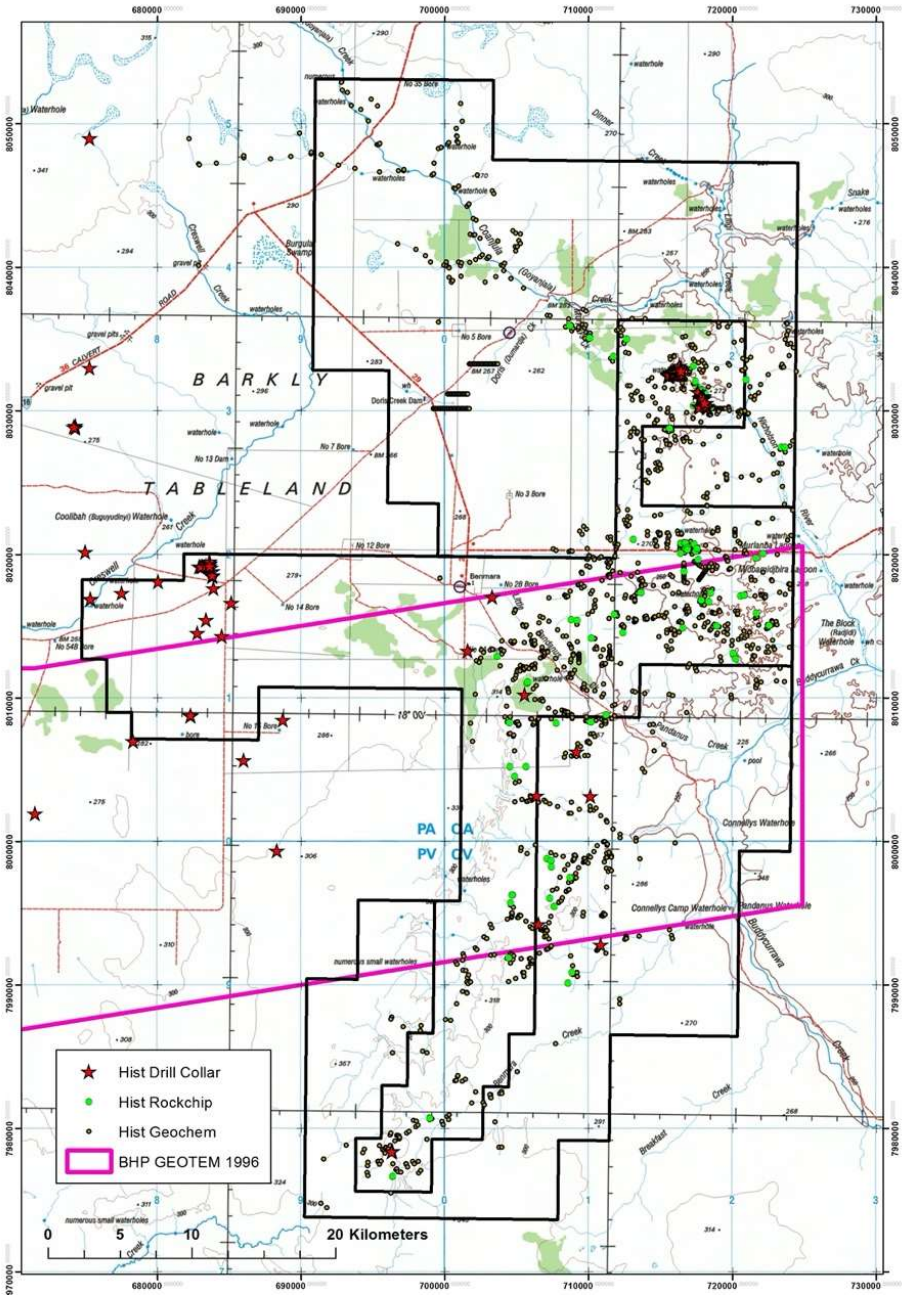


*Figure 6: Benmara Project showing historical work and sample points compiled by Cedar into digital format (Rawlings, 2019)*

*Table 2: Summary of historical and previous exploration in tenement area*

| Tenement Number | Time Period | | company | commodity | exploration_done | tenement overlap | relevance | comments | Company reports |
|---|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | | |
| AP 1897 | 13/02/1968 | 17/02/1970 | IMC development | phosphorous | RC, radiometrics? | 100 | M | primary targets in the Georgina Basin for phosphorite are the margins and basement highs of the Earl | CR1968-0030, CR1968-0033, CR1969-0062, CR1970-0035, CR1970-0038 |
| AP 3401 | 16/09/1971 | 15/09/1972 | Esso | | no work, desktop | 30 | L | | CR1973-0103 |
| EL 1235 | 18/06/1976 | 17/06/1980 | Mines Admin. | U, Base metals | ground rad, drilling, perc, | 5 | H | All radioactivity so far detected is due to haematized fault breccias. Radioactivity is due to the pr | CR1977-0095, CR1979-0009, CR1980-0143 |
| EL 1339 | 2/11/1976 | 1/11/1977 | Otter | sed U | 13 holes.900m | 90 | H | murphy met. follow up U in water bores. concl wrong stratig for sed U | CR1978-0038 |
| EL 1427 | 3/05/1977 | 2/05/1977 | Mines Administration | U rollfront | drilling 3xholes | adj | H | follow up U anom in water bores. Concl no sig results | CR1978-0138, CR1980-0118 |
| EL 2111 | 11/10/1979 | 10/10/1980 | Afmeco | U base metals | | 60 | H | followed up several anoms. results dicouraging. | CR1980-0194, CR1981-0123 |
| EL 2232 | 17/01/1980 | 16/01/1981 | Amoco | Cu Pb Zn Mc Riv | geochem.looking McRiv grph seds | adj | M | bdry Dun & Sth Nic.Murphy, meta volcanics,ferrug lateritised Fe ridges. Bouger gravity target | CR1981-0033 |
| EL 4359 | 13/09/1983 | 12/09/1989 | Ashton,Aust diamonds | diamonds | RAB loam costean | adj | H | alluvial micros macros .worth a look for radiometrics | CR1985-0029, CR1985-0244, CR1986-0304, CR1987-0220, CR1989-0267, CR1989-0288, CR1989-0289 ,CR1989-0700, CR1989-0715, CR1995-0022, CR1996-0453 |

| Tenement Number | Time Period | | company | commodity | exploration_done | tenement overlap | relevance | comments | Company reports |
|---|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | | |
| EL 4360 | 13/09/1983 | 12/09/1989 | Ashton aberf. AOG | diamonds | DD RAB sseds mag | 95 | L | indicators and Micros.ultra basic intr. | CR1985-0030, CR1985-0266, CR1986-0305, CR1987-0219, CR1989-0265, CR1989-0288, CR1989-0289, CR1989-0678 |
| EL 4352 | 21/09/1983 | 20/09/1989 | Ashton Aberf. AOG | diamonds | RAB,BCL, | 5 | L | microdiamonds,barren intrusive pipes | CR1984-0236, CR1985-0289, CR1987-0006, CR1987-0218, CR1989-0266, CR1989-0288, CR1989-0289, CR1989-0654 |
| EL 6916 | 22/06/1990 | 12/07/19991 | Carpentaria Gold | Au | BCL sseds/rchip | 10 | L | not prospective | CR1991-0365 |
| EL 6836 | 6/06/1990 | 12/07/1997 | Carpentaria Gold | Au | rchip/sseds | 100 | M | 105 sseds low levels base metal | CR1991-0354 |
| EL 7223 | 12/02/1991 | 20/02/1999 | MIM Ashton | diamonds | RAB loams DD aerial mag soils lags | 100 | L | several microdiamonds + indicators | CR1992-0093, CR1993-0151, CR1993-0330, CR1994-0232, CR1994-0362, CR1995-0245, CR1995-0370, CR1996-0234, CR1996-0441, CR1997-0203, CR1998-0250, CR1999-0239 |
| EL 7851 | 2/11/1992 | 17/11/1993 | Ashton [AURORA] | BM Au | sseds | 100 | L | not prospective | CR1994-0039 |

| Tenement Number | Time Period | | company | commodity | exploration_done | tenement overlap | relevance | comments | Company reports |
|---|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | | |
| EL 8997 | 21/02/1995 | 20/03/1997 | BHP | BM sed h | mag ground EM AEM (Look) | 5 | M | PROTEM sounding survey to investigate the electric | CR1996-0239, CR1997-0260, CR1997-0325 |
| EL 9989 | 16/04/2002 | 21/06/2002 | int. earthscan Plenty Min[PLENTEX] | alteration | landsat thematic mapper | adj | L | Structural geological and mineral alteration interpretation from Landsat TM satellite data | CR2002-0391 |
| EL 22994 | 8/11/2002 | 13/09/2004 | De Beers | diamonds | sseds | 10 | L | results were non kimberlitic | CR2003-0482 |
| EL 28055 | U/K | 15/06/2010 | Natural Resources Exploration Pty Ltd | U/K | U/K | | U/K | U/K | U/K |
| EL 27817 | 27/07/2010 | 18/07/2013 | Natural Resources Exploration Pty Ltd | diamonds and base metals | Ground mag, soils, surface deflation loam, sseds, XRF analysis of waterbore cuttings | 15 | L | Area holds low mineral prospectivity | CR2013-1096, CR2012-0739, CR2012-0636, CR2011-0504 |
| EL 28056 | 17/12/2010 | 18/07/2013 | Natural Resources Exploration Pty Ltd | diamonds and base metals | Ground mag, soils, surface deflation loam, sseds, XRF analysis of waterbore cuttings | 10 | L | Area holds low mineral prospectivity | CR2013-0991, CR2012-1102, CR2012-0636, CR2011-0504 |
| EL 28806 | 6/12/2011 | 28/11/2013 | Toro Energy Ltd | Uranium | Analysed existing core | 35 | M | Not economical reserves | CR2013-1189, CR2013-0037 |
| EL 28054 | 7/01/2011 | 14/10/2014 | Toro Energy Ltd | Uranium | Air mag/radiometrics | 30 | M | Lack of prospectivity | CR2014-0895, CR2014-0044, CR2013-0037, CR2012-0042 |

| Tenement Number | Time Period | | company | commodity | exploration_done | tenement overlap | relevance | comments | Company reports |
|---|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | | |
| EL 30668 | 11/08/2015 | 9/07/2019 | Cedar Resources Pty Ltd | Base metals, Uranium, Gold | Reprocessing and interp of geophys, soils and sseds | 95 | H | High priority base metal and gold geochem anomalies identified. Relinquished due to market conditions affect on company direction | CR2019-0351 |
| ELA32228 | 9/08/2019 | - | Strategic Energy Resources Ltd (SER) | - | Nil | Same area | H | Application contested and tenement split into EL32228 (SER) and EL32229 (Cedar). No work completed on EL32228 due to contest related delay and covid restrictions. | N/A |
| EL32228 | 29/03/2021 | Current | Xavier Resources Pty Ltd | Base metals, Uranium, Gold | Desktop, reccy, RC drilling | | | | |

# 4. Recent Exploration – Cedar resources

## 4.1 2015 – 2016

Work completed by Cedar included a brief field visit to the area in September 2015 to meet the landholder and assess station track access. In addition to this a complete review of historic work and an open file AAPA sacred site search was completed. A number of high priority base metal targets were generated for field follow-up. These are summarised in Figure 7 .

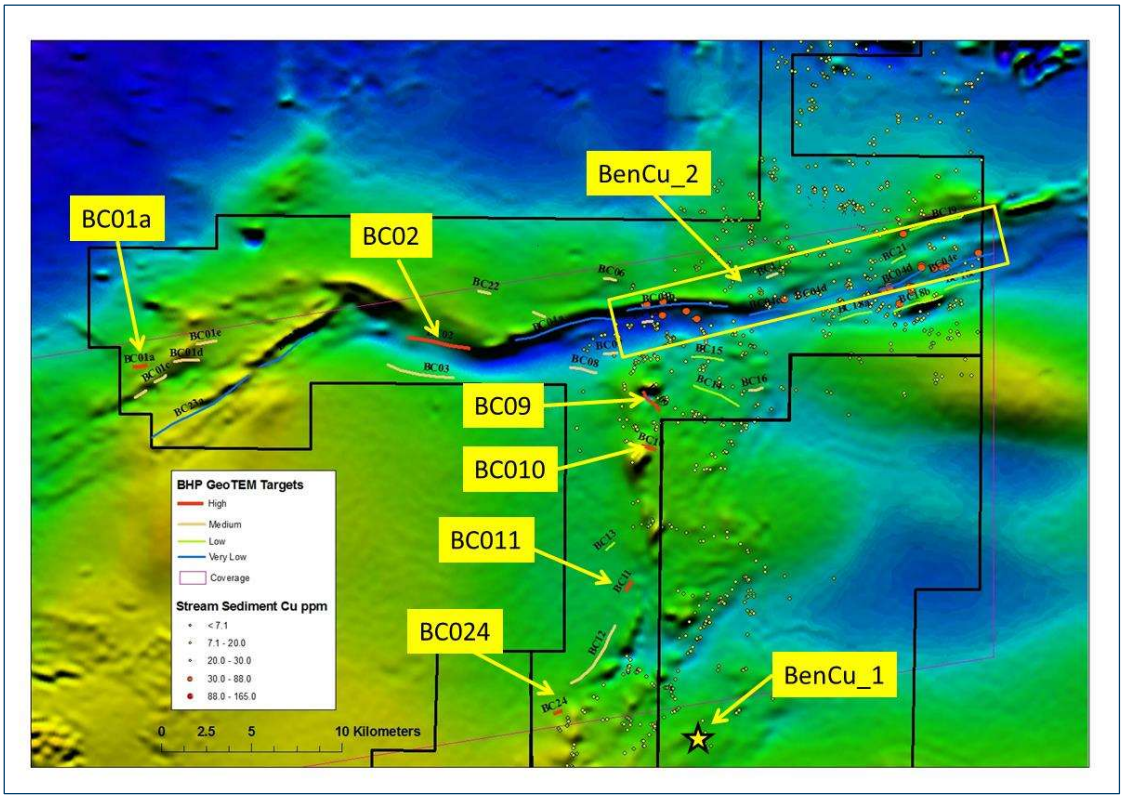


*Figure 7: Base metal (CU+/-Zn, Pb) targets on TMI mag image*

### 4.1.1 Base Metals

Of the 24 GEOTEM conductors identified by Cedar, four considered high priority fall within the bounds of EL 32228 (BC01a, BC02, BC09, BC010 - Table 3). Of these only BC02 was followed up by BHP with a single line of Ground TEM. The BHP ground EM confirmed the presence of a shallow conductor but was never drill tested as BHP assumed the conductor was associated with the onlap of the South Nicholson Basin sediments. All of the high priority and many of the other GEOTEM targets are coincident with magnetic features suggesting a source being related to basement rocks rather than the overlying basin. A summary of the high priority GEOTEM targets within EL 32228 are presented and discussed below, as well as copper/base metal target identified. All copper / base metal targets are shown in Figure 7. For the complete summary table of all priority level targets identified by Cedar refer to Rawlings 2019.

*Table 3: Summary of High priority conductors identified by Cedar which fall within EL 32228*

| Name | EM Rank | Comment |
|---|---|---|
| BC01a | High | Local large amplitude mid- to late-time anomaly |
| BC02 | High | Good mid- to late-time anomalous trend. 3 km strike. Varying character along strike |
| BC09 | High | Broad mid- to late-time anomaly sub-parallel to flight line direction |
| BC010 | High | Local mid-time anomaly on possible lithological contact |

*BC01a*

This conductor is located on the western boundary of the project associated with linear magnetic features most likely associated with the Murphy Metamorphics in an area of complete cover. Access is good given the target is located <200m from a station track on flat grassland. Further work on this target should include either a single line of ground EM to pin down the conductor (followed by drilling if deemed appropriate) or an aircore/ slimline RC drill traverse intersecting basement to determine if any metal anomalism is present.

*BC02*

This is the highest ranked GEOTEM target given it is 3km long, associated with a linear magnetic anomaly, adjacent to a major inflexion in the magnetic trend (likely caused by a regional NW-SE trending structure) and located on or close to the interpreted southern contact of the Murphy Metamorphics. Access is easy given a N-S station track passes over this E-W trending target. Shallow aircore/slimline RC drilling is recommended to test this target. Further to the east on the same magnetic contact are a number of long strike length lower priority GEOTEM targets (BC04c, BC04b, BC04d and BC04e) in areas of subcrop/outcrop which have coherent Cu in stream sediment anomalies (Figure 4). Proximal to BC04d, historical rockchip samples taken by Aurora Gold in 1993 recorded quartz brecciated quartz haematite-pyrite veins within hematite-pyrite altered pelitic rocks. These samples also had elevated copper to 490ppm and malachite staining was reported. This is further support that this is a live structure and any increase in conductivity recorded along this trend (such as BC02) should be followed up as a priority.

*BC09*

The 250K published geology indicates this 1.5km long completely untested target is in an area of subcropping/outcropping Murphy Metamorphics close to the intersection of the main E-W and N-S magnetic trends and proximal to a discrete magnetic anomaly (Figure 4). This magnetic anomaly was diamond drilled (drillhole CJ24) by Ashton Mining during diamond exploration in 1985 and intersected a thin iron (quartz-magnetite) formation from 83-84.5m within an altered chloritic pelite unit close to the contact with an altered mafic volcanic unit. Geochemical analysis (by Aurora Gold in 1993) on this iron formation and altered pelite returned elevated Cu-Zn-Au (up to 630ppm, 360ppm and 30ppb respectively) in both units. Further, petrographic work by Aurora confirmed the presence of pyrite and chalcopyrite in both units and a metasomatised synsedimentary or hydrothermal origin to the sulphides was 15 postulated. These results suggest that the BC09 conductor could be related to sulphide mineralisation. First pass follow-up of this target should include geological prospecting, geochemical sampling and mapping.

*BC010*

This target is located just south of BC09, is associated with a discrete magnetic anomaly, and is in an area mapped as outcrop within an AAPA “Restricted Area”. Before field checking of this anomaly is undertaken, a review of the conditions of the Restricted Area should be conducted. There is no record of any sampling over or close to this anomaly.

*BenCu_2*

This is a large target area of approximately 20km in strike and is defined by lower order E-W trending GEOTEM anomalies (BC04b, BC04c, BC04d and BC04e) and coherent elevated copper anomalies in stream sediments. Proximal to BC04d, historical rockchip samples taken by Aurora Gold in 1993 recorded quartz brecciated quartz haematite-pyrite veins within hematite pyrite altered pelitic rocks indicating that mineralisaed hydrothermal fluids were active in the area. These samples also had elevated copper to 490ppm and malachite staining was reported 17 in a number of samples. This large target area can be easily assessed by conventional surface geochemical sampling and geological mapping.

### 4.1.2 Gold Targets

In addition to the base metal targets, a number of gold targets were also generated through the review of previous work. These targets are primarily generated by the historic stream sediment sampling conducted by MIM (1990-91) and Ashton Mining (1989). These companies used BLEG and conventional fine fraction sampling/assay techniques. These targets are shown in Figure 8. The “Fenceline” anomaly is the only one to fall within EL 32228 and is discussed below.

BenAu_1 and BenAu_2 are noted by Rawlings to lie on the base of the South Nicholson Basin and may represent a Witwatersrand analogy. For more detail on these anomalies please refer to Rawlings 2019.

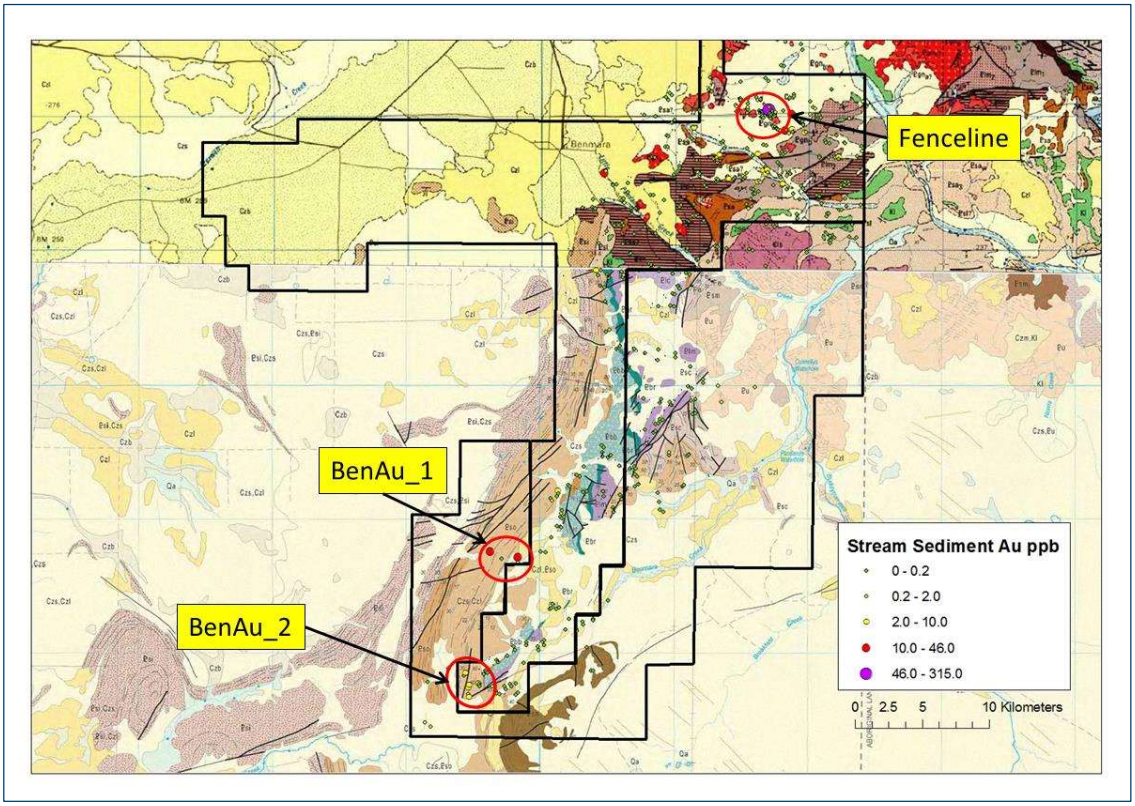


*Figure 8: Identified gold targets on published 250K geology map*

*Anomaly "Fenceline"*

This prospect was first identified by MIM in 1991 from a highly elevated BLEG stream sediment anomaly of 50.8 ppb Au with a repeat of 43.4 ppb Au. Although the anomaly was confirmed with conventional -74um sampling (315 ppb Au, repeat 212 ppb Au) extensive work including geological mapping, minor trenching and systematic soil sampling failed to identify the source of the gold. The published outcrop geology and magnetics suggest the anomaly is entirely within a largely soil covered granite intrusion. The interpretation from MIM was that the gold was sourced by a very thin vein and therefore of no economic value. Although significant work has been completed over this target further work should include determining if the soil sampling program was effective. If it is found not to have been effective a detailed magnetic survey followed by a structural interpretation centred on the highly elevated samples by MIM may provide targets worthy of shallow drill testing. This anomaly, as the name suggests, is very close to an existing track with few access issues.

### 4.1.3 Uranium targets

Regional radiometrics, flown by the NT Government at 400-500m spacing, show a number of anomalies in the U/Th2 ratio, many of which correspond with outcrops of the Nicholson Granite. However, a significant radiometric anomaly coincides with surface mineralisation at the "Anomaly 1" prospect at the edge of the granite, suggesting some of the more ambiguous or unexplained anomalies should be followed up in future. 19 Just prior to Coolabah securing the Benmara Project, Toro Resources undertook a minor on-ground exploration for uranium encompassing a reconnoitre of the logistics and main outcrops adjacent to the roads/tracks. They identified an outcrop coincident with one of the large E-W magnetic linear features which was found to be massive hematite and silicified "shale" at surface, most likely representing a weathered BIF, at the eastern end of GEOTEM anomaly BC04b within target area BENCu_2, Figure 7.

Toro indicated that this this "BIF" and shale could be fertile basement units similar to those found in U deposits in the Pine Creek Region of the NT. They also reviewed the historic drill core from the Anomaly 1 prospect with re-assaying indicating a 0.7 m interval at 395 ppm $U_3O_8$ within the thermal aureole of a Nicholson Granite pluton, confirming historic assay results. Based on geographical, geological and geophysical factors, three rough target areas are defined as shown in Figure 9.

*U Area 1*

This encompasses the main ~east-west trending linear that runs parallel to the McArthur unconformity. Several EM anomalies were identified by BHP in this zone, but not tested (see "Cu Targets Section"). This area has not received any significant on-ground exploration, beyond a few drill holes by Ashton in search of diamondiferous kimberlite. The fertile zone is concealed by thin blacksoil cover, and bedrock can be easily tested by cheap aircore drilling.

*U Area 2*

Comprises the eastern half of the main ~east-west magnetic linear, together with a south-trending linear (Figure 9), where they are exposed at surface or are covered by a thin veneer of sediment. The geology of this area is quite complex, with juxtapositions of basement and cover units. Again, this area has received very little past exploration and can be prospected on foot to a large extent, following on from detailed airborne radiometrics and magnetics.

*U Area 3*

This is the thermal aureole of a small Nicholson Granite pluton, which is known to be mineralised at the Mines Admin prospect. A number of radiometric anomalies have been generated since the earlier drilling, and more detailed radiometrics and magnetics would assist in refining these and discriminating other anomalies. The area is largely exposed or, at worst, covered by a few metres of sediment, therefore is amenable to simple first-pass prospecting, before focussed geophysics and drilling.

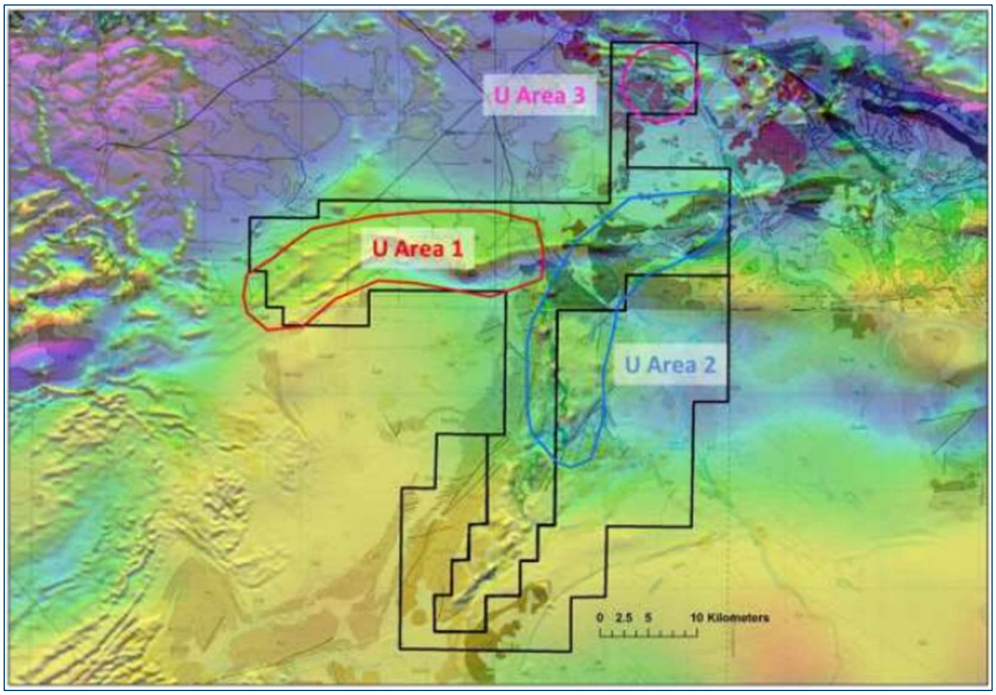


*Figure 9: Benmara Project with 250K geology draped on magnetics and three main uranium target areas (red, blue, magenta)*

## 4.2 2016 - 2017

In addition to further compilation and interpreting of data, a significant soil sampling program was completed over the project. This soil sampling program was completed over targets BC02 (BHP GeoTEM anomaly) and BenCu_2. These samples were collected by Euro Exploration in July 2017. In addition, a small stream sediment sampling program was also completed by Euro during the same period. The sample locations are found in Figure 10 and programs are described below.

### 4.2.1 Soil Sampling

This program involved the collection and analysis of 932 original samples (plus 22 duplicates and replicates), exclusively within EL30668. Samples were sieved to -2mm (~200gm) and collected on a 400x200 or 800x200m grid using quad bikes. Samples were then submitted for analysis at ALS laboratories in Adelaide. All samples were analysed using the ME-ICP61 (4 acid digest) and a suit of 33 elements were reported. In addition to this samples were assayed for gold using the Au-ICP21 technique. All results are contained in the appendices associated with the Final Report for EL30668 (Rawlings, 2019).

The results of this soil sampling program produced some compelling base metal targets for further follow-up work. These include large coincident Cu-Co-Zn-Pb anomalies with distinct E-W orientation, parallel to some major structures that can be seen in the regional magnetics (Figure 11, Figure 12, Figure 13 and Figure 14).

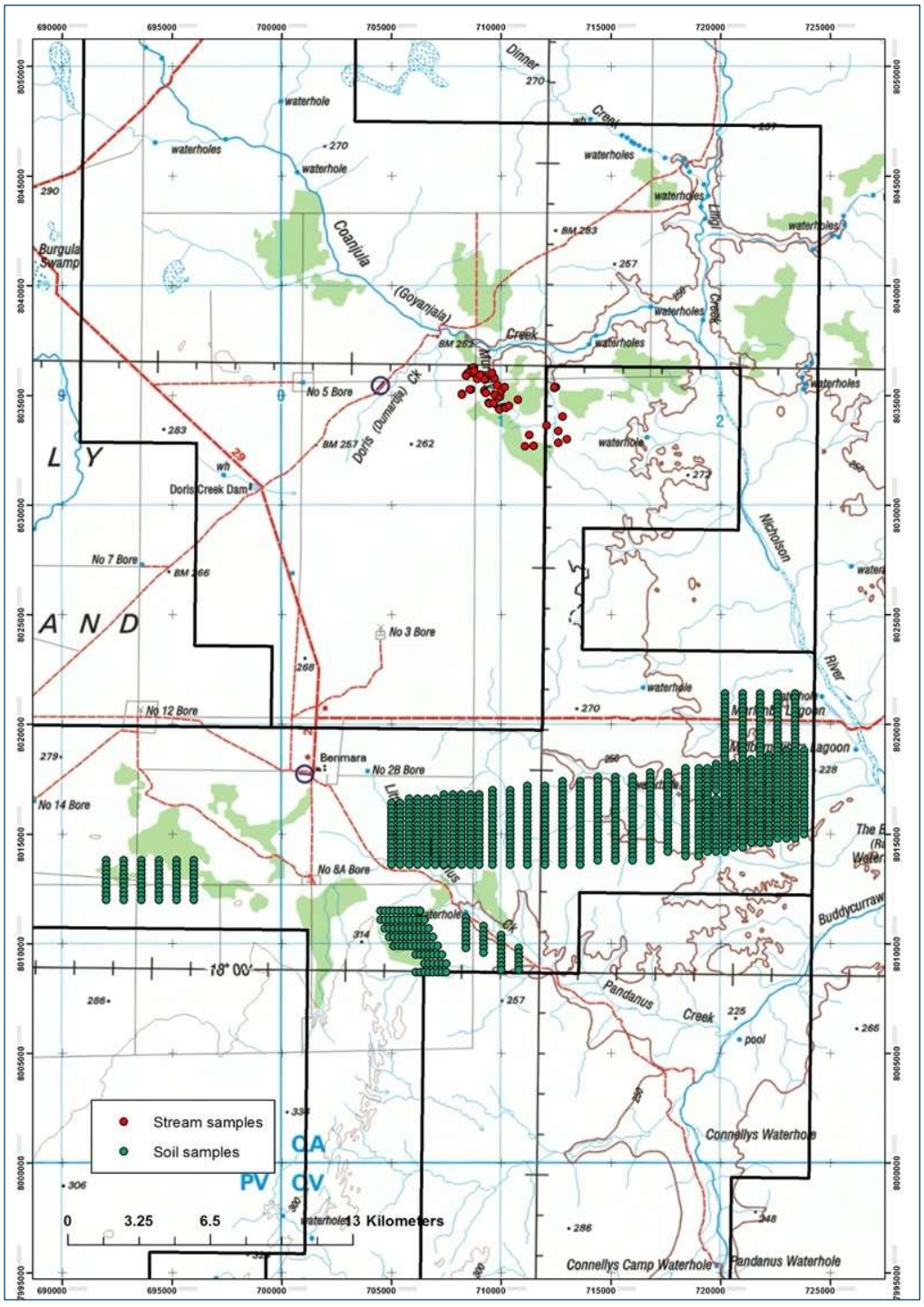


*Figure 10: Soil and stream sampling location plan on 250K topographic map*

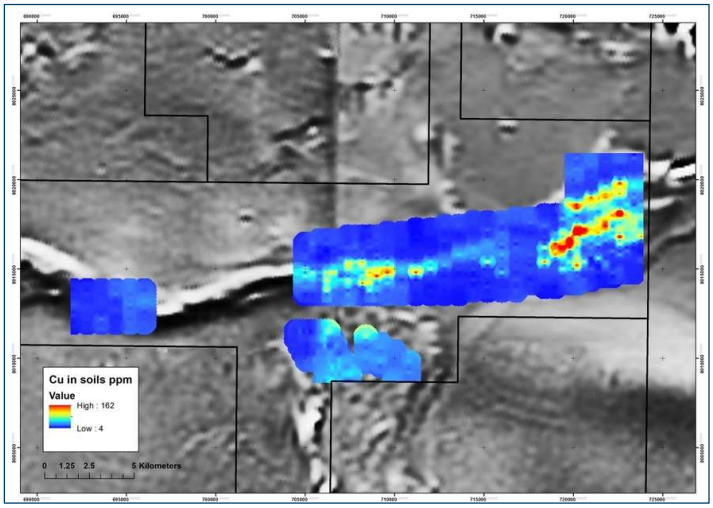


*Figure 11: Copper in soils on regional magnetics*

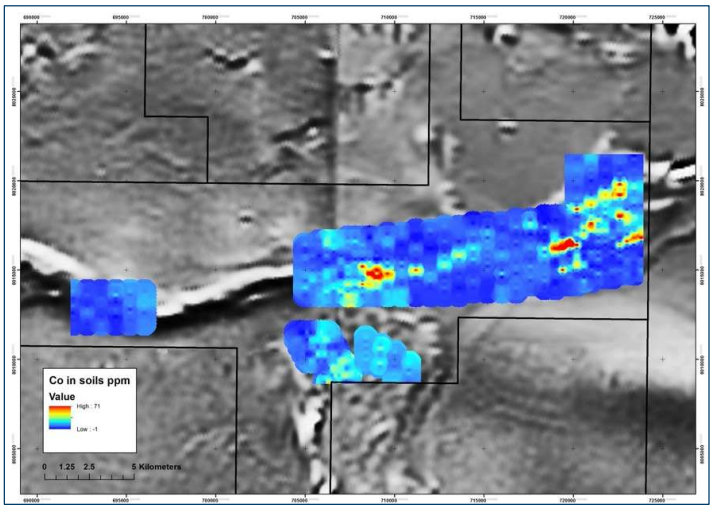


*Figure 12: Cobalt in soils on regional magnetics*

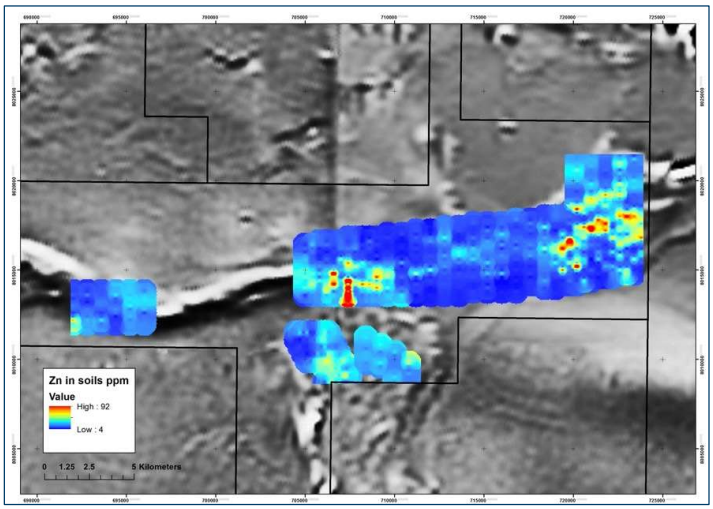


*Figure 13: Zinc in soils on regional magnetics*

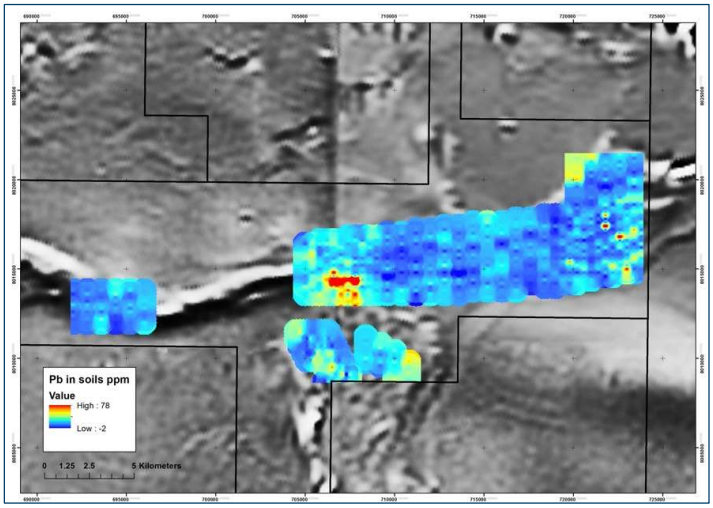


*Figure 14: Lead in soils on regional magnetics*

### 4.2.2 Stream Sediment Sampling

A total of 7 samples were collected on tenement EL 30668 (plus 1 duplicate). A further 44 samples (no duplicates) were collected on the adjacent EL31558 (to the north) prior to its grant (preliminary exploration) and therefore not reported in the Final Report for that tenement in February 2019. However, for ease of reporting, all data pertaining to the soils and stream sediments is contained herein.

Sample sites were predetermined in the office using up to date google earth imagery with the aim to confirm base metal anomalies identified in historic stream sediment sampling. Field crews would go to the site and then select a suitable trap site for the sample to be taken. Samples were collected and sieved to -2mm (~200gm) and collected using quad bikes. Samples were then submitted for analysis at ALS laboratories in Adelaide.

All samples were analysed using the ME-ICP61 (4 acid digest) and a suit of 33 elements were reported. In addition to this samples were assayed for gold using the Au-ICP21 technique. All results are contained in the appendices associated with the Final Report for EL30668 (Rawlings, 2019).

The results of this program confirm the base metal anomalies in the historic stream sediment results (in particular copper and cobalt) and these anomalies require further work (Figure 15 and Figure 16).

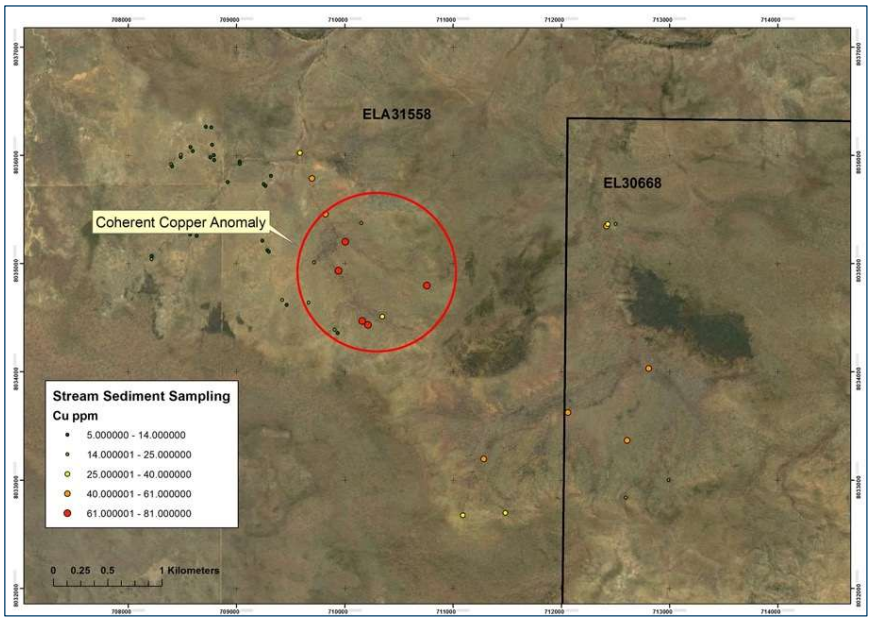


*Figure 15: Copper in stream sediment samples on Air photo Image*

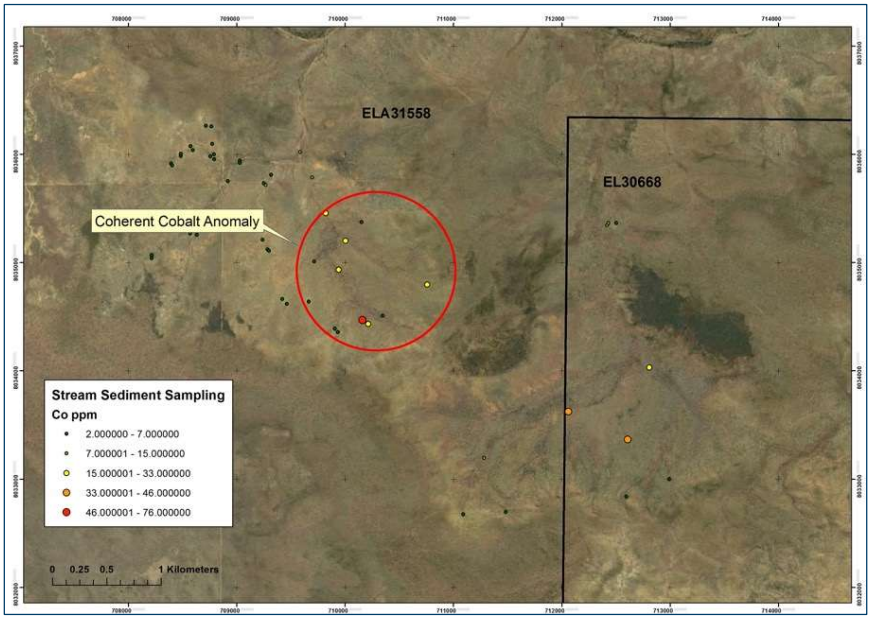


*Figure 16: Cobalt in stream sediment samples on Air photo image*

## 4.3 2017-2018

Early in 2018, Cedar decided to try to get this project on market via an IPO on the ASX. Due to adverse market conditions in mid-2018, after much of the IPO documentation was completed, the decision was made to delay the IPO (Coolabah Minerals Ltd). As a result of this no field work was completed over the project in the 2017-2018 reporting year.

## 4.4 2018 -2019

During the last year of tenure, all efforts were directed towards options to list this tenement on the ASX or NSX, along with adjoining ELs and those belonging to other parties in the area. No on-ground work was undertaken.

# 5. Xavier Resources Pty Ltd – Exploration Activity

After Cedar relinquished EL30668 in 2019, the contest of two new applications for the tenement resulted in the area being split into EL32228 and EL32229. EL32228 was awarded to Strategic Energy Resource Ltd (SER). Xavier Resources Pty Ltd (a wholly owned subsidiary of Resolution Minerals Pty Ltd) were able to secure the tenement from SER, the deal being valid from the time of grant approval. As a result of the application contest and covid-19 restrictions there was a delay with EL32228 being granted to Xavier on the 29th of March 2021.

RML conducted a comprehensive review of historical data and geological understanding alongside additional and reprocessed geophysical data to assess and identify prospective targets. On ground exploration commenced with reconnaissance, an airborne EM survey (VTEM Max) and scout RC drilling program.

## 5.1 Geological Activities

*Reconnaissance*

During the reporting period multiple reconnaissance trips were carried out to EL 32228, as well as the other two tenements which comprise RML's Benmara Project (EL 32229 and EL 31287).

Initial field trips allowed RML to meet with landholders to establish respectful relationships and proactively discuss activities and access options. One other key objective of the reconnaissance was ground truthing of the regional geology itself to validate existing geological understanding and offer higher confidence that interpretation was and is being done on accurate observations and data. As a part of this 6 surface rock chip and float samples were collected as well as 10 core samples which were taken from historic Ashton core which had been retained on site since drilling.

A focus was also put on ground truthing of VTEM survey data collected and processed during the reporting period to assess the spatial accuracy of data, and therefore it's value in contributing toward interpretation and geological understanding.

## 5.2 Geophysical Activities

### 5.2.1 VTEM Survey

Helicopter VTEM Survey was flown across EL 32228 over 347 Km². The survey was flown in April – May 2021 by UTS Geophysics PTY LTD. The A3 survey lines were flown in a south to north direction and the A4 survey lines were flown in a west to east direction, both with traverse line spacing of 1000m (Figure 17).
The survey was flown using a Eurocopter AS 350 B3 helicopter. The electromagnetic system was a UTS Time Domain EM (VTEMTM Max) full receiver-waveform streamed data recorded system and the magnetic sensor utilized for the survey was Geometrics optically pumped caesium vapour magnetic field sensor. For full details of equipment and calibration specifics used refer to the survey report included in Appendix1_VTEM_UTS.

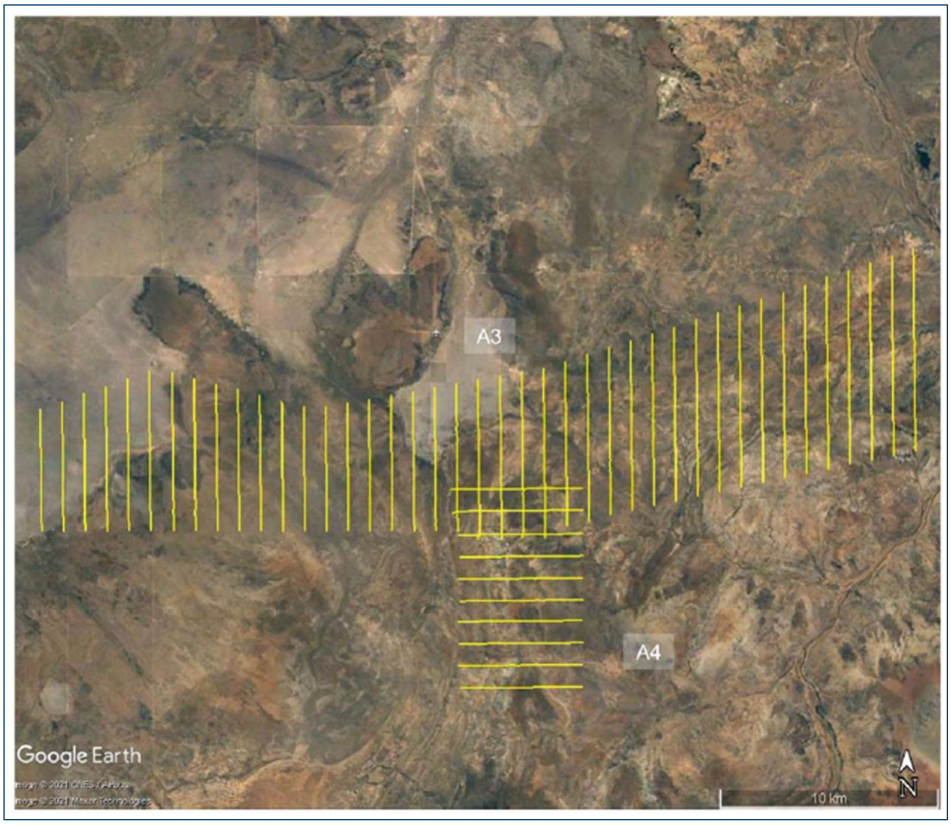


*Figure 17: EL 32228 VTEM survey area (UTS Geophysics 2021). Note different orientation of A3 and A4 areas.*

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to UTS Geophysics Ltd. Results were presented as stacked profiles, and contoured colour maps at a scale of 1:40,000.

In the Benmara area (A3 and A4), the survey block is marked by a narrow, moderate strength (>100nT), sinuous magnetic lineament that lies along the northern boundary of A3, which are highlighted in the TMI (Figure 18) and CVG (Figure 19) images.

Magnetic intensities are generally higher to the west and south, with a NS linear magnetic high centred in block A4. Electromagnetically, unlike the previous block, EM results are sometimes well correlated with magnetic anomalies, including a narrow EW linear EM conductor that roughly coincides with the northern magnetic lineament, However, EM anomalies in the southern half of the block are more poorly correlated with magnetics, except for a NS linear EM conductor that parallels the magnetic lineament in A4. The relationship between EM and magnetics are well highlighted in the TAU EM time-constant and CVG contour map (Figure 20) and in the RDI cross-sections. Conductive anomalies host EM dBZ/dt time constants in the 0.01 to 0.9 ms range, which indicates relatively moderate to high conductivities. Based on RDI imaging results, apparent resistivities of anomalous zones can be as low as approx. ~2-10 ohm-m and bedrock resistivities reach as high as approx. 5300 ohm-m. The estimated depths of burial anomalous zones vary from approximately near surface to >50m. Maximum depths of investigation (DOI) range from ~300m to >600m. (UTS Geophysics, 2021).

For more detail and all geophysical maps refer to the full survey report included in Appenndix1_VTEM_UTS.

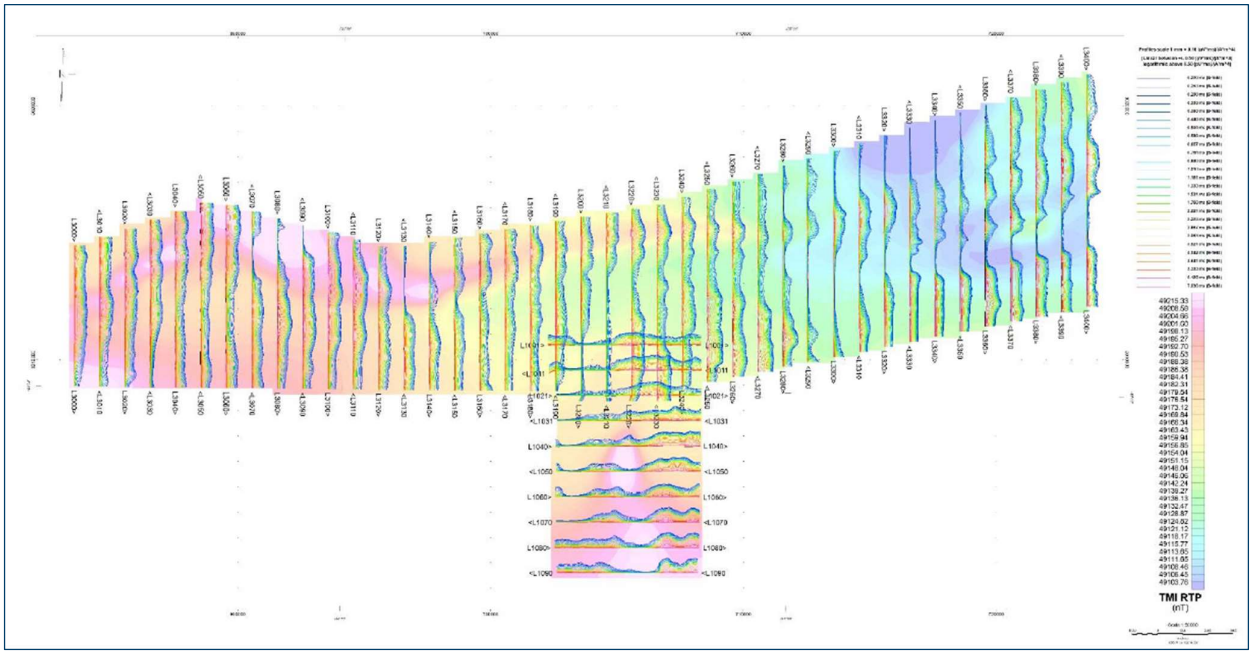


*Figure 18: B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale over Total Magnetic Intensity, Reduced to Pole colour image (RTP) (UTS Geophysics 2021).*

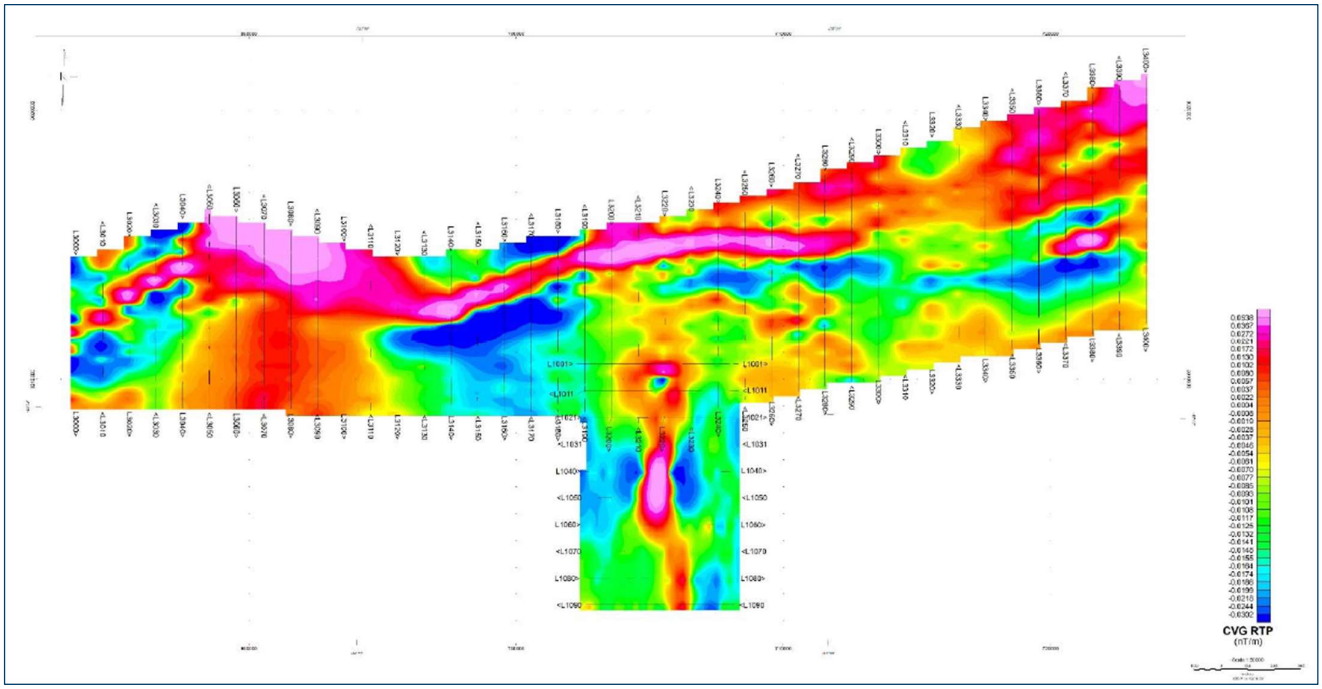


*Figure 19: Calculated Vertical Gradient (CVG) Reduced to Pole (RTP) (UTS Geophysics 2021)*

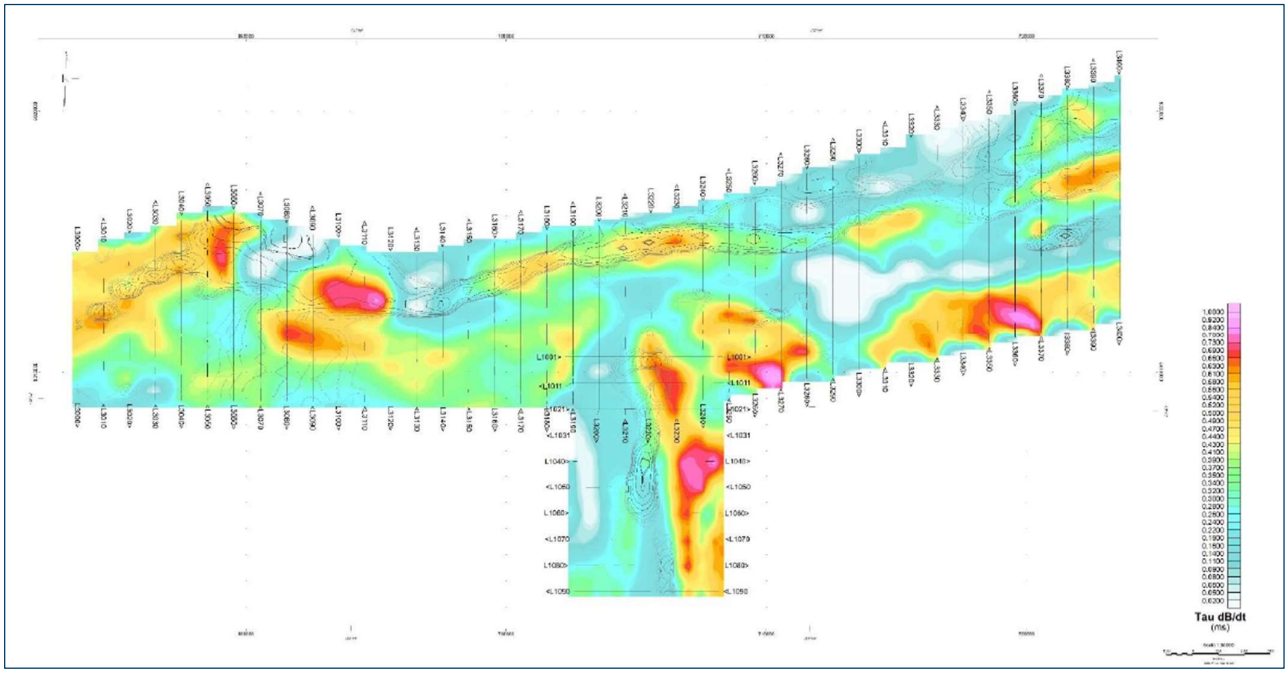


*Figure 20: Z-component dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative, Reduced to Pole (CVG_RTP) contours.(UTS Geophysics ,2021)*

### 5.2.2 Data Reprocessing - Intrepid

RML engaged the services of Intrepid Geophysics to perform 2.5D AEM inversions on the Benmara VTEM airborne electromagnetic survey outlined above. 2.5D AEM inversion software is designed to model resistivity/ conductivity and chargeability while taking into consideration topography and irregular subsurface structures thereby removing topographic artefacts and non-geological conductors. For details of the process involved in applying this method to the geophysical data refer to the Geointrepid Consulting Services Final Report December 2021 included in Appendix2_Intrepid.

Results were presented as inverted/ predicted profiles superimposed on observed data profiles for each measurement time with early, mid and late times Z component channels grouped together in three panels (Figure 21and Figure 22). The inverted profiles are displayed in black and the observed profiles in cycled colours. The second panel shows the noise map with above (green), below (blue) noise threshold and IP effects in red. The final base panel shows the 2.5D inversion log conductivity section in mS/m.

The examples below (Figure 21 and Figure 22) show a thin resistive cover underlain by a thin relatively flat, continuous conductive layer followed by thicker, shallow dipping, less conductive segments at irregular intervals, are defined in the log conductivity section. The inverted black profiles show an excellent fit with the observed.

The Geointrepid report found that the Benmara inversion misfits are very good (~10%) over the majority of the survey area (Figure 23). There is very little interference from IP effects.

Overall the Benmara VTEM survey responded reasonably well to the 2.5D inversion method and showed excellent continuity from section to section throughout the survey area. There was minor shallow IP interference and mostly clear definition of the conductive layers beneath. A quick review of drill logs indicated that conductive depth estimates were correct (Intrepid Geophysics, 2021)

For the full report refer to Appendix2_Intrepid.

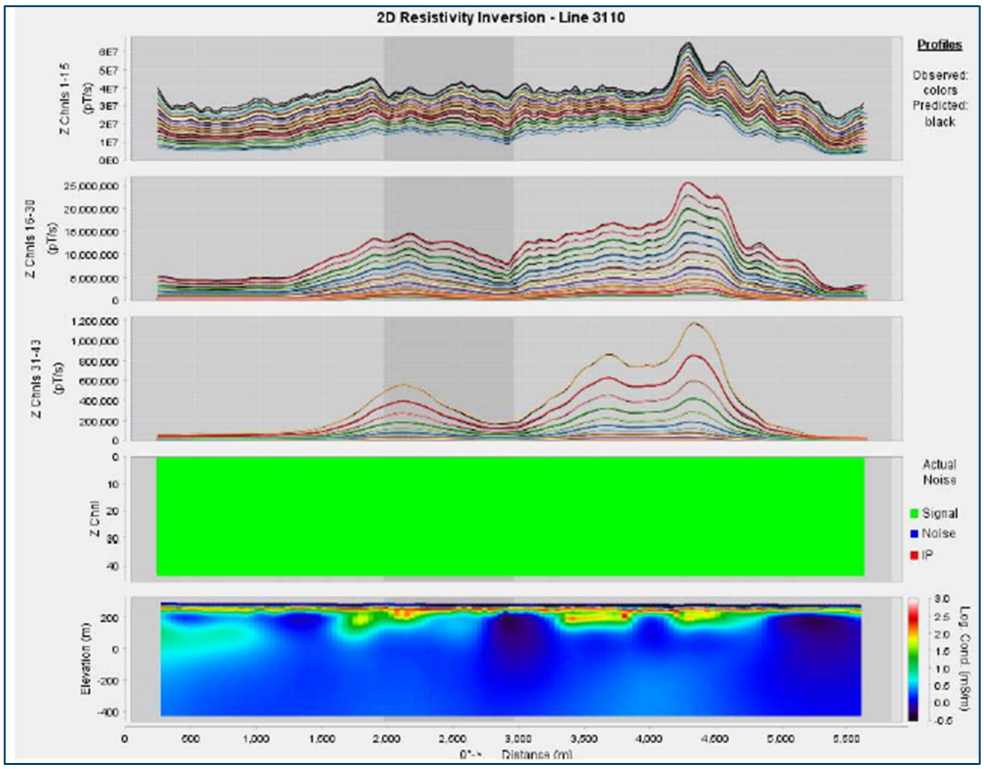


*Figure 21: Benmara - Line 3110 - Profile Misfits, Noise Map and LogCond Section (Geointrepid 2021)*

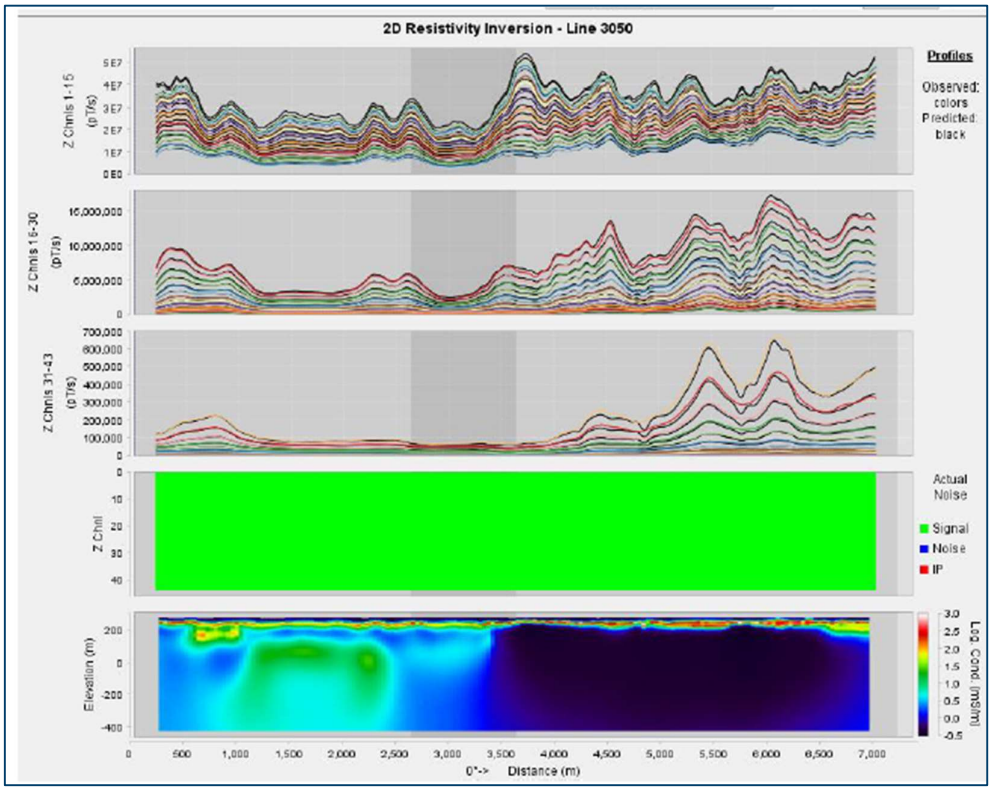


*Figure 22: Benmara - Line 3050 - Profile Misfits, Noise Map and LogCond Section (Geointrepid 2021)*

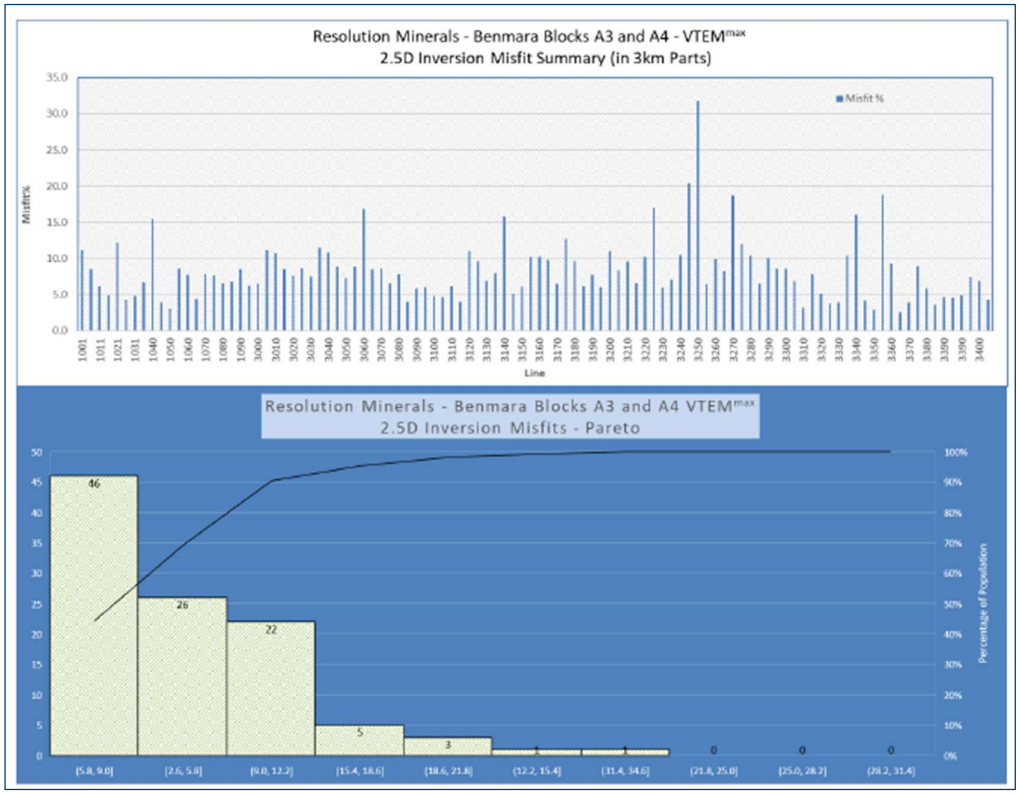


*Figure 23: EM 2.5D Inversion Misfit graph*

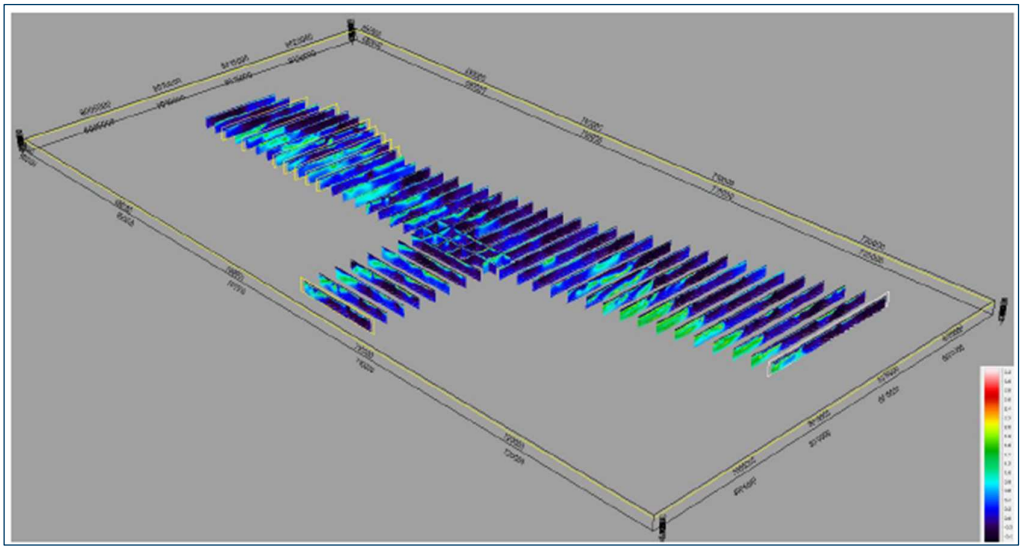

*Figure 24: Benmara - Log Conductivity 3D Perspective Mesh - DTM Surface*

## 5.3 Drilling

### 5.3.1 Reverse Circulation Drilling

15 Reverse Circulation (RC) holes for 2892m were drilled towards the end of September and into the beginning of October 2021. The program was “proof of concept” drilling aimed at confirming the potential for large scale green-fields sediment hosted battery metals. The main target area for the drilling was identified after the 2021 VTEM survey replicated the earlier GEOTEM anomalies for BC02 (Figure 7 and Figure 25). Holes were sampled throughout using 3m composites to ensure thorough coverage. Individual metre samples were also selected and submitted for assay.

Drilling intersected values of 0.1–0.2% Mn and 3–5% Fe within carbonaceous silty mudstones, indicating the presence of Fe–Mn carbonate alteration which is known to be associated with Zn-Pb-Ag mineralisation. Drilling also intersected a maximum value of 42 ppm Tl, with multiple samples exceeding 1 ppm Tl; these results indicate that the drillholes could be within kilometres of a base metal deposit. There is an increase in Tl from west to east within the carbonaceous silty mudstones.

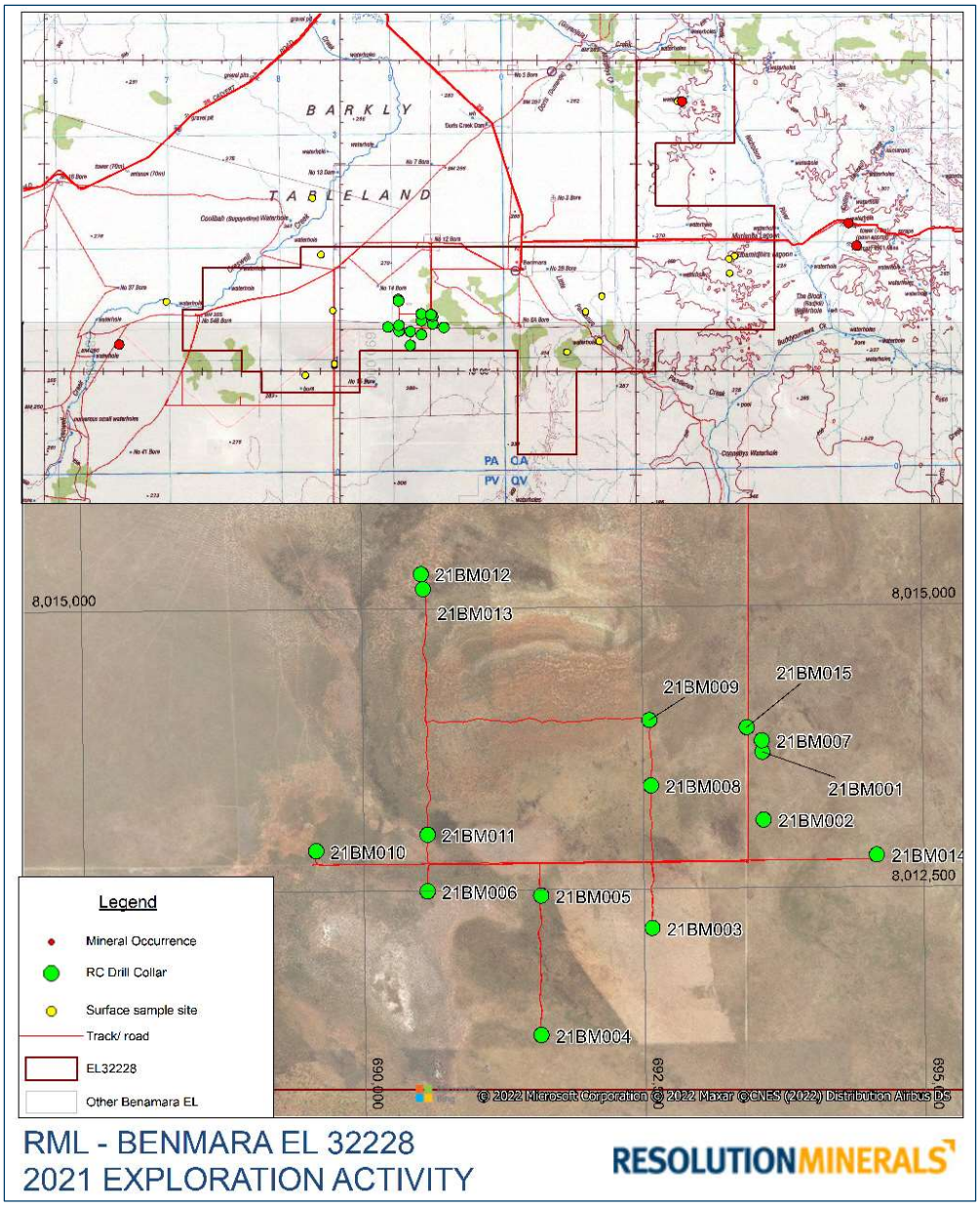


*Figure 25: EL 32228 2021 RC Drilling collar and surface sampling locations.*

## 5.4 Geochemistry

From the drilling, 964 composite samples of 3 metres were submitted for assay, as well as 63 single metre samples. During field reconnaissance 6 surface rock chip and float samples were collected as well as 10 core samples, which were taken from core which had been retained on site since drilling. Table 4 below summarises sample figures taken.

*Table 4: Summary of samples submitted for assay*

| Downhole samples | | | | |
|---|---|---|---|---|
| Hole ID | EOH Depth (m) | Number of 3m sample intervals | Number of 1m sample intervals | Petrology (intervals) |
| 21BM001 | 210 | 70 | 0 | 3 |
| 21BM002 | 228 | 76 | 0 | 3 |
| 21BM003 | 198 | 66 | 0 | 0 |
| 21BM004 | 126 | 42 | 0 | 0 |
| 21BM005 | 150 | 50 | 0 | 0 |
| 21BM006 | 210 | 70 | 6 | 0 |
| 21BM007 | 174 | 58 | 0 | 0 |
| 21BM008 | 228 | 76 | 0 | 3 |
| 21BM009 | 156 | 52 | 0 | 0 |
| 21BM010 | 264 | 88 | 24 | 0 |
| 21BM011 | 252 | 84 | 0 | 0 |
| 21BM012 | 180 | 60 | 17 | 0 |
| 21BM013 | 204 | 68 | 16 | 0 |
| 21BM014 | 186 | 62 | 0 | 3 |
| 21BM015 | 126 | 42 | 0 | 0 |
| Total | 2892 | 964 | 63 | 12 |

| Surface samples | | | | |
|---|---|---|---|---|
| Sample ID | Site Type | Hole ID (If Applicable) | Depth (m. If Applicable) | Comment |
| BM001 | Float | n/a | n/a | |
| BM002 | Float | n/a | n/a | |
| BM003 | Rock | n/a | n/a | |
| BM004 | Rock | n/a | n/a | |
| BM005 | Rock | n/a | n/a | |
| BM006 | Rock | n/a | n/a | |
| BM007 | Core | DDHCJ10 | 103.00 | |
| BM008 | Core | CJ-11 | 71.20 | |
| BM009 | Core | DDHCJ24 | 108.40 | |
| BM010 | Core | CJ125 | 23.50 | |
| BM011 | Core | DDHCJ9 | 104.00 | |
| BM012 | Core | BDH2 | 87.00 | |
| BM013 | Core | MD10 | 81.95 | |
| BM014 | Core | MD10 | 56.65 | |
| BM015 | Core | CJ125 | 121.80 | |
| BM016 | Core | CJ125 | 129.30 | |
| BM017 | Grab | CJ286 | u/k | Historic RC chips at surface |
| BM018 | Grab | CJ285 | u/k | |

Drill samples were submitted to ALS Global for Multi-Element Ultra trace method combining a four-acid digestion with ICP-MS instrumentation. Analytical analysis was performed with a combination of ICP-AES & ICP-MS.

Assay results returned elevated lead, zinc and silver (Pb-Zn-Ag) including:

- up to 198.5 ppm Pb in HoleID: 21BM006;
- 357 ppm Zn in HoleID: 21BM007;
- 307ppm Cu in HoleID: 21BM013;
- 0.65ppm Ag in HoleID: 21BM009.

Full assay results are included in Appendix3_Geochemisty.

The Benmara drilling also intersected a maximum value of 42ppm Tl, with multiple samples exceeding 1ppm Tl indicating these holes could be within kilometres of an ore zone (Figure 26). There is an increase in Tl from west to east within the carbonaceous siltstones and shales (Figure 27) (ASX Release, 03 December 2021).

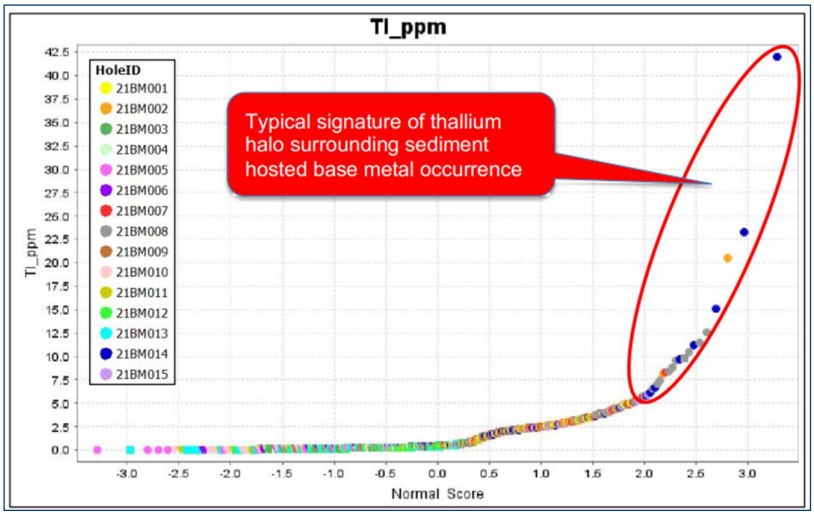


*Figure 26: Thallium results coloured by RC drillhole. Note holes 21BM001, 21BM002, 21BM007, 21BM008, 21BM014 and 21BM015 intersected thick carbonaceous siltstone and shale units.(ASX Release, 03 December 2021)*

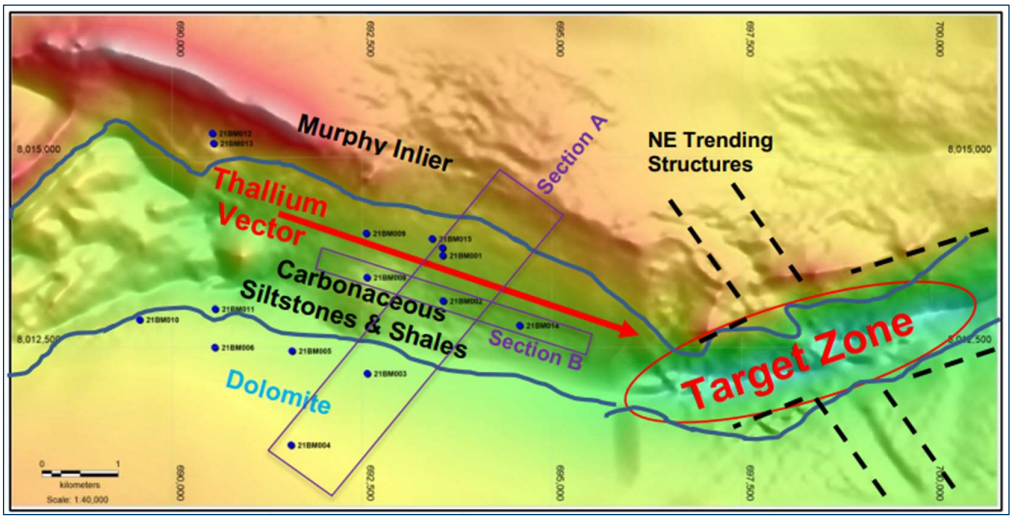


*Figure 27: Drill collar locations of recently completed RC drilling program and cross sections A and B. Prospective host rocks overlying dolomite unit analogous to Walford Creek and HYC stratigraphy. The thallium values increase (vector) towards a Target Zone with intersecting NW and ENE trending structures. The NW structures trend towards the Batten Fault Zone associated with the formation of HYC. The ENE trending structures form part of the Fish River Fault System associated with the formation of Walford Creek. Background TMI magnetics (ASX Release, 03 December 2021).*

## 5.5 Petrology

12 drill chip rock samples from 4 RML Benmara RC holes (Table 4) were submitted to Mason geoscience Pty Ltd (Mason) for study using optical petrographic and mineragraphic methods. Each sample had polished thin sections and combined petrographic and mineragraphic descriptions prepared. A colour photomicrograph for each section was also provided. Table 5 summarises the rock names and mineralogy of the samples provided. For the full descriptions including photomicrographs refer to Appendix4_Mason.

The sedimentary units identified in the petrology included laminated mudstones and carbonates that have been subjected to varying degrees of diagenesis and alteration. The presence of bitumen was noted within carbonates. Secondary pyrite was identified, which formed due to fluid infiltration during diagenesis, evidenced by fine grained pyrite being unrelated to primary sedimentary laminations (Mason 2022).

*Table 5: Summary of rock names and minerals from Mason Geoscience Petrology report*

**TABLE 1: SUMMARY OF ROCK NAMES AND MINERALOGY**

| SAMPLE | ROCK NAME | MINERALOGY* | | | |
|---|---|---|---|---|---|
| | | Primary** | Diagenesis/ Alteration | Veins / stylolite seals | Weathering |
| 21BM001, 140-141m | Weakly laminated pyritic ?carbonaceous silty mudstone | Qtz, mus, bio, Kf, tou | Phyl(?cla), ?crb, car(?Fedol), leu, py | - | - |
| 21BM001, 205-206m | Pyritic chloritic dolostone | Qtz(hem) | Car(dol), chl, py | - | - |
| 21BM003, 139-140m | Laminated limestone | Qtz, mus | Car(cal), leu, py | - | - |
| 21BM003, 196-197m | Weakly laminated limestone | Qtz, crb | Car(cal), ?chl, cpy | ?Chl | - |
| 21BM004, 105-106m | Bituminous brecciated limestone: | | | | |
| | Laminated bituminous limestone | Qtz | Car(cal), crb(bit), leu(?rut) | - | - |
| | Bitumen-carbonate cemented limestone breccia | - | Car(cal) | Car(cal), crb(bit) | - |
| 21BM007, 170-171m | Non-layered patchy sandy dolostone | Qtz(hem), glau, zir | Car(dol), py, cpy | Chl, py | - |
| 21BM008, 210-211m | Pyrite-carbonate veined felsic tuff | - | Flm(Kf), cla, py | Py, car(?Fedol) | - |
| 21BM009, 141-142m | Strongly weathered laminated felsic ?ash ?tuff | - | - | - | Cla(?kao), qtz, qtz(chc), goe |
| 21BM010, 79-80m | Quartz cemented, fragmental (intraclastic) dolostone | Qtz, glau, zir, crb | Car(dol), py | Qtz(chc) | - |
| 21BM012, 149-150m | Thinly veined and high-intensity chlorite-sericite altered ?basalt/?mudstone | - | Chl, ser, leu | Chl, car, qtz, py, cpy, ?ser | - |
| 21BM014, 129-130m | Laminated pyritic ?carbonaceous silty mudstone | Qtz, Kf, mus, bio, zir | Cla, ?crb, car(?Fedol), py | - | - |
| 21BM014, 179-180m | Laminated pyritic silty mudstone | Qtz, mus, bio | Mus/ser, car(?Fedol), py | - | - |

**NOTES**
*: Minerals are listed in each paragenesis according to approximate decreasing abundance.
**: Only primary minerals currently present in the rock are listed. Others may have been present, but are altered.

### 5.6 TOC

During the reporting period RML submitted 12 selective silty mudstone RC samples for total organic carbon (TOC) analysis.

TOC is used to screen for potential base metal depositional sites where reduced stratigraphy can act as an effective chemical gradient along which metal may be deposited. Mass balance calculations suggest TOC of 1 wt% is the minimum amount of organic matter required; global sedimentary-hosted base metal deposits usually occur within shales that have TOC ≥3 wt% (Emsbo, 2009).

The average silty mudstone TOC value was 2.18%, with a maximum value of 3.23%. This is highly significant given TOC of 1% is the minimum amount of organic matter required in reduced stratigraphy for an effective chemical gradient along which metal may commence precipitation (Jarrett et al 2020). Oil slick was noted on the surface of the sieving bucket during logging, which is a good field indicator for TOC exceeding 1% (Amalric G, pers comm 2022).

## 6. Other Work

Drillholes from the 2021 Benmara drill program were submitted for Hylogger analysis, however results were not received before the end of this reporting period therefore will be included in the EL32228 2023 ATR.

Rehabilitation of drill holes, spoils and associated pad disturbance were rehabilitated by November 2021 after sampling was confirmed to be completed

Due to the unforeseen circumstances of COVID-19 resulting in border closures, in conjunction RML's Northern Territory projects falling within the *COVID-19 Biosecurity Zone* (Roper Gulf Designated Area), exploration activities for the company were reduced during the reporting period and travel restrictions were worked around.

## 7. Conclusions and Recommendations

In 2021, Resolution commenced exploration on permit EL 32228 to substantiate the area's prospectivity with an airborne EM survey (VTEM Max) and a scout RC drilling program with follow up geochemistry, petrology and total organic carbon analysis (TOC). The airborne EM survey identified km-scale conductors along the margin of the basin. A number of these conductors were tested by RC drilling, the best of which intersected thick (194 m) pyritic, carbonaceous, laminated mudstone and shale units akin to Barney Creek Formation (southern McArthur Basin). This demonstrated that prospective, reduced units are present in the region. Furthermore, intense alteration zones were also noted, as well as multiple tuff horizons throughout the stratigraphy. The combination of these geological ingredients make this a standout greenfield exploration project with an unconstrained search space.

Due to Covid-19 restrictions limiting available field time during the 2021 field season, priority was given to the Benmara Project. During the next reporting period priority for field allocation will be given to RML's other proximal Northern Territory Projects, which will also assist with understanding and confirmation of geological interpretation on a regional scale.

RML is excited to continue progressing Benmara in 2022 and intends to conduct geological and geophysical data reviews and interpolation of results for further target generation, as well as undertaking reconnaissance and completing rehabilitation inspections.

More detailed work is required to vector towards economic base metal mineralisation. Future exploration should include detailed magnetic and gravity surveys along the basin margin, followed by litho-structural interpretation. This methodology aims to define structurally–controlled sub-basins, which can form ideal trap sites for mineralisation. During future drilling programs, samples from tuff marker horizons will be collected for geochronology to confirm positioning with regard to basin architecture.

# 8. References

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# Appendices