

EARTH AI

EL32019 DERRY DOWNS PROJECT Final Report 2021

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| Title Holder: | Magnet Exploration Pty Ltd |
| Operator: | EARTH AI Operations Australia Pty Ltd |
| Title: | EL32019 |
| Report type: | Annual |
| Project: | Elkedra |
| Report Period: | 07/05/2019 – 28/07/2021 |
| Due Date: | 28/07/2021 |
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| Date Compiled: | 28/07/2021 |
| State: | Northern Territory |
| Commodity: | Vanadium, Lead, Copper, Silver, Zinc |
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| NT 1:250K map sheet: | ELKEDRA |
| NT 1:100K map sheet: | Elkedra, George Creek, Ammaroo, Sandover |

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Abstract

EL32019 is a new title secured first hand by Magnet Exploration Pty Ltd in 2019, after preliminary exploration work conducted by EARTH AI OPERATIONS AUSTRALIA PTY LTD, part of EARTH AI GROUP of companies further referred to as **EARTH AI**.

EARTH AI has developed proprietary Artificial Intelligence (further referred as **AI**) technology for mineral targeting that utilises archive remote sensing, geophysical and geochemical data to target new mineral deposits.

Since 2018, EARTH AI has embarked on a major Northern Territory-wide field campaign of rapid preliminary exploration targeted by the AI predictions and field validated by self-sufficient internal geology teams conducting portable X Ray Fluorescence (XRF) analysis of soils and rocks as well as soil & wholerock sampling. The work was conducted on pastoral properties without mineral tiles. We tested 132 sites, confirming geochemical anomalies on 35 of them, yielding an impressive 26% success rate.

The Derry Downs prospect was located due to our AI technology predicting its location and is part of the wider Elkedra Project. There are no known mineral occurrences within the title area although exploration by Earth AI Operations has identified significant Pb-Zn-Cu-Ag mineralisation to the north. A literature review of all previous exploration conducted in the area has provided some indication of neighbouring mineral systems and provided information on the local observed geology. Our exploration programs will leverage the existing surrounding data to assist us in conducting our own research to understand the geology of the area.

Since the initial focus of the greater Elkedra region has been on adjacent tenements EL31951 and EL31952, exploration activities within the Derry Downs tenement during the reporting period has been limited to desktop research and intensive AI analysis. Work in the adjacent tenements has helped us identify several areas of anomalism and further work is planned to delineate the surface extent of anomalism within these areas as well as applying the developed knowledge to the Derry Downs tenement.

This year's work has been heavily impacted by COVID-19 related travel restrictions & logistical supply chain problems. We weren't able to perform fieldwork and collect new field data on EL32019.

Unfortunately, due to the very long and unpredictable nature of the COVID-19 pandemic we don't see the possibility for us to logistically support and continue investing in the exploration of this project. In case the situation becomes suitable after the pandemic, we would like to revisit the project in the future as well as encourage other explorers to build up on our work in the area.

Copyright

All copyright to the information provided in this report belongs to EARTH AI PTY LTD which authorises the Mines department to copy and distribute this report and associated data for internal non-public use as governed by the confidentiality and other relevant terms of the Exploration licence under the Mineral titles Act.

Location, Title History, Physiography and Access

The Derry Downs Project (EL32019) is located approximately 300km northeast of Alice Springs and 200km southeast of Tennant Creek in the Barkly Region of the Northern Territory, Australia. Alice Springs serves as the major hub for freight, fuel and food, and the Alice Springs airport is used to fly in and fly out of the exploration area.

Access to the project is via the Sandover Highway from the south from Alice Springs. Station tracks provide access to much of the exploration area with track quality well-maintained by the pastoralists.

The area is characterised by low rolling hills of quartzite surrounded by large flat plains. Small shrubs and gumtrees populate the landscape along with termite mounds and spinifex. There are dry creek crossings on station roads en route to the target area but few significant drainage systems close to our main work area. This combined with the dry climate allows the flora to be easily negotiated with minimal environmental impact.

Exploration License EL32019 covers an area of approximately 583 square kilometers (Figure 1).



Figure 1. Topographic sheet and location of EL32019.

Geological Setting

The Derry Downs project is located within the Late Proterozoic Davenport province, which constitutes the Southern portion of the Palaeoproterozoic Tennant Creek Inlier. To the northwest, it borders Warramunga and Tomkinson provinces of overlapping age and common history. East of the license area, the Osbourne and Crawford range stratigraphy correlates with lithologies of the Davenport Province.

The much younger Cambrian Wiso and Georgina Basins are present to the West and East of the province respectively. The basin sequence has undergone very little deformation and lie sub-horizontally. In some cases, erosional remnants of the Cambrian basins outcrop within the Davenport Province, typically capping the topographic highs.

The Davenport Province consists predominantly of Paleoproterozoic continental shallow marine sedimentary, and felsic with minor mafic volcanic sequences of Ooradidgee and Hatches Creek groups (1850-1810 Ma). The rocks of the Ooradidgee and Hatches Creek Group are generally sub-vertical and regionally metamorphosed to predominantly greenschist facies with multiple stages of deformation.

Two magmatic suites occur in the Davenport Province: The ca 1820-1820 Ma Treasure Suite (comprises volcanic and intrusive felsic and mafic rocks) and ca 1720-1700Ma Devils Suite (comprises intrusive highly fractionated post-tectonic granite). The latter is associated with tungsten-tin bearing vein mineralisation.

Deposition and emplacement of Ooradidgee and Hatches Creek Group rocks occurred synkinematic to the late stages of the Tennant Event at ca 1 850Ma. This event resulted in widespread folding and minor faulting throughout the Tennant Region.

The Murchison Event ca 1815-1805 Ma is mostly associated with reverse faulting of the Wauchope Fold Belt, emplacement of felsic and mafic rocks (Treasure suite and Ooradidgee Group) and ENE-WNW trending folds. Superimposed NW-trending folds within the Davenport Region are attributed to the Davenport event that occurred during ca 1720-1700Ma. Synclines are highly elongated and generally have symmetrical limbs. The cores of synclines are composed of the youngest rocks in the area - the Lennee Creek Formation siltstones. Anticlines have a less elongated fabric, and exhibit island-like outcrop patterns caused by their undulating hinges. Anticline cores generally have outcropping Newland volcanics or older rocks of the Hatches Creek Group. This second phase of folding was also synchronous with strike-slip faulting that produced NW-trending faults.

Several late brittle deformation events post-dating the Davenport Event (ca 1720-1700Ma) can be observed in regional geology maps and are visible in regional magnetic imagery. Timing is not known but inferred to be late and attributed to the Alice Springs Orogeny.

Historical Exploration

A detailed review of historical exploration established that previous exploration was not systematic and only minimal field reconnaissance was carried out. Many companies have shown interest in the tenement between the 1970's and 2000's, and the historical findings warrant further field-testing to assess the mineralisation potential through systematic exploration.

Historical sampling programs have found enrichments in Cu, Pb, Zn, As, Ba, W and Ta. Historical exploration has been focused on the presence of minor surface turquoise within the Cambrian rocks of the Georgina Basin. There are numerous historical turquoise (Cu Al phosphate) mine workings, including the Tosca mine that produced 60 tonnes of turquoise before shutting down in 1980. In 1992, Mount Isa Mines (CR1992-0660) drilled the Cobalt bloom prospect that had historical chip samples with 9300ppm Cu, 4800ppm Co, 2.55% Ba and 1250ppm Zn; although the drilling program was later suspended due to lack of ore body continuity directly underneath the outcropping mineralisation.

In 1971, Metals Investment Holdings (CR1971-0083) detailed historical accounts of the regional geology and Cu-Pb mineralisation of the Hatches Creek Group. Geologic mapping and geochemical sampling was recommended but no field reconnaissance was conducted.

Kewanee Australia conducted an extensive geological survey in 1972 followed by an inconclusive field program (CR1972-0072). No geochemical data was collected within the license area.

A joint venture between Amoco Minerals Australia Company and BHP (CR1984-0095) in 1984 for kimberlite indicator minerals returned no significant results of the 13 samples collected within the exploration license area. Failing to find indication of kimberlites, BHP withdrew from the venture and Amoco Minerals Australia Company continued to explore areas in the retained tenement area for tungsten and base metals.

Harrow Enterprise carried out a detailed desktop study in 1992 (CR1992-0510). Field reconnaissance in the same year targeting Amoco's manganese anomaly on the SE margin of the license area returned anomalous results at the intersection of the regional NE and NW structure: 1.87% Ba, 3100ppm Cu, 410ppm Zn, 130ppm Ni. To the north of the manganese occurrence, a basalt unit with minor quartz veining also returned anomalous Ba at 1500ppm and Mn at 1580ppm. In the same area the Frew River Formation outcrop returned anomalous Ba at

1540ppm and Cu at 1380ppm. One drainage sample was collected and was anomalous for Ba (2000ppm) and Cu (730ppm). In their second year of tenure (CR1993-0642), work completed within the license consisted of photogeological mapping, stream sediment (36) and rock chip (31) sampling to follow up results achieved in their first year. Analysis of stream sediment samples were not promising, returning only minor anomalous values for two samples: Pb at 70ppm and Zn at 105ppm. Rock chip samples from basalts and ferruginous silcrete and sandstone gave low values with maximums of: 100ppm Cu, 115ppm Zn, <0.01ppm Au. In 2003 and 2004, Arafura Resources intended to explore for rare earth elements (CR2003-0046) but failed to raise funds. No exploration was conducted on the license during this period. In their 3rd year (2005) an extensive reconnaissance program targeting Kurinelli-type Au, Hatches Creek-type tungsten, Barrow Creek-type Ni/Cu and diamonds was carried out. A total of 141 soil samples were collected and results returned 47 samples in the range of 1-2ppb Au. Assays showed no significant result. The tenement was retained until 2006 before being relinquished due to lack of results.

Exploration was also conducted by Emmerson Resources in the area between 2008 and 2009 (CR2009-0589). During this period, a detailed prospectivity analysis was carried out in the license area, which consisted of data compilation and review of previous exploration work, analysis of magnetic anomalies and gravity methods. New targets that possibly displayed the potential for variations on the magnetite ironstone hosted gold copper deposits were defined. However, Emmerson prioritised other tenement work and failed to carry out adequate exploration required to determine the economic potential of the license area. The license was surrendered to pursue other tenements considered prospective by the company.

NuPower Resource Ltd (2009) reviewed previous exploration work in the license area and conducted a desktop study of NTGS airborne surveys (uranium and thorium radiometric images). A selection of radiometric anomalies were assessed in the field and attributed to variations in background levels between rocks of the Newlands Volcanics and Coulters Sandstone. The tenement was relinquished due to the lack of results (CR2008-0946).

Between 2013-2015 China Australia Land Resources (CR2013-0830, CR2014-0812, CR2015-0814) carried out desktop surveys over the license area and surrounds; no fieldwork was conducted.

Giants Reef noted in report CR2009-0589 that exposures of the Frew River Formation are commonly strongly iron-stained, with deposition considered to have been in a shallow-marine or lacustrine environment, analogous to the McArthur River Pb-Zn deposits.

The Juggler historical Tungsten Prospect is located adjacent to Elkedra Granite and comprises 0.2-1m quartz-tungsten veins. It was partially mined by small scale trenching. Peninsula Resources revisited the prospect in 2016 (CR2018-0425) and found significant Tungsten

mineralisation returning 1.41% WO_3 in an outcropping shear hosted quartz-tourmaline-tungsten-tantalum vein.

In the eastern part of the area there is an alluvial deposit of Ta, W and Sn. Two historical samples assayed at the abandoned, historical Trew Creek Mine (no available historical exploration report) found 26.6% Ta_2O_5 , 31.7% Nb, 2% WO_3 and 66.2% TaO_5 , 10.3% Nb and 1.15% Sn.

Rum Jungle Resources (CR2016-0654) reported shallow, historical bulldozer scrapers into a turquoise outcrop just east of Whiskey Camp Creek. The minor, non-gem quality turquoise was found over an area 0.75km² which has previously reported anomalous phosphate results.

Exploration Rationale

Exploration targets were chosen based on three criteria:

- 1) Density of Earth AI proprietary AI technology predictions (referred to as clusters)
- 2) The size of the cluster (interpreted as the potential extent of the surface anomaly)
- 3) Multiple single-element clusters proximal to (within 1km), or overlapping other clusters

Multi-element analysis using Earth AI proprietary Ai technology predicted multiple high-density clusters that in some cases overlapped, or were within a reasonable distance from one another.

Exploration Index Map

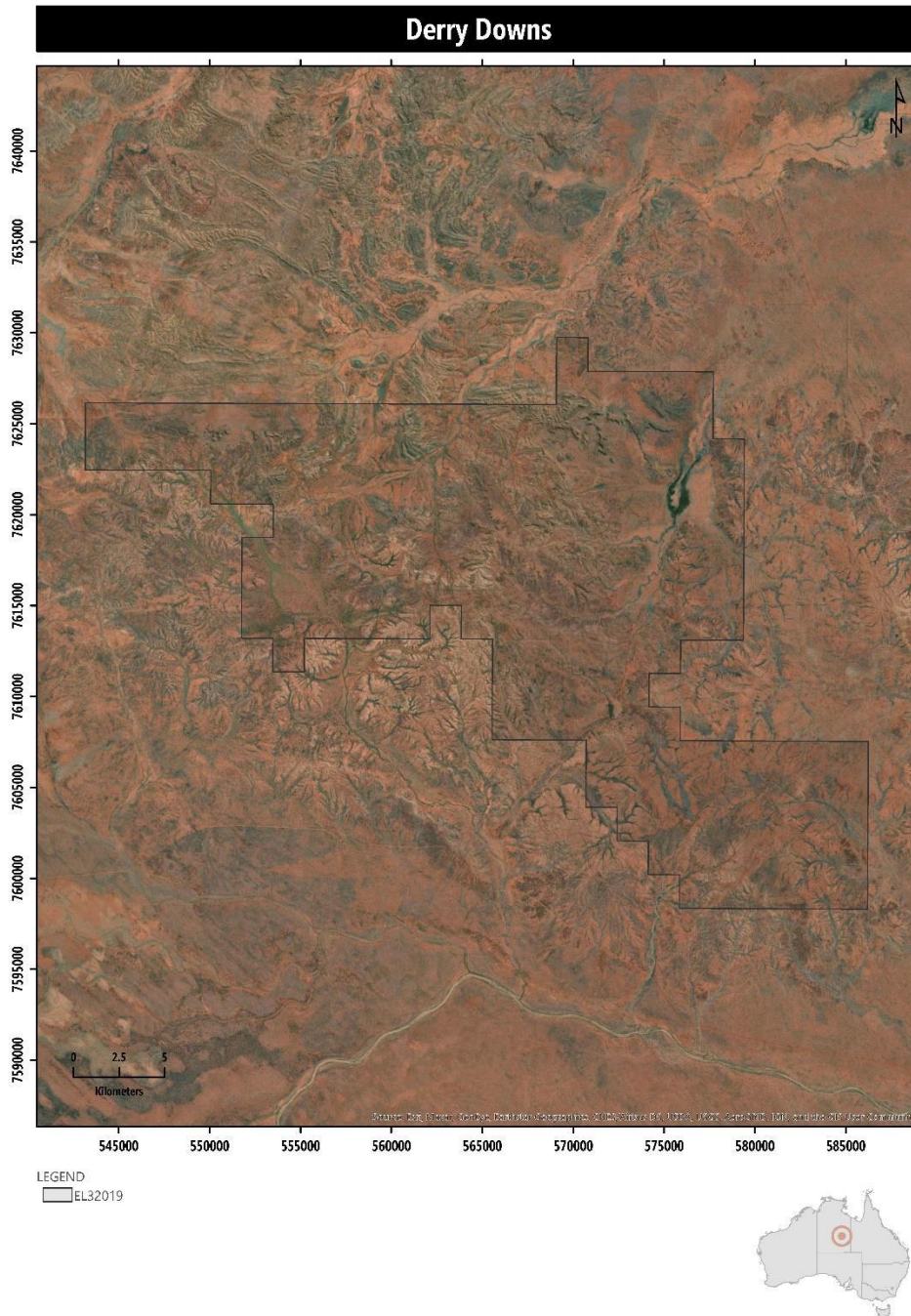


Figure 2. Index Map for EL32019.

Geological Activities and Office Studies

Tenement and Prospect Geology

EL32019 is dominated by outcropping, folded and metamorphosed ridges of Paleoproterozoic siliciclastic Unimbra, Kurinelli and Coulters Sandstones. Less prominent outcrops of felsic Newlands Volcanics and lesser Treasure Volcanics are also common. Lower elevations are dominated by less mechanically and chemically resistant Rooneys and Few River Formation siltstone, feldspathic-lithic arenite to greywacke sediments. The youngest Palaeoproterozoic lithology in the area, the tourmaline-muscovite-biotite bearing Elkedra Granite (1720 +/- 6Ma) intrudes all siliciclastic sediments, outcropping a lower elevations, typically capped by overlying, flat-lying, conglomeratic sediments of the Cambrian Georgina Basin (Andagera & Arthur Creek Formation) as well as Cenozoic alluvium and colluvium.

AI Analysis using EARTH AI's Proprietary Targeting Technology

EARTH AI data scientists have performed target generation analysis using our proprietary machine learning system that utilises Australia-wide open file and public domain geological, geophysical and remote sensing data for training. The system is able to recognise specific data signatures associated with mineralisation in areas not explored previously. This allows for predictions of mineralisation to be produced throughout Australia with a coverage and scope not previously possible.

AI targeting results are produced in tabular format indicating each predicted point location coordinates and its probability.

AI Cluster analysis of global proprietary datasets over the areas of interest has also been completed (Figure 5), demonstrating a strong coincidence with regional 1:250,000 scale mapping and highlighting discrepancies, potentially indicating that regional geological mapping could be refined in these areas once ground truthed.

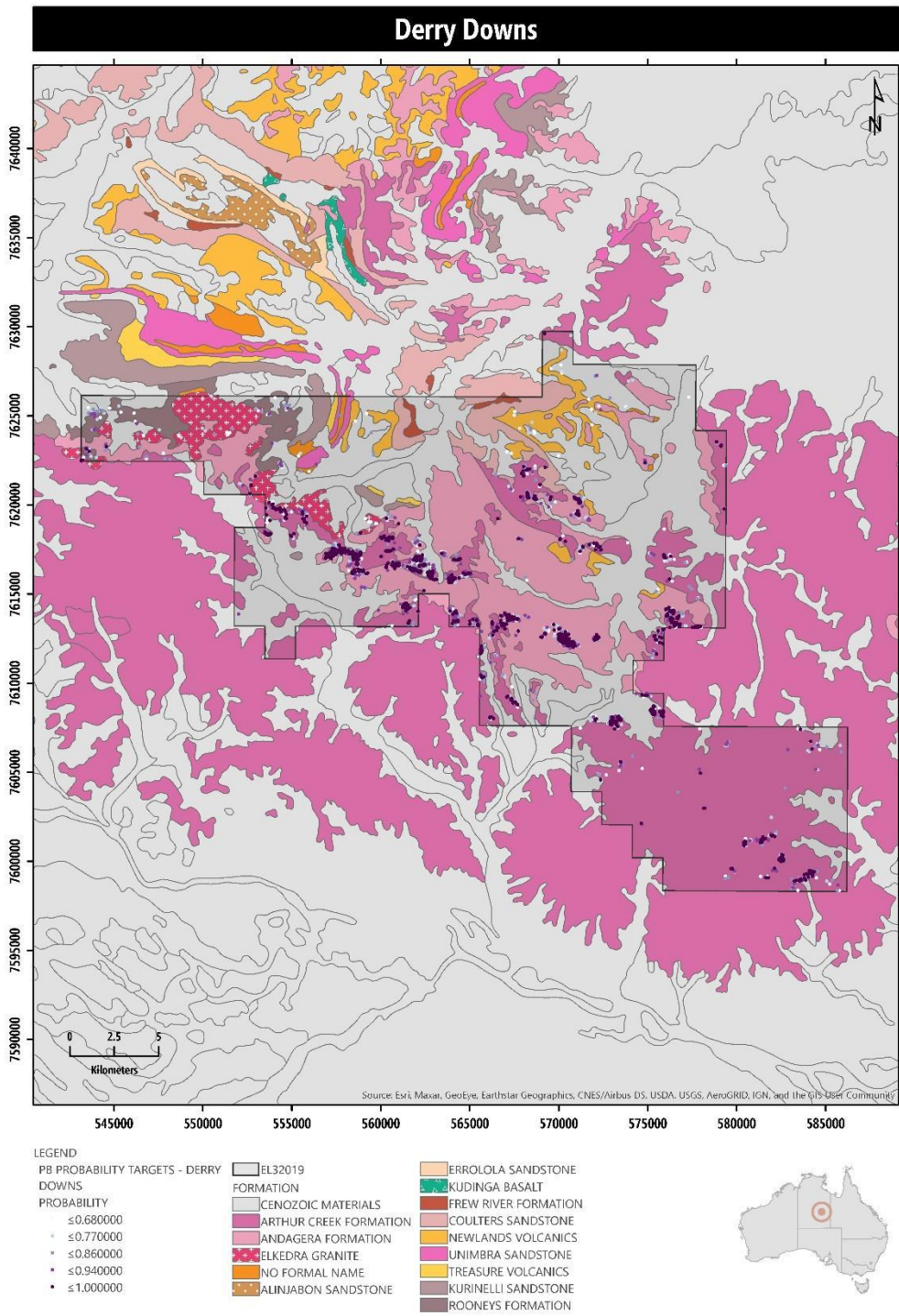


Figure 3. Image of AI predictions for Pb over local geology within EL32019.

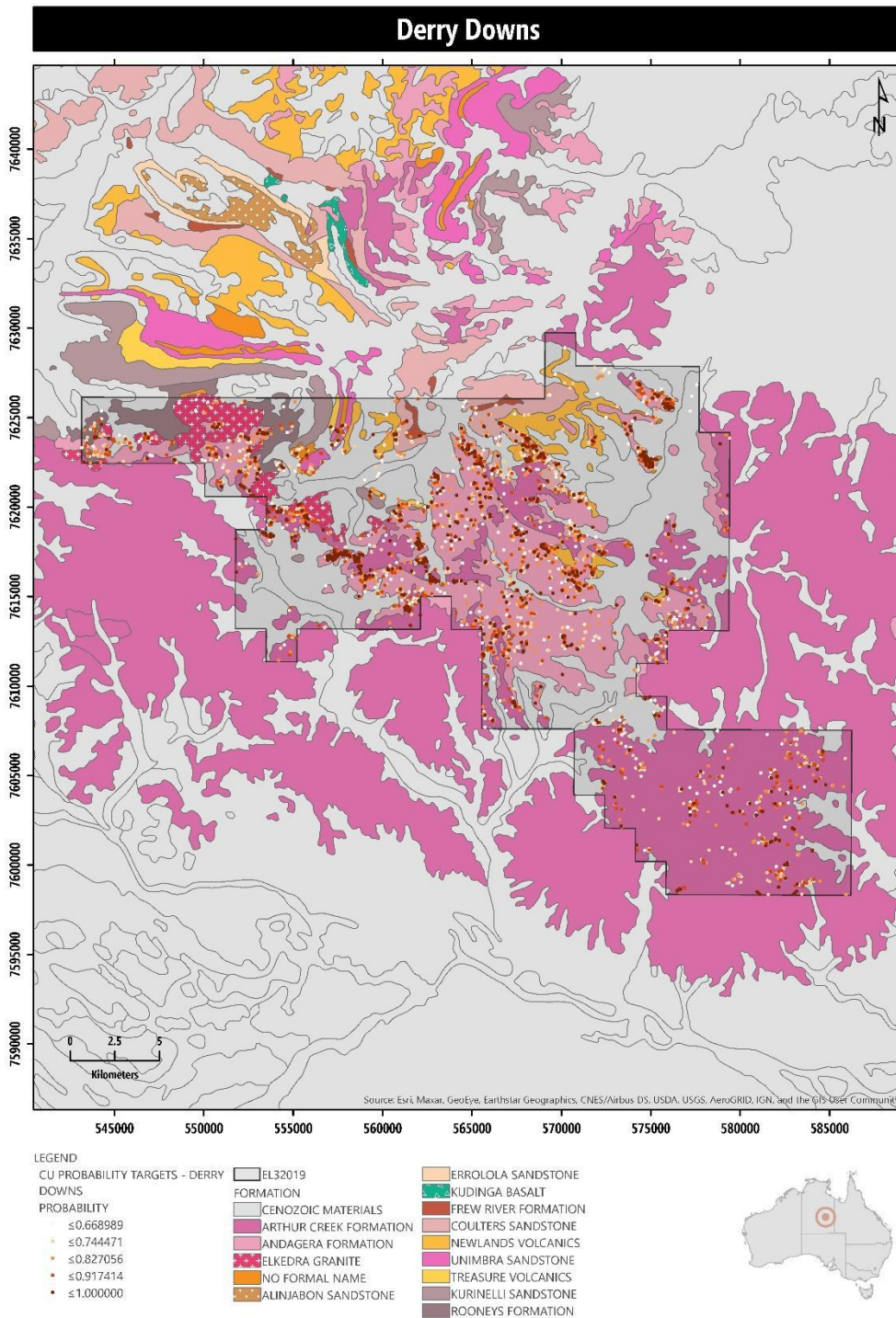


Figure 4. Image of AI predictions for Cu over local geology within EL32019.

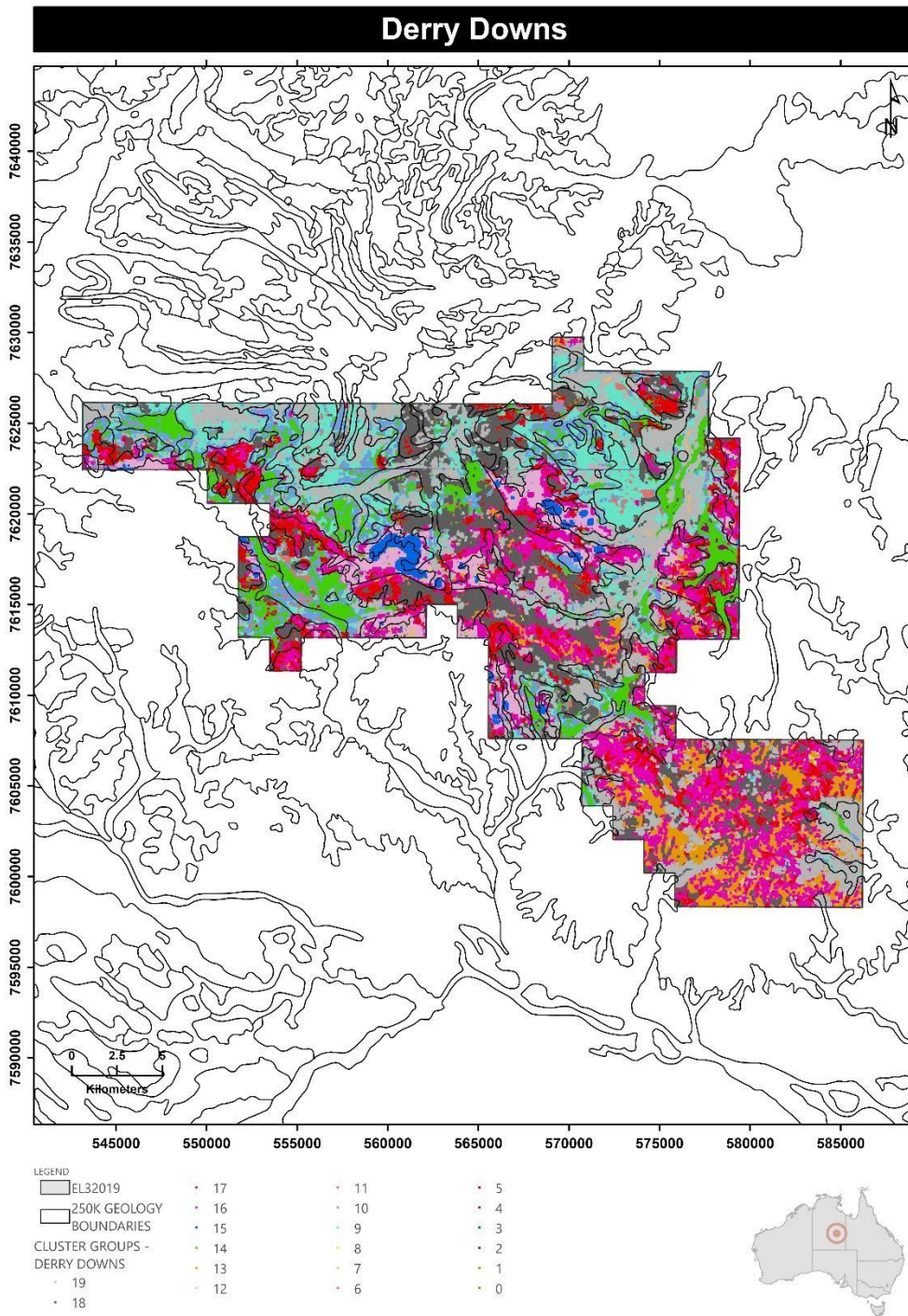


Figure 5. Map of 250k regional geology outlines overlaid on 20 group cluster products demonstrating correlation and discrepancies between the mapped lithologies.

Geophysical Activities

No geophysical activities were completed within the reporting period.

Surface Geochemistry

No surficial geochemical data was collected during the reporting period.

Drilling

No drilling was completed within the reporting period.

Conclusions and Recommendations for Future Work

Unfortunately, due to the very long and unpredictable nature of the COVID-19 pandemic we don't see the possibility for us to logistically support and continue investing in the exploration of this project. In case the situation becomes suitable after the pandemic, we would like to revisit the project in the future as well as encourage other explorers to build up on our work in the area.

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Data Formats and Specifications

See Appendix I (Appendix_I_EL32019_tables.zip)

Tabular Data

See Appendix I (Appendix_I_EL32019_tables.zip)

Photographs Other than Those in the Body of Text

No photos attached to this report.