TITLE HOLDER: MANGROVE RESOURCES PTY LTD

OPERATOR: NORTHERN COBALT LTD

GR390-19 Combined Annual Technical Report
Wollogorang Project
EL 31272, EL 30496 & EL 30590
for the period 10/04/2018 to 28/02/2019
and
EL 31546, EL 31547, EL 31548, EL 31549 & EL 31550
for the period 19/01/2018 to 28/02/2019

April 2019

Target Commodities: Co, Ni, Cu, Zn, Pb, Ag, P, U, REE
Mapsheets 100K: Robinson 6365, Calvert River 6465, Pungalina 6364, Selby 6464, Wollogorang 6463
Mapsheets 250K: Robinson River SE5304, Calvert Hills SE5308

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Abstract

EL 31272, EL 30496, EL 30590, EL 31546, EL 31547, EL 31548, EL 31549 & EL 31550 form the Wollogorang Project (GR390), which is currently held by Mangrove Resources Pty. Ltd., a subsidiary company of Northern Cobalt Ltd. Work completed during the reporting period included; a regional airborne magnetic/radiometric survey, a regional RAB/AC drilling program, an IP survey, surface geochemistry and metallurgical test work on the previously defined Stanton Resource (JORC 2012 compliant).

Positive results were returned from the regional RAB/AC drilling, including the identification of the GregJo Prospect. Initial work during the next reporting period will focus on the GregJo prospect and will include bedrock drilling along strike and RC drilling at depth. If success is met during follow-up of IP anomalies, further IP surveys will be undertaken.

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1 Introduction

The Wollogorang Project tenements EL 31272, EL 30496, EL 30590, EL 31546, EL 31547, EL 31548, EL 31549 and EL 31550 are currently held by Mangrove Resources Pty. Ltd., a subsidiary company of Northern Cobalt Ltd. This report outlines the work conducted within the Wollogorang Project during 2018-2019 by Northern Cobalt Ltd and is the third combined annual report under group reporting status (GR390).

A regional heli-Magnetic/Radiometric survey was flown during the reporting period. The survey specifications were based on findings from the 2017 trial survey. The regional heli-Magnetic/Radiometric survey was used to define regional RAB/AC drill targets (i.e. Stanton-style magnetic low coincident with pull-apart basin structures). This was followed by an extensive bedrock drilling program in excess of 14,000m.

A geophysical investigation was undertaken for the purpose of targeting further Stanton-style mineralisation. A trial IP survey was completed across Stanton Resource and the Running Creek and GregJo regional targets. The findings from the trial have highlighted un-tested IP anomalies which could represent further mineralisation within the oxide and sulphide zones, both at depth and along strike from the current drill hole coverage.

Metallurgical studies were completed on representative samples from the Stanton Resource in order to facilitate feasibility studies.

1.1 Location & Access

The Wollogorang Project is located in the north-eastern corner of the NT and adjacent to the Queensland border on the Robinson River & Calvert Hills 1:250,000 map sheets (**Figure 1**). Tennant Creek lies around 500km to the southwest and Mount Isa lies 500 km to the southeast. Access was achieved with two 4WD vehicles via Alice Springs commencing in Adelaide and took ~4.5 days each way. Alternative methods of egress are possible albeit all are time consuming. Other smaller service centres are Borroloola and Burketown, 150 km to the west and east respectively. Access is via all-weather gravel roads and station tracks. Beyond this, access within the tenements is via cross-country 4WD vehicle. The area is seasonally inaccessible due to rain and wet ground, with work possible between May and November in most years (Schwartz, 2017).

The Gulf region (bioregion) is characterised by gently undulating coastal plains along the southern Gulf of Carpentaria with scattered rugged areas of Proterozoic sandstones. Soils are predominantly sandy red earths and shallow gravelly sands. The climate is tropical with annual rainfall between 800 and 1200mm falling mostly between December and March; cyclones are a frequent phenomenon. Eucalyptus woodlands with grassy understory dominates the region with significant areas of tidal flats mangroves and littoral grassland. The field season generally runs from May/June to October in order to avoid monsoonal activity. The area encompassing The Wollogorang Project is locally quite swampy all-year-round, and herds of buffalo and feral cattle are common. Access is somewhat difficult, especially when crossing creeks. It is wise to leave exploration until later in the year if possible. Vegetation ranges from open to closely spaced heavy trees, so careful planning using GoogleEarth imagery is advised (Schwartz, 2017).

EL 31546 and EL 30496 lie largely within Pastoral Lease 1352, Pungalina, which is owned and managed by the Australian Wildlife Conservancy ("AWC"). EL 31547 lies largely within Pastoral Lease 1351, Seven Emus (**Figure 1**). The other tenements EL 31548, EL 31549, EL 31550, EL 30590 and EL 31272 are within the operating Wollogorang Cattle Station (PPL 674). However, approximately 50% of EL 31550 falls within Calvert Hills Station (PPL 668) in the south-west.

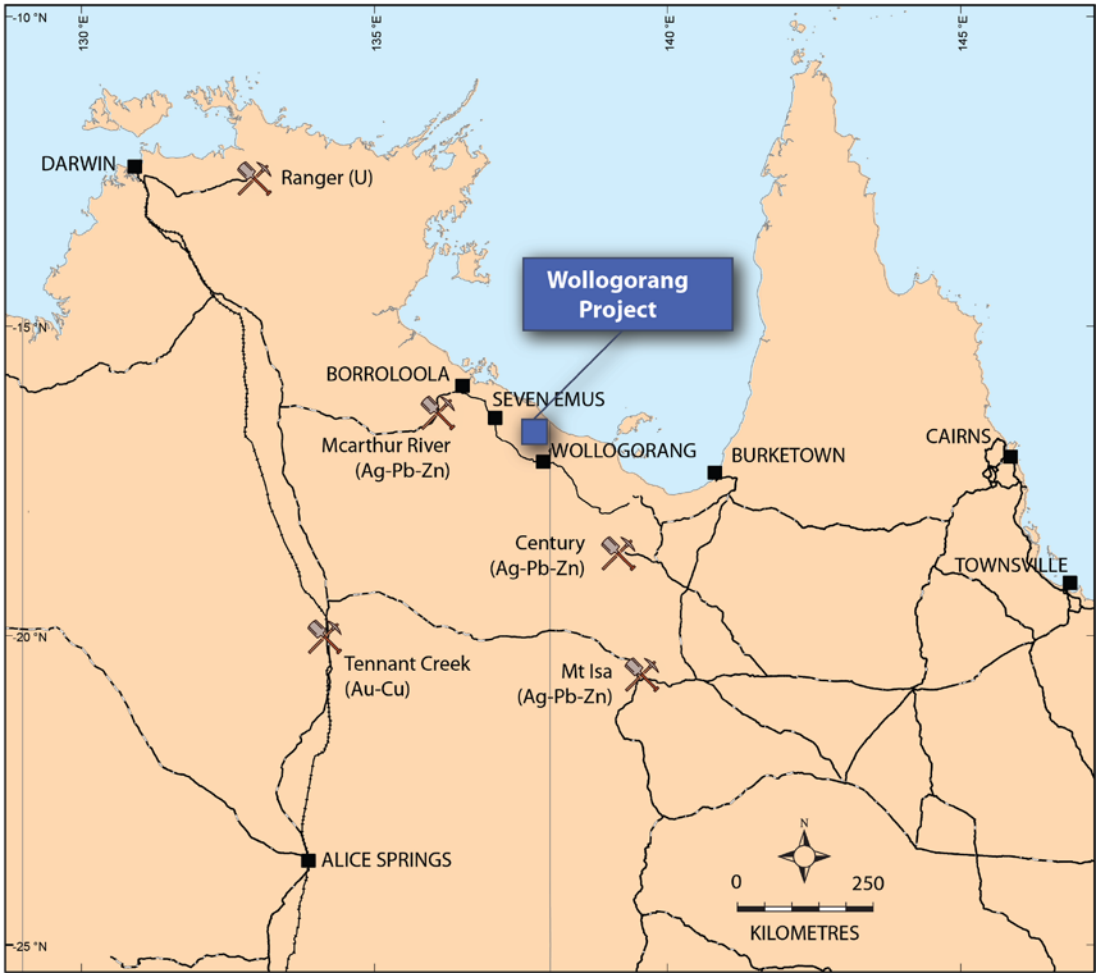

Figure 1 Wollogorang Project Location Map.

TENEMENT

The tenements cover 4,986.17 km^2 of pastoral land and are held 100% by Mangrove Resources Pty Ltd. #GR390 (**Figure 2**).

Table 1. Tenement Schedule for #GR390

Wollogorang Project #GR390					28/02/2019
Tenement	**Name**	**Area km^2**	**Blocks**	**Grant**	**Duration**
EL30496	Karns	368.45	112	28/05/15	6 years
EL30590	Selby	351.82	107	28/05/15	6 years
EL31272	Running Creek	411.17	125	09/04/16	6 years

EL31546	Calvert	776.67	236	19/01/18	6 years
EL31547	Stinking Lagoon	751.86	242	19/01/18	6 years
EL31548	Sandy Creek	772.57	241	19/01/18	6 years
EL31549	Camel Creek	738.9	235	19/01/18	6 years
EL31550	Madulgina Creek	814.73	248	19/01/18	6 years

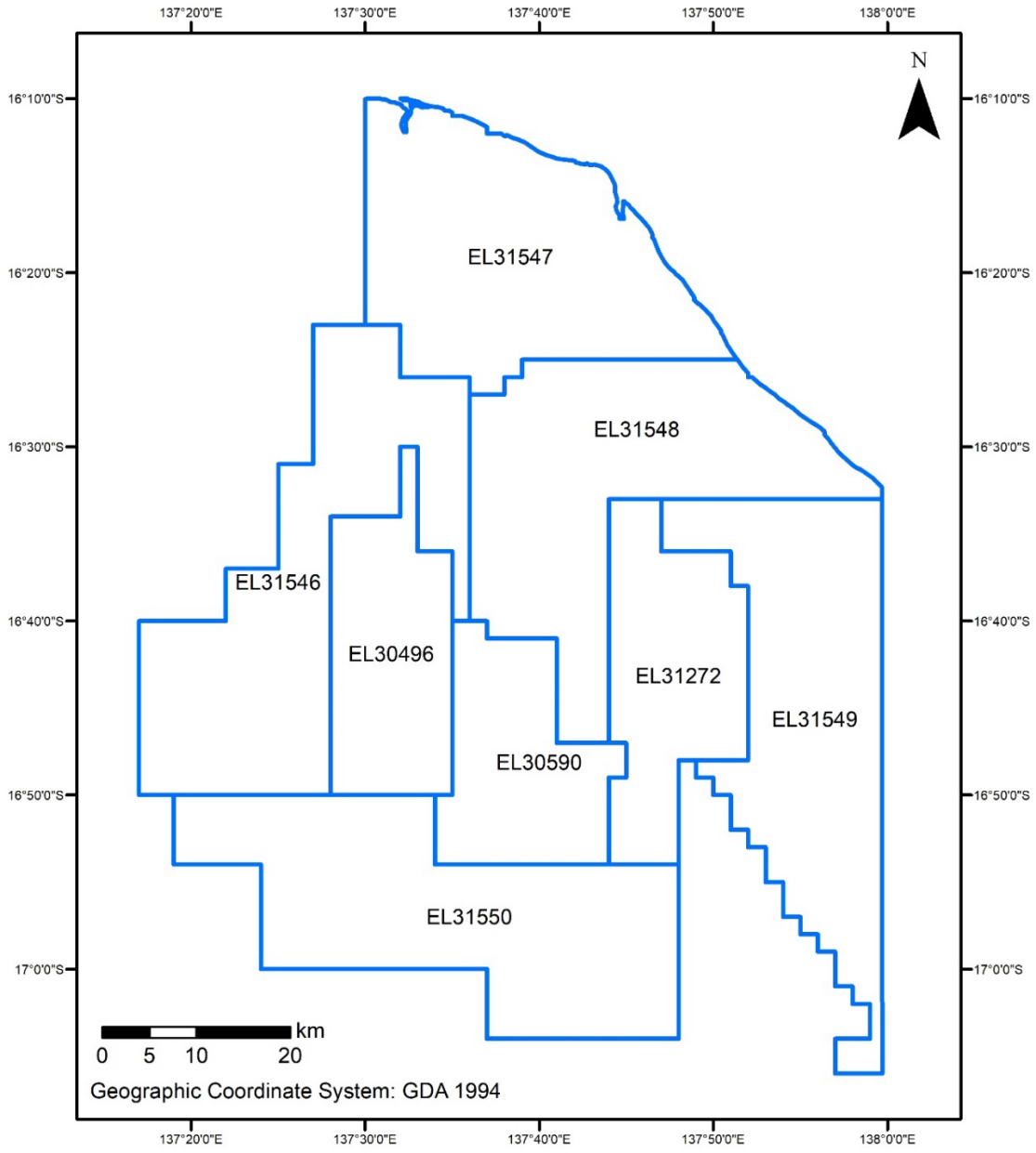

Figure 2 Tenement Location Map.

1.2 Regional Geology (Schwartz, 2017)

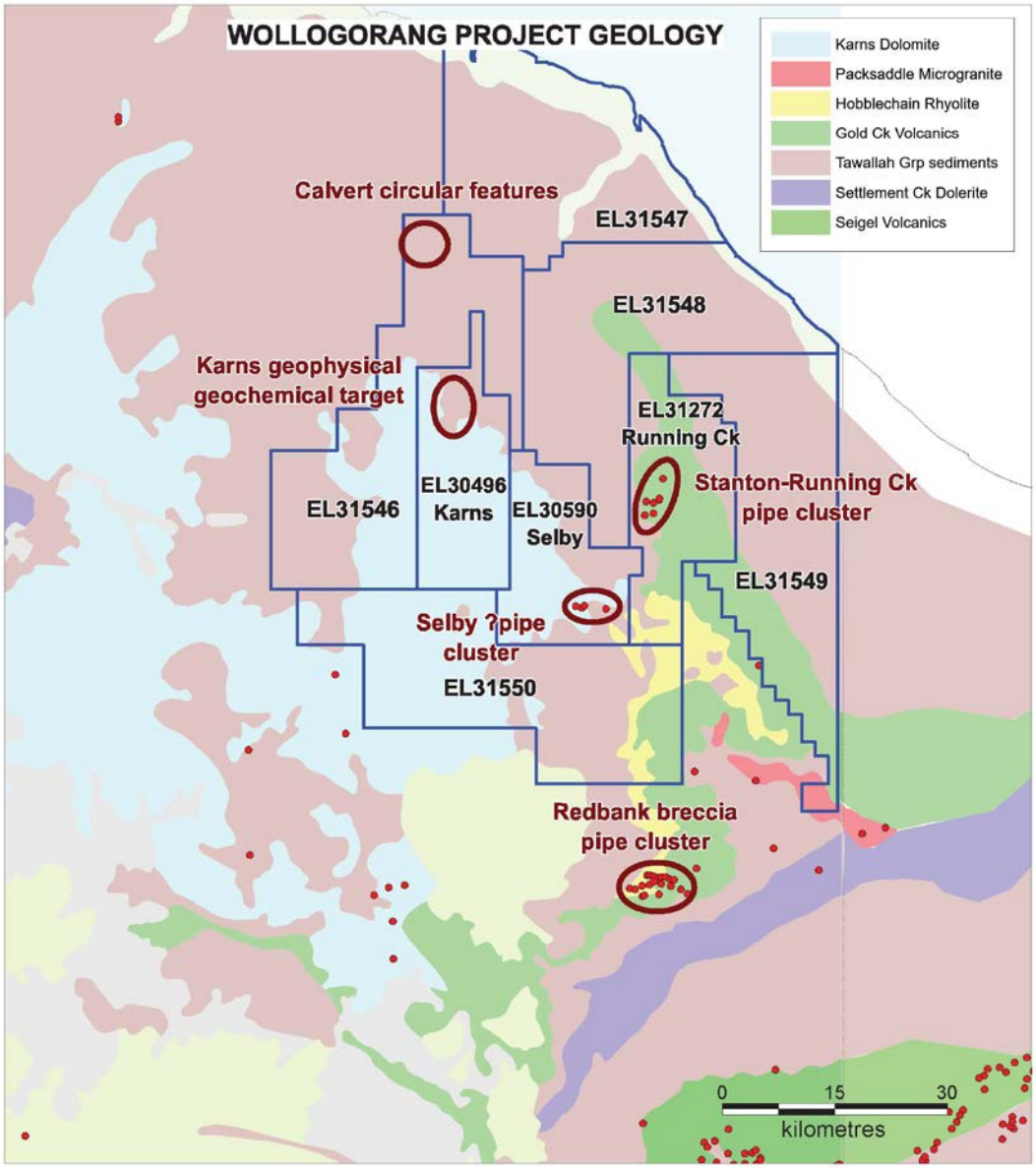

Figure 3 Project location, geology, prospects and targets over regional geology.

1.2.1 Geological and geophysical setting

The Wollogorang Project occurs on the "Wearyan Shelf" of the Proterozoic McArthur Basin, a 12km thick unmetamorphosed sedimentary succession containing dolostone, sandstone and shale units with minor felsic and mafic volcanics. The McArthur Basin unconformably overlies various Palaeoproterozoic terrains, such as the Pine Creek Orogen, and as outlined above, is highly endowed with world-class mineral deposits and is now the subject of exploration for hydrocarbons. The main geological units of interest in the project area are the Wollogorang Formation (carbonaceous shales and dolomite) and Gold Creek Volcanics (interlayered basalt lavas and sediments). In the west, these formations are overlain by the flat-lying 250m-thick Pungalina Member-Echo Sandstone couplet and, in turn, by the Karns Dolomite. The basal Karns sandstone is locally very phosphatic, especially at the Selby prospect (**Figure 3**), where it is comprised of up to 24% P_2O_5. Soil and sand cover is widespread

but relatively thin (<20 m). Proximal to the project, there are a number of important prospects and a mine - Redbank Copper Mine (**Figure 3**):

- Stanton-Running Creek Co-Cu-Ni prospects lie within EL31272. CRAE identified about 10 individual breccia pipes in this "cluster", up to 100m diameter, but not all are substantially mineralised. The resource at Stanton was deemed by CRAE too small to support a development, but other prospects have only been followed up in a limited way. Roughly 300 drill holes, including core, were drilled by CRAE in the 1990s, ~22,000m of drilling. Some of the Cu prospects show signs of artisanal working.
- Redbank Copper Mine, 20 km to the south of project. A number of separate pits have been mined over the last 30 years, under various ownerships, although there is evidence of artisanal workings for as long as 80 years. The main pit, Sandy Flat, is now in care and maintenance, but the operator (Redbank Operations Ltd) is still exploring. There are over 20 recorded Cu-mineralised breccia pipes up to 100m diameter that occur in the "cluster", the main ones shown.
- Selby P-U-REE prospects, on Coolabah Group's EL30590. Grades at this prospect reach 34% P_2O_5, 1120 ppm U_3O_8, 0.81% Cu and 1460 ppm Total REE, hosted largely within coarse phosphatic sandstone (**Figure 4**). Drilling has also identified anomalous Cu, Co, Pb, Zn, Ba, Ag and U in the underlying Tawallah sandstones, below the phosphatic horizon.
- The Karns Dolomite also hosts a number of base metals occurrences in the area, including the 'Mississippi Valley style' Thor prospect (Zn-Pb-Ag).
- Manganese occurs in high-grade pods in the area, usually within the Karns Dolomite, but none have been shown to be of sufficient size to warrant major drill programs.

Figure 4 Outcrop habit of U-bearing phosphatic lithologies at the Selby prospect.

The basal Karns Sandstone extends over a large area of the project area, where it has a distinctive radiometric signature, the results of uranium present in the phosphatic lattice. This radiometric signature intensifies in several areas – the Selby Prospect and the Karns Target area (**Figure 3; Figure 6**). In the latter, the sandstone is fine grained and weakly phosphatic compared to Selby, but is notable for scattered copper secondaries along fracture surfaces and disseminated within the selvages of fractures (**Figure 5**). This feature appears to be at odds with the bland nature of the host rock.

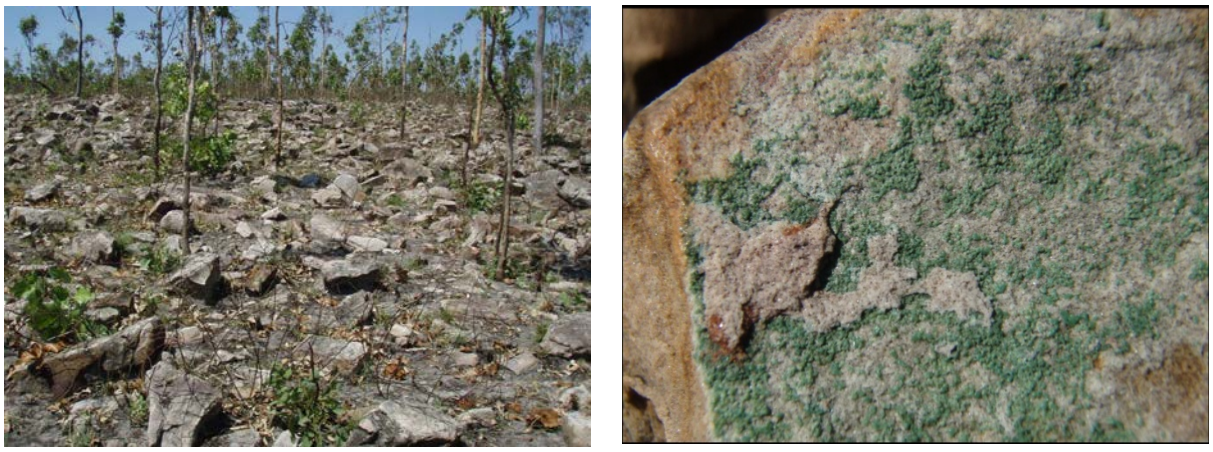

Figure 5 LEFT: Typical outcrop of basal Karns sandstone in EL27429, where scintillometer readings are uniformly 10 times background. RIGHT: The secondary copper mineral malachite on a fracture surface in sandstone.

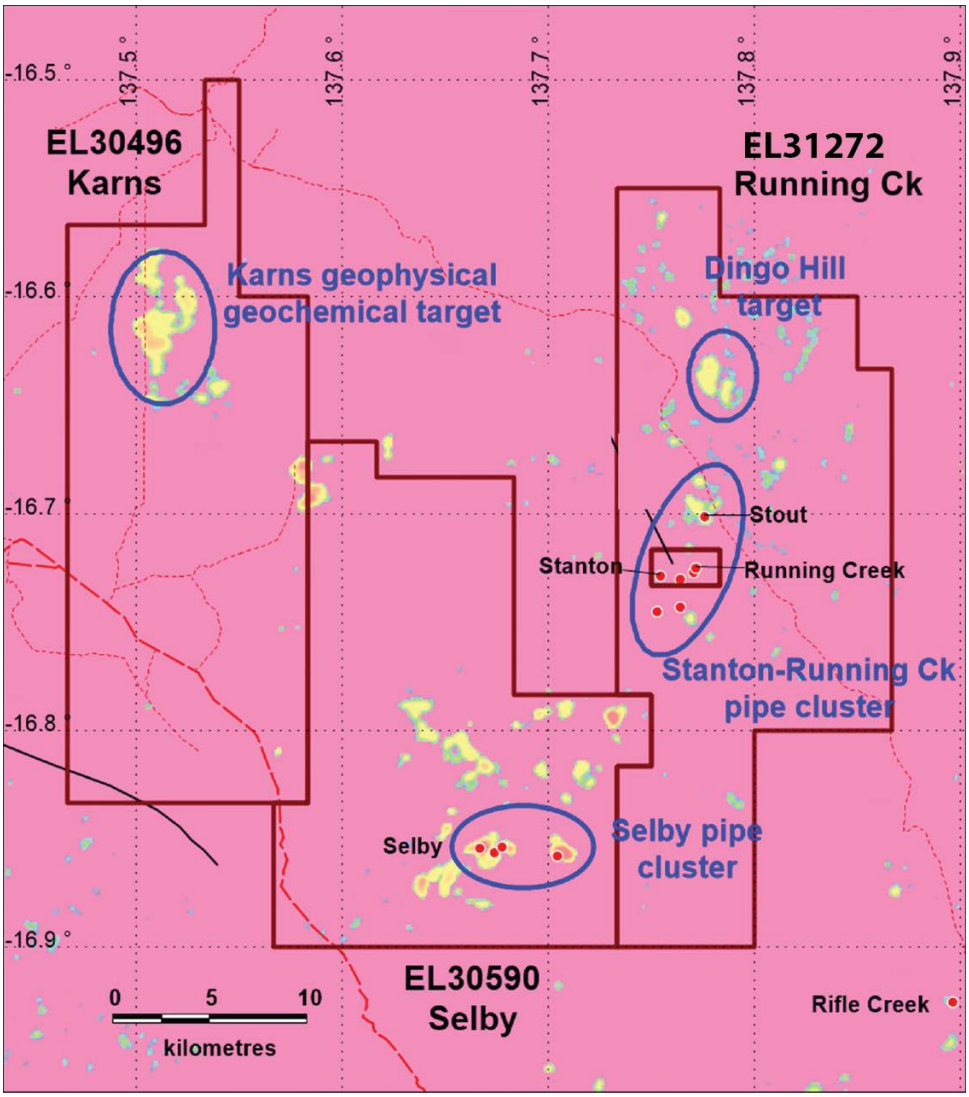

Figure 6 Wollogorang Project U^2/Th radiometric image showing current target areas (blue polys) and published prospects (red dots). Access is shown in red.

1.2.2 Deposit Model

Likely targets styles at the Wollogorang Project include the following:

- The breccia pipes at Stanton-Running Creek could, without great risk, generate a modest global resource, through simple close-spaced drilling over existing prospects. Conventional exploration methods following up the many other anomalies/targets identified near to these prospects has the potential to significantly add to the resource inventory in the medium term.
- The Kupferschiefer and SEDEX models as applied to the Wollogorang Formation have been partially tested by previous explorers, including the majors, and have fallen short of success. To advance these concepts further, requires a broad AEM survey to define conductivity variations, along with the verification and drill testing of existing BHP conductors. The application of geochemical alteration indices for SEDEX exploration is significantly hampered by the sparsity of drill holes and the lack of any known sub-basins throughout the Wollogorang "basin" (which inevitably comes down to drill density). To advance this concept would require a larger land position and a petroleum-style stratigraphic drill program.
- Conceptual grassroots exploration model based on data from Karns exhibits a much larger and more obvious footprint than the other styles. Airborne geophysics and surface geochemistry already defines a large alteration feature that we interpret to emanate from a shallow-covered base metal-uranium mineral system in demonstrably fertile formations, which may be tested by simple drilling methods. We believe this system is analogous with the giant hydrocarbon-associated sandstone-hosted copper deposits of Dzhezkazgan in Kazakhstan. These synergies are outlined below. The target scale is large and therefore a successful first-mover will be able to earn in cheaply and secure substantial equity. This target is somewhat de-risked, because an alteration system has already been defined in several datasets.

Analogy: The Dzhezkazgan Cu deposits are hosted in the Permo-Carboniferous Chu-Sarysu Basin (Trough) in central Kazakhstan. They lie within the heart of the Tien Shan Massif, alongside world-class ISR uranium mines and oil/gas fields. The mineralised system is represented by 10 cupriferous stratabound bands, hosted within "redbed" siliciclastics of the 600m thick Dzhezkazgan Formation. Orebodies average 3-5m thickness, with maximum of 20m, but there is substantial grading into uneconomic mineralisation. The mineralised system covers an area of approximately 120 km^2, and is exploited by several dozen mines, both open cut and underground (**Figure 7**). Mine production in 1990 was 25.65 Mt @ 1.02% Cu, 0.82% Zn, 0.8% Pb, and 13 g/t Ag, making it world's 7th largest copper producing district at that time. Remaining global resources in 2011 were estimated to be 477 Mt @ 0.94% Cu, 13 g/t Ag. This is truly a world-class base metals district, but is not well publicised due to its location.

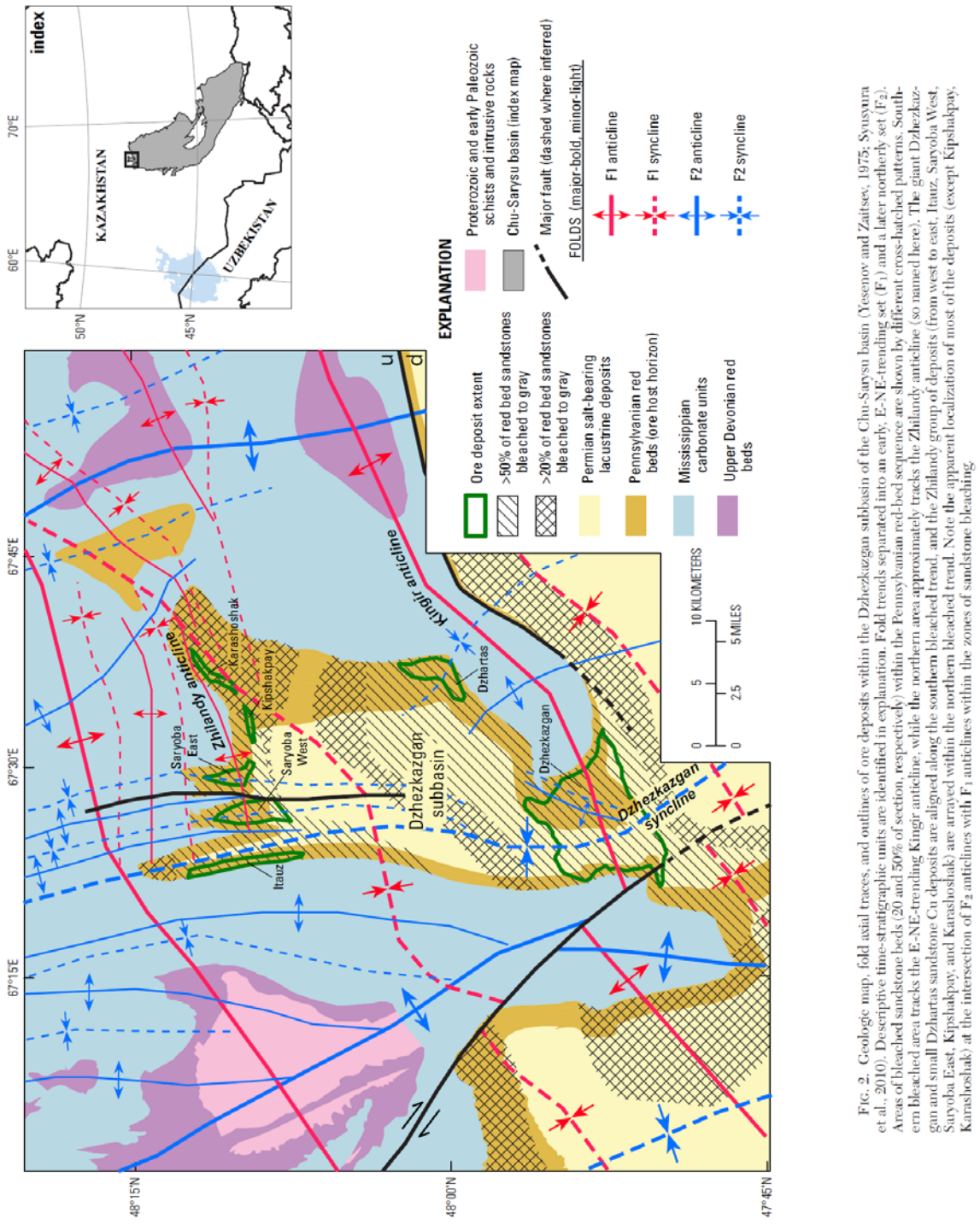

FIG. 2. Geologic map, fold axial traces, and outlines of ore deposits within the Dzhezkazgan subbasin of the Chu-Sarysu basin (Yesenov and Zaitsev, 1975; Syusyura et al., 2010). Descriptive time-stratigraphic units are identified in explanation. Fold trends separated into an early, E-NE-trending set (F_1) and a later northerly set (F_2). Areas of bleached sandstone beds (20 and 50% of section, respectively) within the Pennsylvanian red-bed sequence are shown by different cross-hatched patterns. Southern bleached area tracks the E-NE-trending Kingir anticline, while the northern area approximately tracks the Zhilandy anticline (so named here). The giant Dzhezkazgan and small Dzhartas sandstone Cu deposits are aligned along the southern bleached trend, and the Zhilandy group of deposits (from west to east, Itauz, Saryoba West, Saryoba East, Kipshakpay, and Karashoshak) are arrayed within the northern bleached trend. Note the apparent localization of most of the deposits (except Kipshakpay, Karashoshak) at the intersection of F_2 anticlines with F_1 anticlines within the zones of sandstone bleaching.

Figure 7 Local geological setting of the Dzhezkazgan Cu deposits in the Chu-Sarysu Basin.

In detail, copper sulphides are hosted as intergranular cements and grain replacements in classic “redbed” sandstone and conglomerate, which have no depositional in situ reductive capacity (i.e. organic carbon or sulphide). Sediments are broadly bleached and sometimes exhibit a pale grey colour, as a result of flooding with liquid and gaseous hydrocarbons, leaving behind bitumen. These hydrocarbons were derived from adjacent source rocks that migrated into reservoir positions, generally anticlines, below a regional seal. Oxidised metalliferous brines, derived from subjacent evaporites, could mingle with these reservoirs via secondary orthogonal structures, precipitating out

the sulphides. The general hypothesis for these deposits has been broadly termed the “mobile reductant model” by Rod Kirkham (GSC sediment-hosted copper expert).

Some commonalities with the Wollogorang Formation setting on the Wearyan Shelf include:

- Basin fill – both the Tawallah Group and Chu-Sarysu Basin are dominated lower down by volcanics, then redbeds and regional shale seal. This is overlain by evaporitic carbonates and clastics (Karns Dolomite, McArthur Group).
- Tectonic setting – the Chu-Sarysu is a classic well-studied intracratonic basin, and the Tawallah is a good Palaeoproterozoic example.
- Structural setting – both regions have orthogonal broad fold sets. The Gold Creek Volcanics and Wollogorang Formation both have a distinctive “dome and basin” character on 1-10 km scale, while overlying Echo Sandstone is folded more broadly. The Karns target occurs roughly at the culmination of one of these broad anticlines. At Dzhezkazgan, there is conflicting evidence for the timing of the two-fold sets (Figure 7), suggesting they are effectively contemporaneous.
- Host rock – at the Karns Target we predict the Echo Sandstone/Pungalina Member to be the host, comprising sandstone and conglomerate, interlayered with siltstone, as per the Dzhezkazgan Formation.
- Organic source sits under the deposit – marine shales underlying Dzhezkazgan Fmn are the source of the high Re in the deposit. The Wollogorang Formation underlies the Karns target and is an excellent source rock with 30m of 2-5% TOC.
- Oil/gas charge – TOC beds enter oil window at the same time as brine factory matures to 150 degrees. This is evident at Redbank where live oil and halite daughters coexist in fluid inclusions, and chalcopyrite mineralisation coalesces with bitumen.
- Mobilisation of hydrocarbons into normally oxidised sandstone facies – this is evident in sandstones of the Wollogorang Fmn, Gold Creek Volcanics and Pungalina Member, but has yet to be shown for Echo Sandstone. Bitumen bleeds are common in the overlying Karns Dolomite, so it is expected that there must have been a path between these two.
- Element suite – Both regions exhibit anomalous Cu, Ag, Pb, Co, Zn, Re, Cd, Ni, Mo, As, Sb, PGEs

The distribution of anomalous uranium, base metals and other pathfinder elements in rockchips and soil samples at the Karns target faithfully mirrors the spatial signature of the airborne radiometrics (**Figure 6**). The large scale of this target (11 km^2) and huge inventory of metals contained in the alteration zone, we believe reflects a significantly bigger system than the breccia pipes in the region. It is believed that this is the surface expression of a large plume of mobile reductant that emanates from a fundamental structure in the underlying Wollogorang Formation, estimated to be about 300-400m below surface. The stratigraphically-higher Karns target is interpreted to represent the more oxidised part of the vertically zoned plume where U dominates.

1.3 Previous Exploration (Schwartz, 2017)

Summary of previous exploration annual reports. Most of the historical mineral exploration was centred around diamonds (CRA and Ashton). Microdiamonds and indicators are present on a regional scale but no volcanic pipes have been discovered. The breccia pipes at Redbank and Running Creek are of a completely different type and probably relate to deformation of the sediment package while still incompletely lithified (Rawlings, 2006).

In the recent past, the area encompassed by EL27429 was covered by EL22251, granted to Astro Diamonds N.L. in 2003 and subsequently transferred to Legend International Holdings Inc in 2007. From 2003 to 2007, Astro conducted desktop studies, bulk geochemical samples for indicator minerals, 1392 line-km of high resolution airborne EM and small areas of ground gravity. Most of this work (including all of the geophysics) was from the Selby prospect to the east of Toro's tenement EL27429. It was concluded that the EM anomalies were caused by clay-rich Tertiary sediment infill. From 2007 onwards, Legend International sought phosphate and Redbank-style breccia pipe-hosted base metals. Legend recognised the potential for phosphate and base metals in the basal unit of the Karns Dolomite, which rests unconformably over the Echo Sandstone. Outcrop of the Karns Dolomite was extensively mapped and sampled from EL22251; the best result being 32% P2O5 in rock chip. Ninety-seven RC holes for 4710m were drilled around the Selby prospect but failed to confirm continuity or grade of the phosphate. Best results for rock chips were 10,001 ppm Cu in Proterozoic sandstone/dolostone, with up to 1620ppm Cu along a fault within Toro's licence EL27429. Uranium up to 677ppm was assayed from the same lithologies as the copper, drilling assays included up to 260 ppm uranium. In 2011, Toro flew 4,174 line kilometres (362 km2) of magnetic/radiometrics. A distinct "ridge" of elevated radiometric activity was defined, corresponding with the NTGS-mapped unconformable lithological boundary between the Echo Sandstone and Karns Dolomite, parallel to the NW/SE regional structural trend.

- ***Stanton and Running Creek Prospects***

These pipes were originally discovered by prospector Joe Fisher, who recognised Cu secondaries (**Figure 8**) and circular features in the area, akin to the well-known Redbank pipes to the south (**Figure 3**). CRAE joint ventured into the project and undertook various exploration works, including various airborne and ground geophysics, detailed lag sampling and geological mapping, culminating in the drilling of 210 RC and 48 DDHs for 22,000 m. Despite this work, CRAE were unable to identify any large prospects. The best of these was Stanton, where intersections are up to 22m at 0.3% Co, 0.17% Ni, 0.14% Cu, 10 ppb Pd and 10 ppb Pt. Gold is locally anomalous. At the nearby Running Creek Prospect the best intersection was 13.4 m at 1.2% Cu and at Stanton 3 Prospect intersections up to 15m @ 2.3%Cu were recorded. Following the withdrawal of CRAE, Hydromet Corp purchased the project and calculated a resource at Stanton of 0.9 million tonnes @ 0.14% Co, 0.14% Cu and 0.07% Ni (Indicated + Inferred). An Independent Geological Report prepared by Geos Mining confirmed the resource figures as reasonable and added that a broader exploration target existed in the project area, encompassing 5.1 to 6.8 Mt @ 0.11-0.14% Co, 0.11-0.13% Cu and 0.04-0.07% Ni. This involved the aggregation of the various other pipes in the area that had not been drilled to resource definition level.

Figure 8 Secondary copper in veins at Running Creek Co-Cu-Ni prospect.

The breccia pipes have been described by various workers, with most concluding they are narrow vertical cylindrical breccia bodies that continue downwards for an unknown distance. Drilling has not yet confirmed the base of any of the pipes, but they appear to bottom out in the Settlement Creek Dolerite sill below, possibly providing some timing constraints. Both structural and magmatic models have been invoked. Rawlings (2006; NTGS Robinson River explanatory notes) found the breccia bodies at Stanton and Running Creek to be controlled by subtle faults that were developed as the Gold Creek Volcanics were folded into a classic "dome and basin" style. Breccias range from monomict jigsaw-fit to polymict rotated and abraded, but there is always some degree of stratigraphy preservation (**Figure 9**). Reduced fluids appear to have emanated upwards from the underlying Wollogorang Formation shales, and intermingled with the ambient oxidised fluids in the volcanics and breccia. Breccia textures and colours were subsequently modified by the interaction of the two fluids. In this process, base metals were precipitated out in the vertically zoned pipes. It is unknown what the upper part of the pipes looks like as they are eroded in this area, but it seems logical they would incorporate a more oxidised uranium-rich zone.

Analogous geological models / deposits

Toro Energy recognised a strong geological affinity between the Redbank and Stanton-Running Creek breccia pipes with the Arizona Strip in the USA, where uranium has been mined from multi-commodity breccia pipes for 50 years. The individual deposits of the 'Strip', whilst small tonnage (<10 Mlb), are high grade (>0.5% U_3O_8) and occur in a dense cluster that is able to support sustainable mining operations. The breccia pipes are slender vertical features with a cylindrical shape, circular in section and transgressing several 100's of metres of vertical stratigraphy. They occur within flat-lying and bland sequences of Palaeozoic age (mostly Permian), adjacent to the Grand Canyon in Arizona. Most workers believe they are formed by collapse, as a result of dissolution of carbonate units in the lower part of the sequence, allowing mixing of oxidised and reduced fluids within the conduit. They may ultimately be controlled by subtle structures at depth. Many have a well-developed mineralogical zonation from pyrite zone to Cu sulphides-uranium oxide zone to a Ni-Co sulphide zone to a Mo-Zn zone.

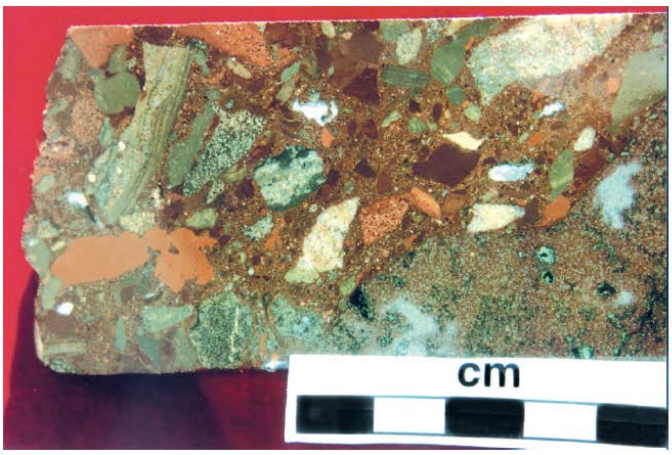

Figure 78. Polymict breccia of 'basalt 3' of Gold Creek Volcanics in core of Stanton breccia pipe, comprising mudstone, sandstone and basalt clasts in a mud-sand matrix. Some angular sandstone and mudstone clasts attest to early cementation, whereas mixed sand-mud matrix indicates involvement of some unlithified sedimentary units. Note varied redox state of clasts, indicating generation of breccia after at least some alteration events. However, breccia itself is apparently unaltered. SELBY 793500mE 8148500mN, 127.3 m depth in drillhole DD94RC39, Stanton.

Figure 9 Typical breccia texture in the Stanton pipe.

Figure 82. Red/brown oxidised ('redbed') mudstone breccia of upper Wollogorang Formation overprinted by discordant chlorite-bitumen alteration. Note that alteration has enhanced the breccia texture. SELBY 795800mE 8151000mN, 175 m depth in drillhole DD91RC18, Stout.

Figure 83. Grey reduced breccia in 'arenite 2' of Gold Creek Volcanics, comprising angular mudstone clasts in lithic sandstone matrix. The precursor to this breccia is interpreted to have been interbedded dolarenite and mudstone. During chlorite-bitumen alteration, dolomite intraclasts and cement were digested and the rock underwent substantial volume loss, which led to disruption, brecciation and mixing of sandstone and mudstone components. Length of field 7 cm. SELBY 795400mE 8149000mN, 105.3 m depth in drillhole DD94RC125, Running Creek.

Figure 10 Alteration overprints on breccia textures at Running Creek pipe cluster.

- ***Selby Prospect***

Exploration in this area began in the 1980s where ANZEX identified uranium bearing phosphatic sandstone at the base of the Karns Dolomite. Shallow drilling failed to identify significant mineralisation. In the 1990s, Argold Holdings re-evaluated the prospect in terms of its phosphate potential but found that the unit that contains the phosphate mineralisation is only 1-2 m thick.

Legend International, a Gutnic company largely focussed on diamond exploration, was granted the ground in 2003. They flew frequency-domain EM, followed up by loam sampling, rock chips, stream sediments, and focussed ground gravity (not terrain corrected!). Targets were drill tested with kimberlites in mind, but failed to identify any ultramafic material, kimberlite indicators or microdiamonds. Drilling comprised 96 holes with an average 54 m depth (5 DDH, 91 RC). The holes were collared at or just above the Karns phosphatic sandstone horizon and then continued through into the underlying quartzose Echo Sandstone (Tawallah Group). They encountered anomalous base metals in numerous holes, but no assays were considered economic or indicative of diamondiferous kimberlite. Peak concentrations include 16% P_2O_5, 0.19% Cu, 0.14% Co, 0.08% Pb, 0.07% Zn, 0.3% Ba, 246 ppm Ag and 260 ppm U (all over narrow intervals, and not the same interval for all of these element peaks). Notably, high Cu values were obtained at various depths, not necessarily in the near surface phosphate that was targeted. The poor correlation between Cu and P (**Figure 11**) also points to separate mineral systems. There are no drill logs available and the assay strategy is unknown, so it is possible that sandstone-hosted base metal mineralisation in this area has not been properly tested, especially at depth. Importantly, this 10-100 times background Cu and pathfinder element concentrations have been encountered in quartz-rich Echo Sandstone, further supporting the potential for underlying large base metals targets.

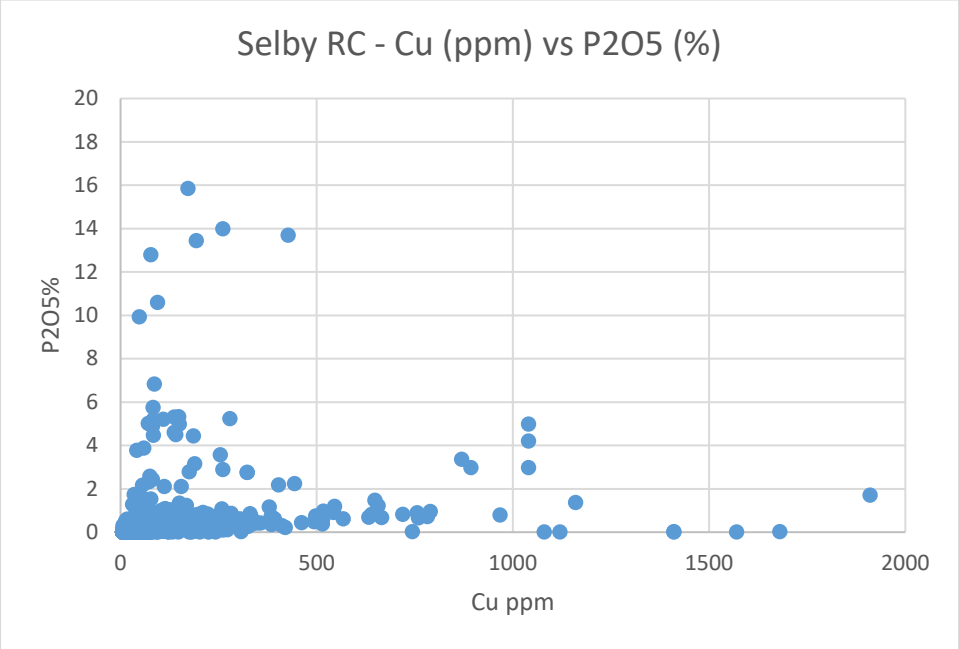

Figure 11 Legends' downhole assays data for Selby.

- ***Karns Prospect***

Toro Energy Ltd began work in 2010 on the basis of anomalous radiometric responses and previous knowledge of Selby Prospect by exploration staff. At that time, Toro were interested in phosphate-hosted uranium and had been unable to secure the Selby title. Toro flew detailed 100m-spaced magnetics and radiometrics over the area in 2011, highlighting a number of large high-amplitude anomalies in the total count and uranium channels (**Figure 12**). These anomalies also dominate the regional U^2/Th ratio radiometrics dataset.

Following up these radiometric anomalies, Toro collected 278 orientation soil and lag samples at Karns and Running Creek. Toro also collected 27 rock chip samples. Results from Toro's rockchip sampling show that U, Cu, Ag, As and Pd are consistently elevated within a large high-amplitude radiometric anomaly overlying the exposed basal sandstone of the Karns Dolomite (**Figure 13**). U_3O_8 is up to 280 ppm (ave 80 ppm) and Cu is up to 1360 ppm (ave 320 ppm), whilst Ag, As and Pd are generally 10 times background. Scintillometer readings throughout the anomaly area are also uniformly 10 times background. In contrast to Selby, the sandstone generally contains less than 1% P_2O_5 and over 80% SiO_2, consistent with field observations of a sublithic to quartzose character (**Figure 5**). Secondary copper minerals are locally developed on fracture surfaces (**Figure 5**). Anomalous samples were collected over a stratigraphic thickness exceeding 10 metres. These results were considered extremely anomalous, because beyond the radiometric anomaly this sandstone has a uniform background range of only 1-5 ppm U3O8 and 5-10 ppm Cu, consistent with oxidised sandstones globally.

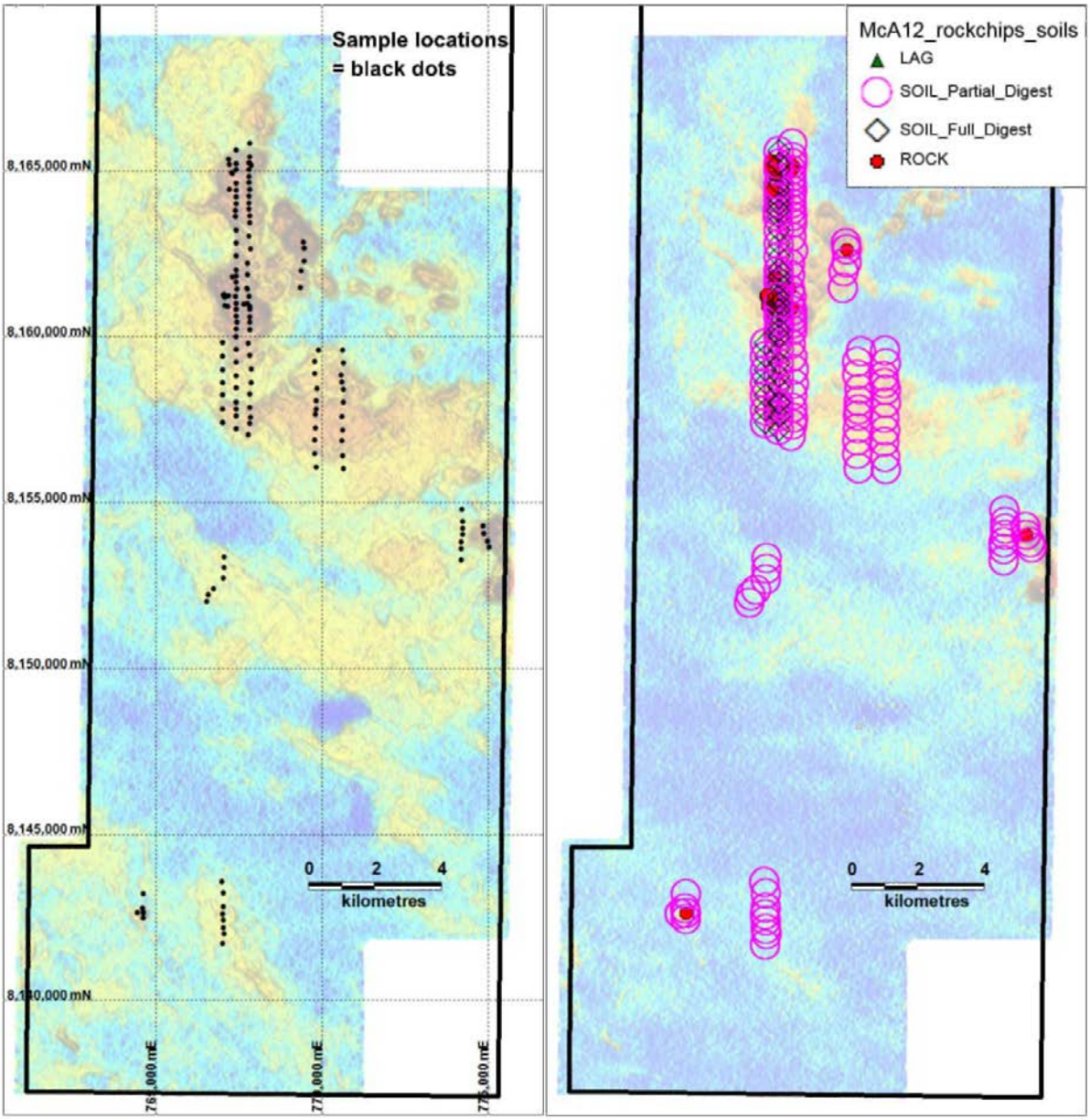

Figure 12 Toro's detailed 2011 radiometrics for Karns - U channel (left) and U^2/Th ratio (right) images showing Toro's 2012 soil and rockchip sample locations.

Similar to rockchips, orientation soil samples indicate U, Ag, Au, As, Cu, Co, Mo, Pt and Pd are 5-10 times background over the radiometric anomalies. Additionally, the ratio of pathfinder isotopes Pb_2O_8/Pb_2O_6 and Pb_2O_7/Pb_2O_6 indicate a radiogenic source of Pb in the system, consistent with a buried uranium parent source. Heavy versus light rare earth elements ("REEs") display a zonation typical of hydrothermal alteration systems.

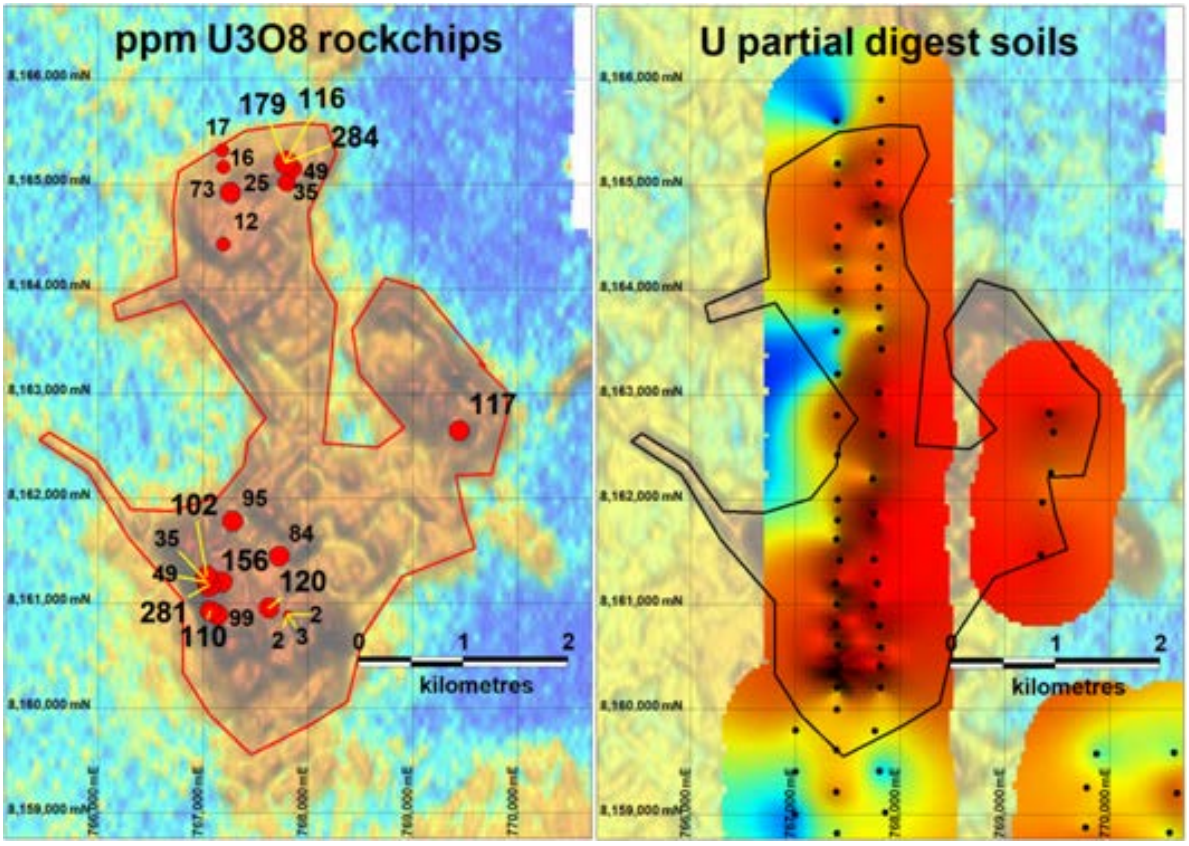

Figure 13 LEFT: Airborne U^2/Th radiometrics grid over Karns showing the location of Toro's anomalous rockchip samples, labelled with ppm U_3O_8. RIGHT: Uranium partial-digest soil geochemistry grid draped on U radiometrics grid, showing close spatial match. Red is high, blue is low.

2 Work Completed

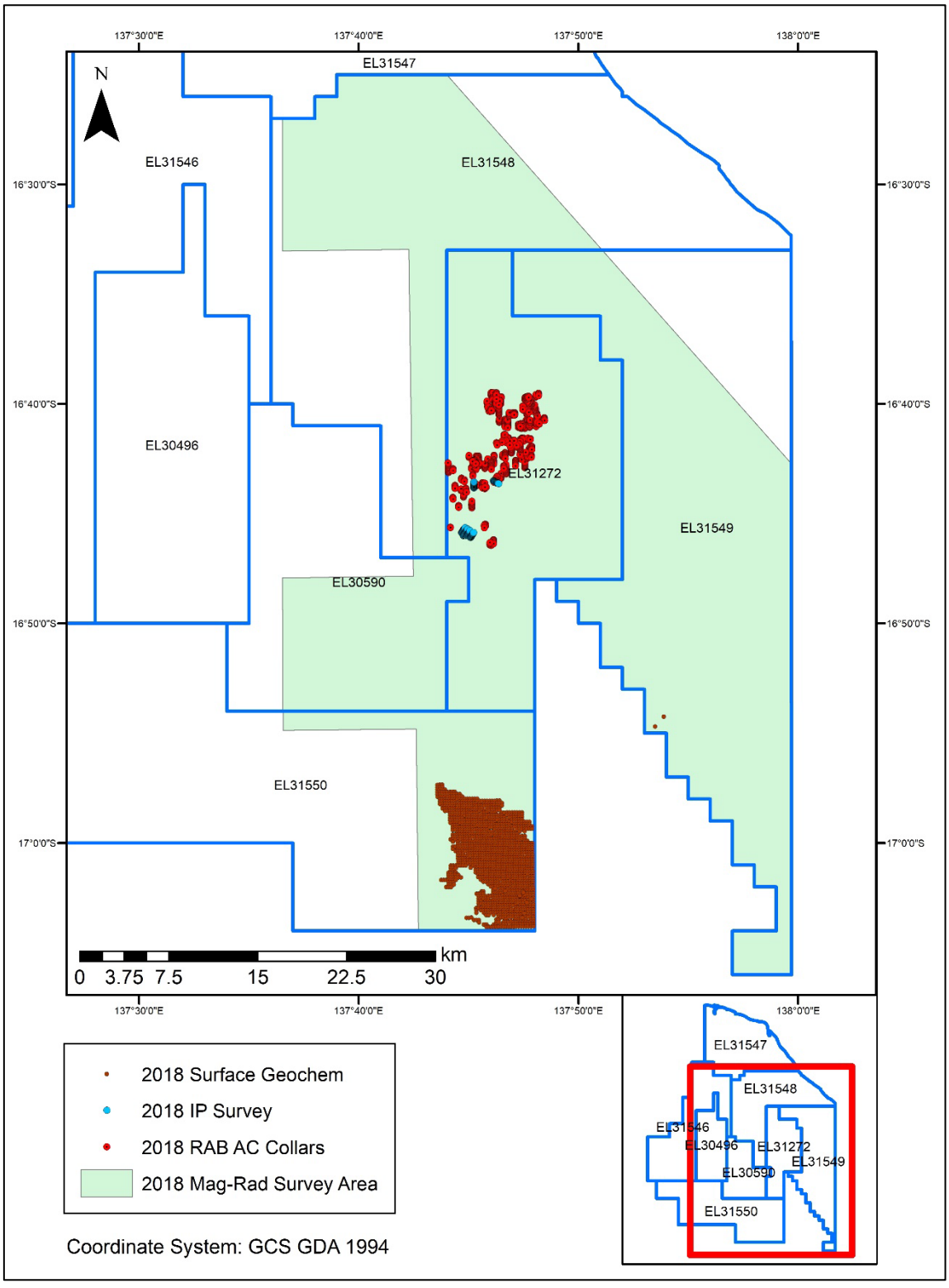

Figure 14 2018 Exploration Index Map.

2.1 Geological Activities & Office Studies

Office studies included an in-depth review on regional historic exploration with a focus on the Selby prospect (EL 30496) and the Karns prospect (EL 30590).

2.1.1 Selby Prospect Detailed Historic Review

Exploration in this area began in the 1980s where ANZEX identified uranium bearing phosphatic sandstone at the base of the Karns Dolomite. Shallow drilling failed to identify significant mineralisation. In the 1990s, Argold Holdings re-evaluated the prospect in terms of its phosphate potential but found that the unit that contains the phosphate mineralisation is only 1-2 m thick. Selby prospect historic exploration has been summarised in tables (**Table 2 - 4**) and plans (**Figure 15 - 17**).

Geochemistry

Table 2. Summary of geochemical sampling – Selby area

EL	Company	Commodity	Focus	Data available	Results of Exploration
22251	Legend International Holdings	Diamonds, phosphate and base metals	Kimberlite pipes and Phosphate within Karns Dolomite	Stream sediment and rock chip sampling;	Two sample sites at Selby reported macrodiamonds. Rock chip sampling produced some high-grade phosphate results up to 32.2% P2O5. Highest cobalt rock chip result was 1765ppm (with 1460ppm Cu); highest copper was 2490ppm
29636	Toro Energy	Uranium	Uranium within phosphate	No data	Part of larger tenement package which included Karns – all exploration focussed at Karns
27956	Phosphate Australia	Phosphate & Uranium	Phosphate and uranium within Karns Dolomite	No data	A helicopter supported field mapping and geochemical sampling campaign was planned – but not undertaken
7351	Argold Holdings Pty Ltd	Phosphate	Phospate within Karns Dolomite	Rock chip & stream sediment sampling	Highest P2O5 value from rock chip sampling was 34.2% and highest copper was 0.81% - both from the anomaly southwest of camp
3045	Arnhem Land Mining (ANZECO)	Base metals & copper	Wearyan Shelf	Rock chip sampling	White phosphatic rocks reported up to 19.1% P2O5 and 285ppm leachable uranium. A sample of copper-stained ferruginous gritty bed reported 900ppm Cu.

Geophysics

Table 3. Summary of geophysical surveys – Selby area

EL	Company	Commodity	Focus	Data available	Results of Exploration
22251	Legend International Holdings	Diamonds, phosphate and base metals	Kimberlite pipes and Phosphate within Karns Dolomite	Airborne EM survey and ground gravity survey completed	The EM survey generated 9 EM targets – located north of drilling

Drilling

Table 4. Summary of drilling within Selby area

EL	Company	Commodity	Focus	Data available	Results of Exploration

22251	Legend International Holdings	Diamonds, phosphate and base metals	Kimberlite pipes and Phosphate within Karns Dolomite	Drilling comprised 102 holes with an average depth of 54 m (5 DDH, 97 RC).	Anomalous base metals were reported in numerous holes, but no assays were considered economic or indicative of diamondiferous kimberlite. Peak concentrations include 16% P_2O_5, 0.19% Cu, 0.14% Co, 0.08% Pb, 0.07% Zn, 0.3% Ba, 246 ppm Ag and 260 ppm U (all over narrow intervals, but not the same interval for all of these element peaks).
3045	Arnhem Land Mining (ANZECO)	Uranium, base metals & copper	Wearyan Shelf	12 RC holes totalling 398m were completed at Selby.	Drilling showed the uranium mineralisation to be a surficial feature coinciding with the phosphatic horizons. The best result was from drill hole No. 2 from 0-4m which reported 82ppm U, 720ppm Cu and 6.05% P2O5.

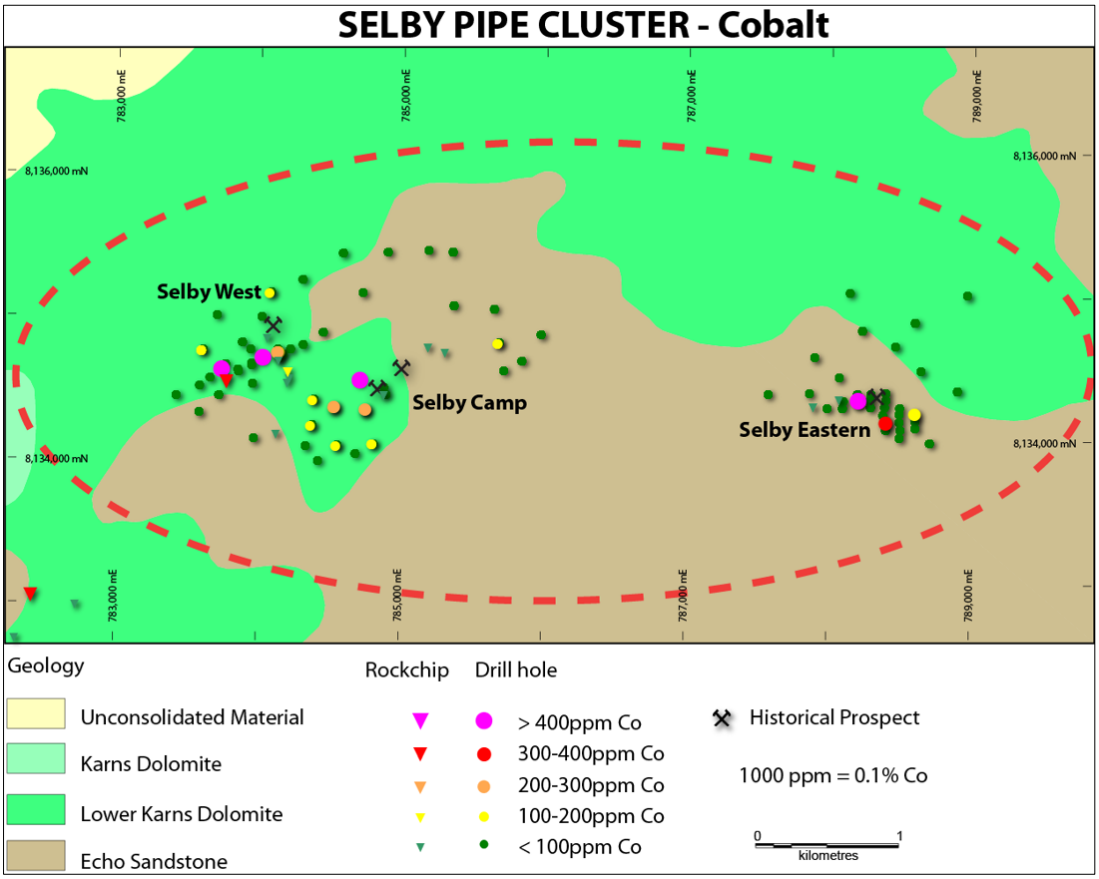

Figure 15 Drilling and rock chip Co results for the Selby prospect.

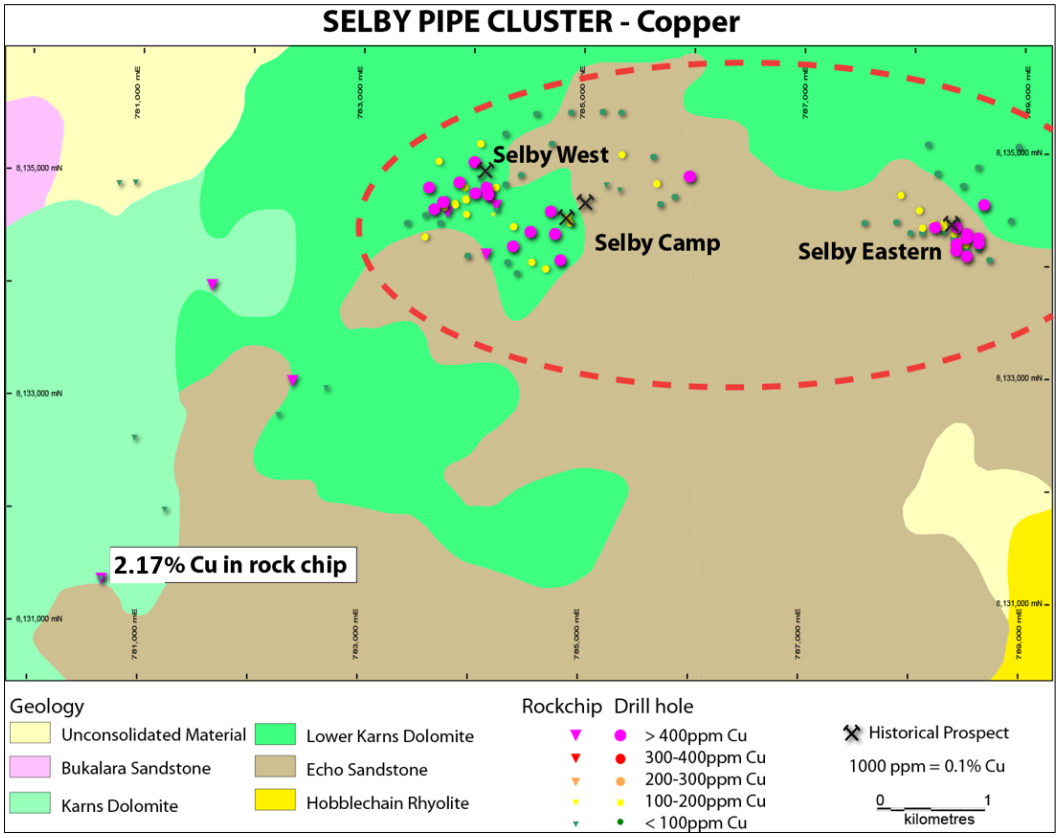

Figure 16 Drilling and rock chip Cu results for the Selby prospect.
A review of regional magnetic data highlighted prospective NW-SE and NE-SW trending structures linking the Stanton deposit to the Selby prospect.

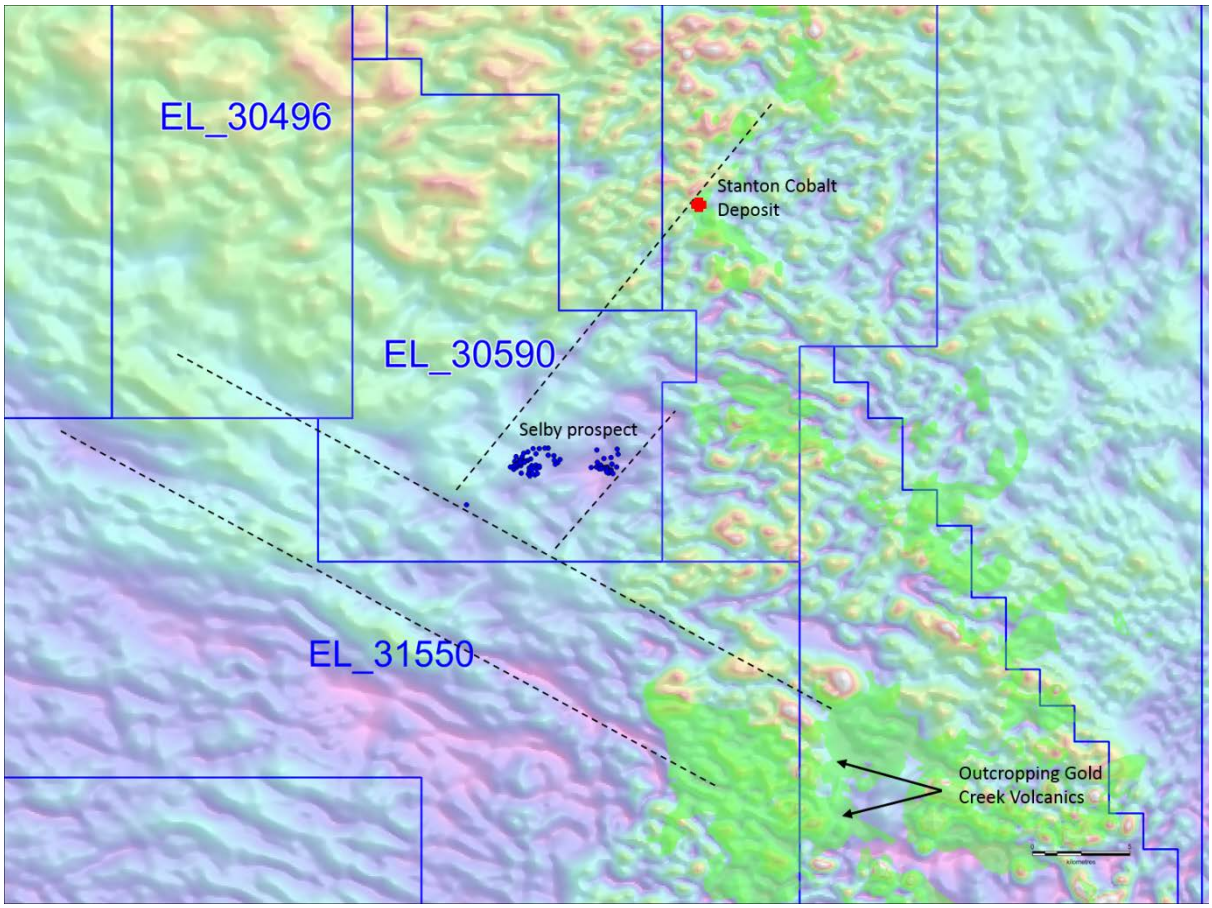

Figure 17 Aeromagnetic image of Selby prospect showing prominent NW-SE and NE-SW trending structures, outcropping Gold Creek Volcanics (in green) and historical drill holes (blue dots).

2.1.2 Karns Prospect Detailed Historic Review

The Karns area is vastly under-explored and with only two exploration drill holes within the area (Holes 6 & 10) drilled by BHP in the search for manganese (see Figure 6). Historically company exploration within this area has focussed on diamonds, manganese and uranium. The two drill holes drilled within 3-4km from the Karns prospect were both too shallow to provide any significant information on the base metal prospectivity of the region.

Karns prospect historic exploration has been summarised in tables (**Table 5 - 7**) and plans (**Figure 18 - 21**). Note that only Toro Energy have focussed their exploration on the Karns target.

Geochemical Sampling

Table 5. Summary of geochemical sampling – Karns area

EL	Company	Commodity	Focus	Data available	Results of Exploration
4077	CRA Exploration	Diamonds	Kimberlite pipes - diatremes	Rock chip sampling	No diamond indicator minerals found. Best results for rock chip sampling was 195ppm Cu & 110ppn Co (not same sample)
1146	Amax Exploration	Base metals		Rock chip, soil sampling and vegetation sampling	A systematic aerial reconnaissance program was undertaken south of the Karns area to locate sites of interest for ground checking. Based on the aerial reconnaissance, selected sites were sampled and assayed for Cu, Pb, Zn, Ag, Co & Mn. No significant results were returned.
7226	CRA Exploration	Copper	Stratabound Cu mineralisation within GCV	Helicopter rock chip sampling Low density stream sediment sampling	No elevated base metals reported. Best results within the Karns area were 30ppm Cr and Co (not the same sample).
8084 & 8115	BHP	Base metals	Redbank-style Cu pipes	Helicopter assisted regional stream sediment sampling	No anomalies reported in Karns area
8533 & 8856	CRA/Rio Tinto	Copper	Redbank-style Cu pipes	~144 stream sediment samples 7 geochemical samples @ 50m spacing across anomaly in Pungalina Pipes area NW of Karns target	Identified two anomalies NW of Karns target in Pungalina Pipes area
2564	Arnhem Land Mining	Uranium & base metals		Aeromagnetic and radiometric survey Ground gravity survey	A total of 29 airborne anomalies were visited by ground and helicopter. Best assays were 900ppm Cu, 50ppm Co and 19.1% P_2O_5.
1612 & 1613	Dampier Broken Hill	Base metals & manganese		56 holes drilled	Selected samples assayed – best results reported were 220ppm Cu, 80ppm Pb, 280ppm Zn & 1.2% Mn. Provided stratigraphic information – no GCV intersected
25397	Carpentaria Minerals Pty Ltd (Territory Uranium)	Uranium & Copper, base metals	Phosphate hosted uranium; Redbank-style Cu pipes	Hyper spectral survey flown (not over Karns prospect). Stream sediment, auger soil and rock chip sampling undertaken	Best results from stream sediment sampling was 40ppm Cu, 953ppm Zn and 31ppb Au. Best results from rock chip sampling was 750ppm Cu and one sample reported high iron (60%). One sample reported 125ppm Co.
27429	Toro Energy	Uranium		Aeromagnetic and radiometric survey; soil sampling and rock chip sampling	27 rock chip samples were collected with the best results reported being 280ppm U_3O_8, 1360ppm Cu, 386ppm Pb and 1140ppm Zn. Soil sampling showed a coherent copper anomaly (discussed in more detail in text)

Geophysics

Table 6. Summary of geophysical surveys – Karns area

EL	Company	Commodity	Focus	Data available	Results of Exploration
4077	CRA Exploration	Diamonds	Kimberlite pipes - diatremes	3790 line km	Nine magnetic responses which were interpreted as possible discrete intrusive volcanic sources
8856 & 8533	CRA/Carnegie Minerals	Breccia hosted Cu mineralisation	Gold Creek Volcanics	Airborne magnetics and radiometrics (not over Karns target)	Delineated major NW and E-W trending faults and continuation of Gold Creek Volcanics under shallow cover
25397	Territory Uranium	Breccia hosted Cu mineralisation	Map structures and delineate possible breccia pipes. Also map the extent of the GCV	Airborne hyperspectral survey.	Mapped series of basin growth and transform faults Mapped hematite alteration associated with pipe features in the Pungalina Pipe area NW of the Karns Target Noted circular nontronite features within southern part of EL25397 (not in Karns area) Interpreted subsurface extents of GCV undercover
27429	Toro Energy	Uranium	Phosphatic uranium	Aeromagnetic and radiometric survey – 4174 line km	A distinct ridge of elevated radiometric anomaly was evident – which corresponded with the NTGS mapped unconformity between the Karns Dolomite and the overlying Mesoproterozoic dolomite and sandstone trends

Drilling

Table 7. Summary of drilling within Karns area

EL	Company	Commodity	Focus	Data available	Results of Exploration
1612 & 1613	BHP	Manganese	Cretaceous sediments	82 rotary holes drilled – Holes 6 and 10 close to Karns target	Provides geological and stratigraphic information. No holes intersected significant manganese and Cu, Pb and Zn values were generally low. No holes intersected GCV.
7174	CRA Exploration	Base metals	Stratabound base metal mineralisation	Drill logs and limited geochemistry	Within the area drilled – Cretaceous sediments were generally too thick
8856	Rio Tinto	Breccia hosted Cu mineralisation	Testing thickness of GCV and thickness of Cretaceous cover	Drill hole logs and limited geochemistry. Stratigraphic hole DDH95GC007 drilled close to Karns target	Drilling provided information on the stratigraphy of the area and showed areas east of the outcropping GCV shown to be in excess of 100m thick Cretaceous cover. Hole DDH95GC007 intersected 87m of Pungalina Members overlying GCV – hole bottomed in Wollogorang Formation

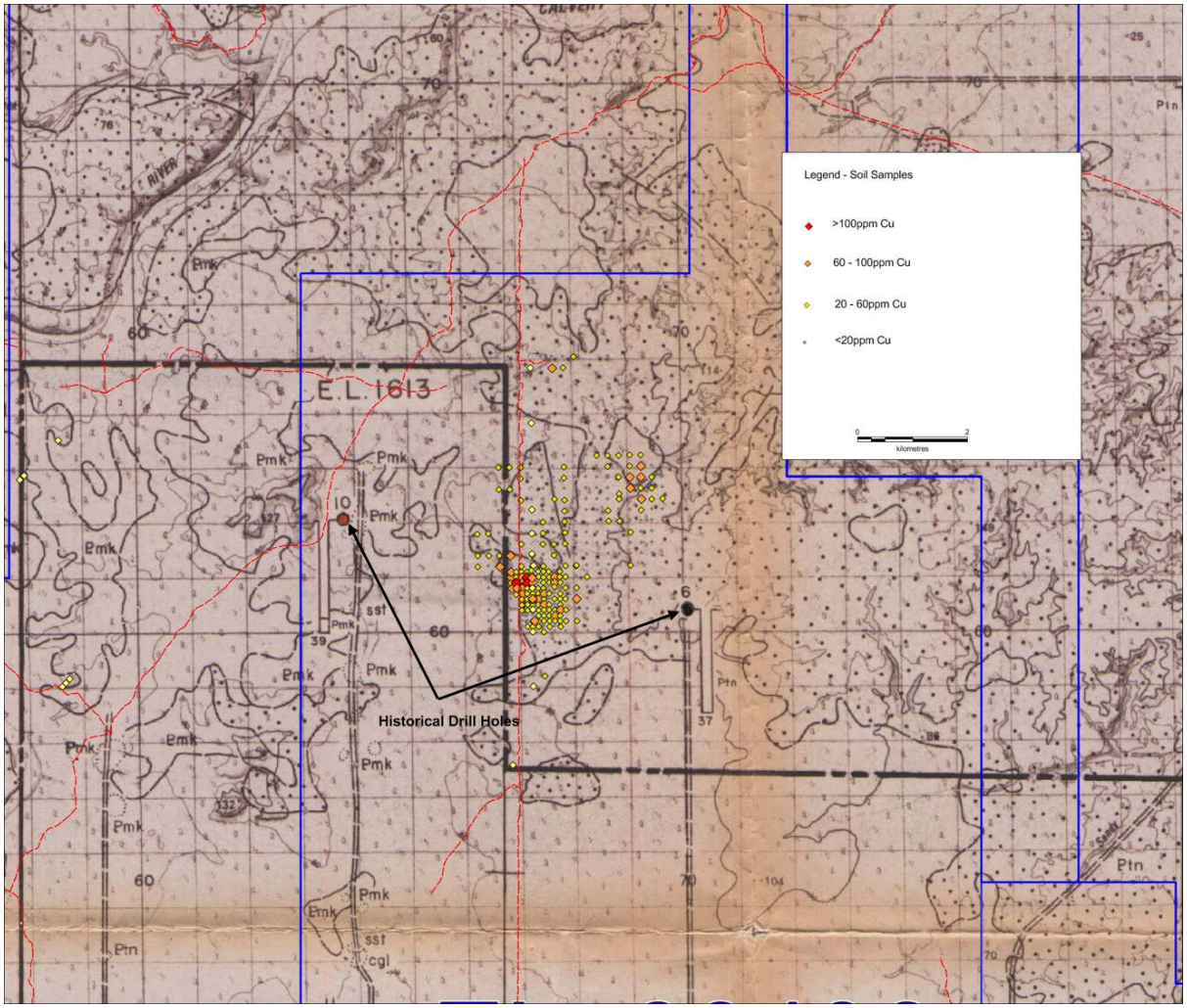

Figure 18 Map showing soil results for Karns prospect and location of historical drill holes.

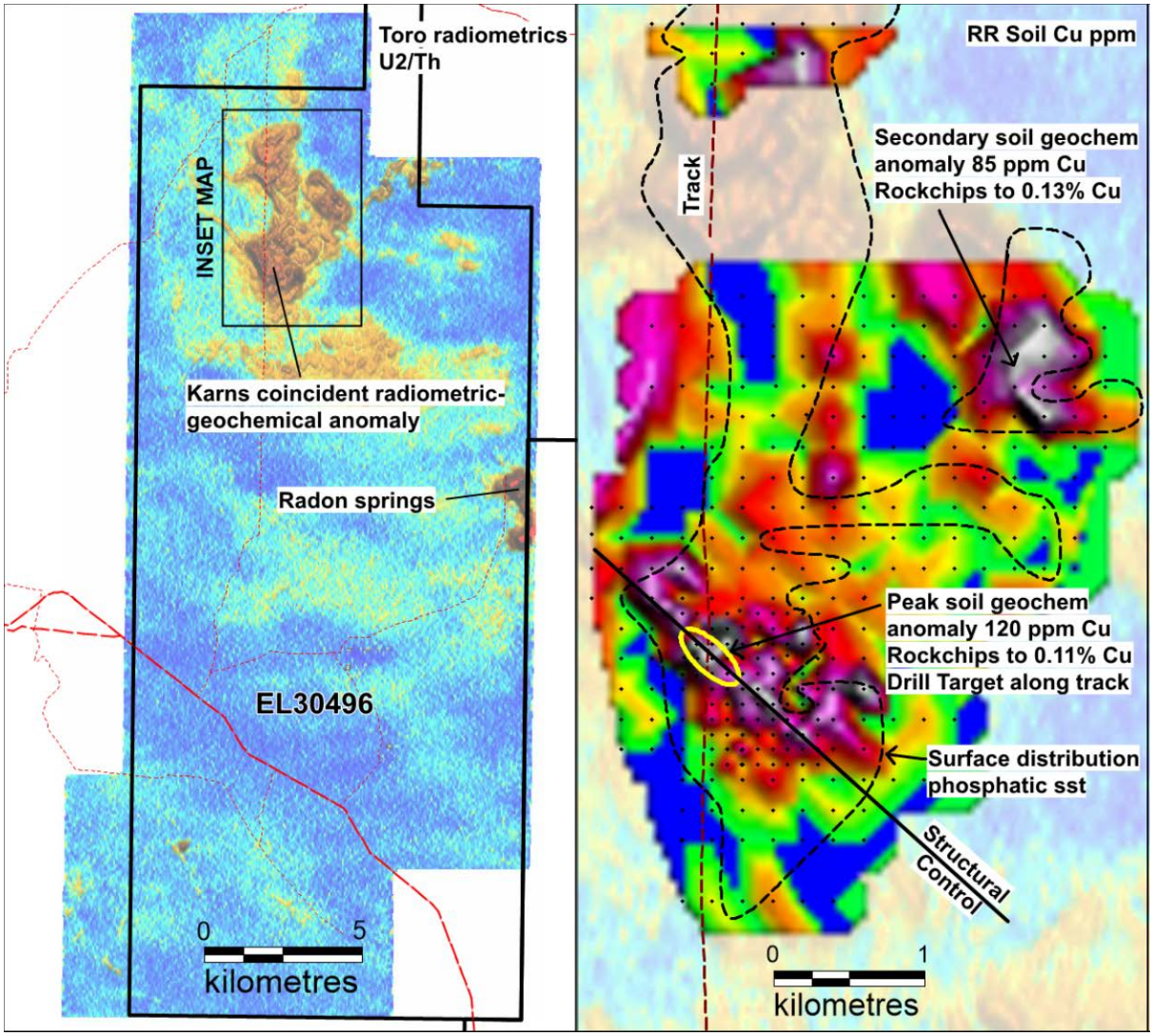

Figure 19 Left: Karns tenement showing U2/Th ratio for high-resolution radiometrics. Right: Coolabah Group's soil geochemistry grid for Cu at Karns target (inset map close up).

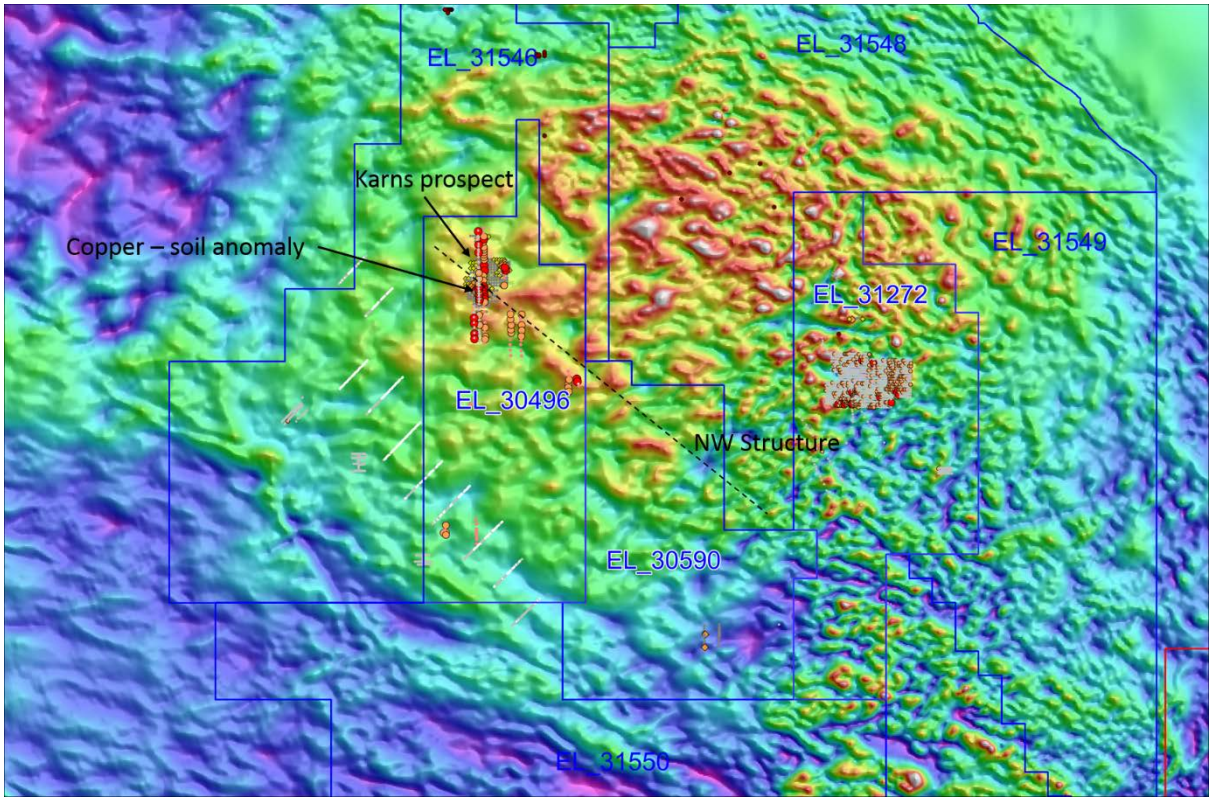

Figure 20 Aeromagnetic image of Karns prospect showing prominent NW-SE trending structure and copper in soils anomaly.

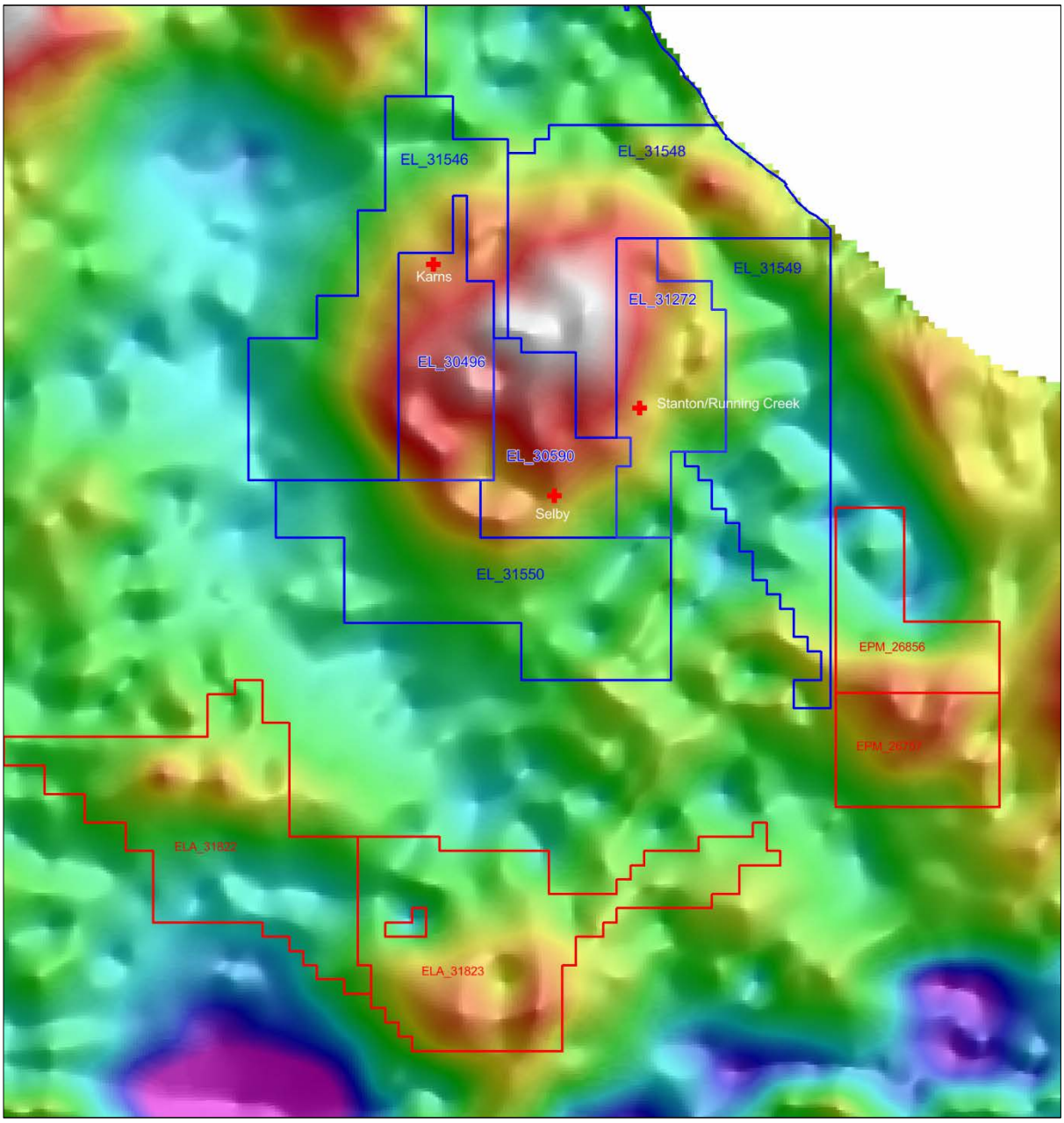

Figure 21 Regional gravity image showing prominent gravity high with the Karns, Selby and Stanton prospects all located around the margin.

2.2 Geophysical Activities

The mineralisation at Stanton corresponds with a discrete magnetic low geophysical signature and pull apart-basin structures. For this reason, a regional heli-magnetic/radiometric survey was completed across the Wollogorang area to define further targets (**Figure 22 & Figure 23**).

In June-July 2018 a total 25,000 line km were flown in a north-south orientation, at 75m line spacing, with a 30m terrain clearance. The survey specifications were based on findings from the 2017 trial survey completed across the Stanton area.

An IP survey including 6 lines for a total of 3.15 line km was completed on EL 31272. Four lines were completed across the GregJo prospect, a single line was completed over the Stanton deposit and a single line was completed over the Running Creek prospect (**Figure 24**).

Results from the single line across the Stanton deposit demonstrated good correlation between a resistivity high / conductivity low and the mineralized oxide zone (Blundell, 2018). Possible analogues were identified in the IP line completed across the Running Creek prospect.

The four lines completed across the GregJo demonstrate that the chargeability anomalies fall beneath the shallow RAB or outside the areas covered by drilling (**Figure 25**). Interestingly, there is elevated Cu present in the RAB holes overlying the chargeability anomalies.

2.3 Surface Geochemistry

A total of 1456 soil samples and 14 rock chip samples were collected across EL 31550 and EL 31549 (**Figure 14**).

A maximum cobalt value of 100 ppm (**Figure 26**) and a maximum copper value of 120 ppm (**Figure 27**) were returned from soil sampling in the Mad Creek area. Gridding of the data highlighted multiple, coincident cobalt-copper anomalies.

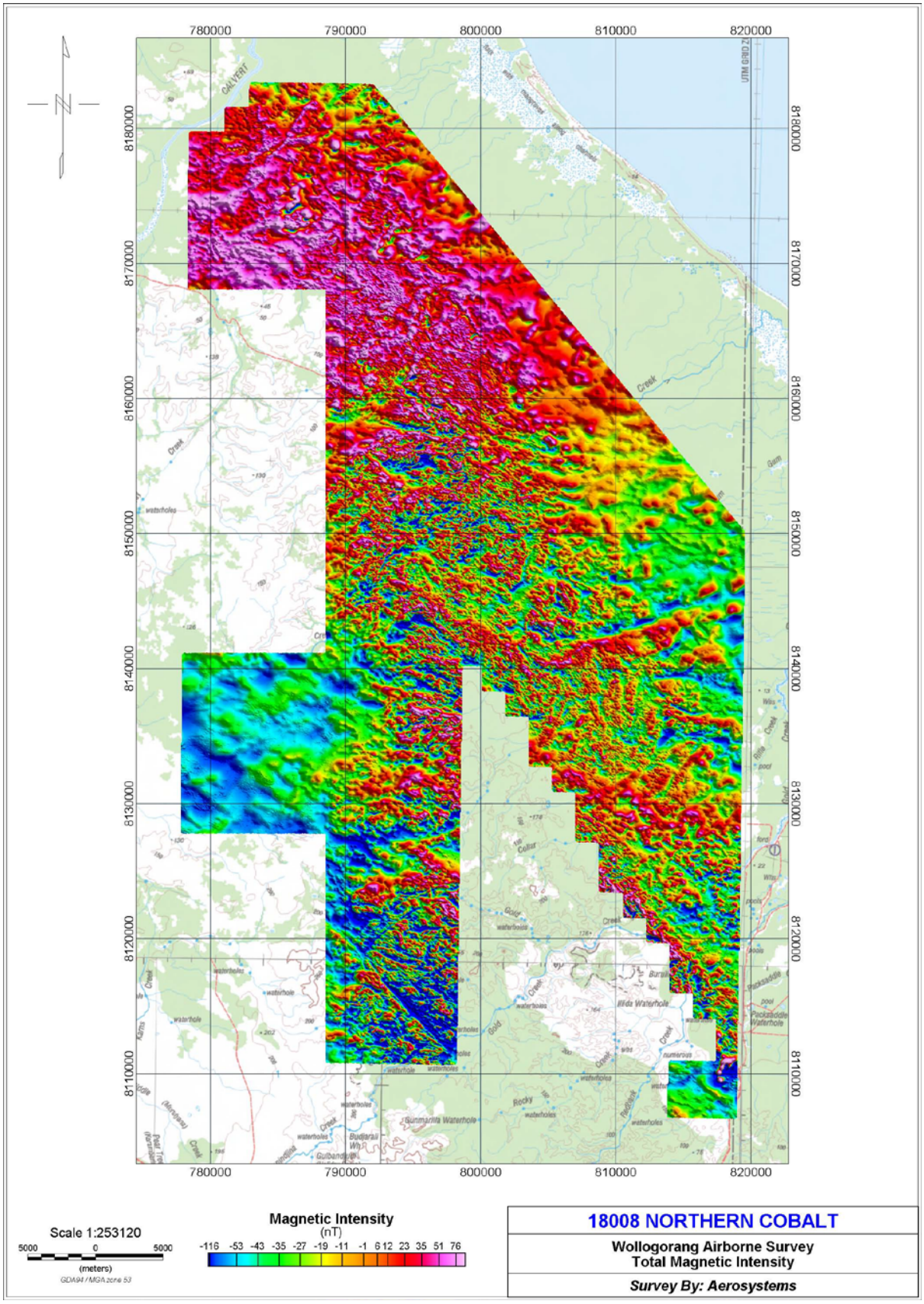

Figure 22 Regional TMI magnetics image from heli-mag/rad survey for the Wollogorang area.

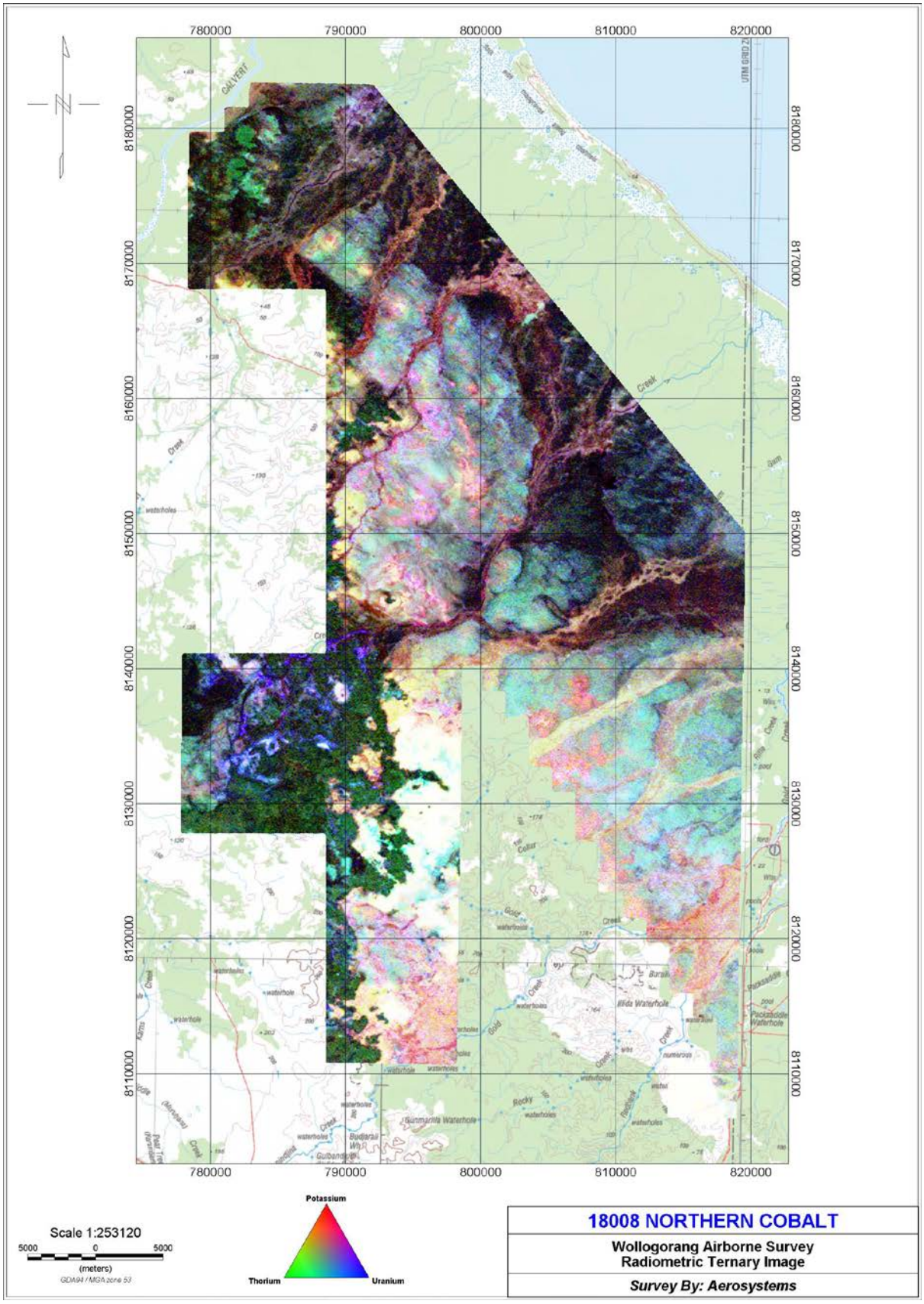

Figure 23 Regional Ternary radiometric image from heli-mag/rad survey for the Wollogorang area.

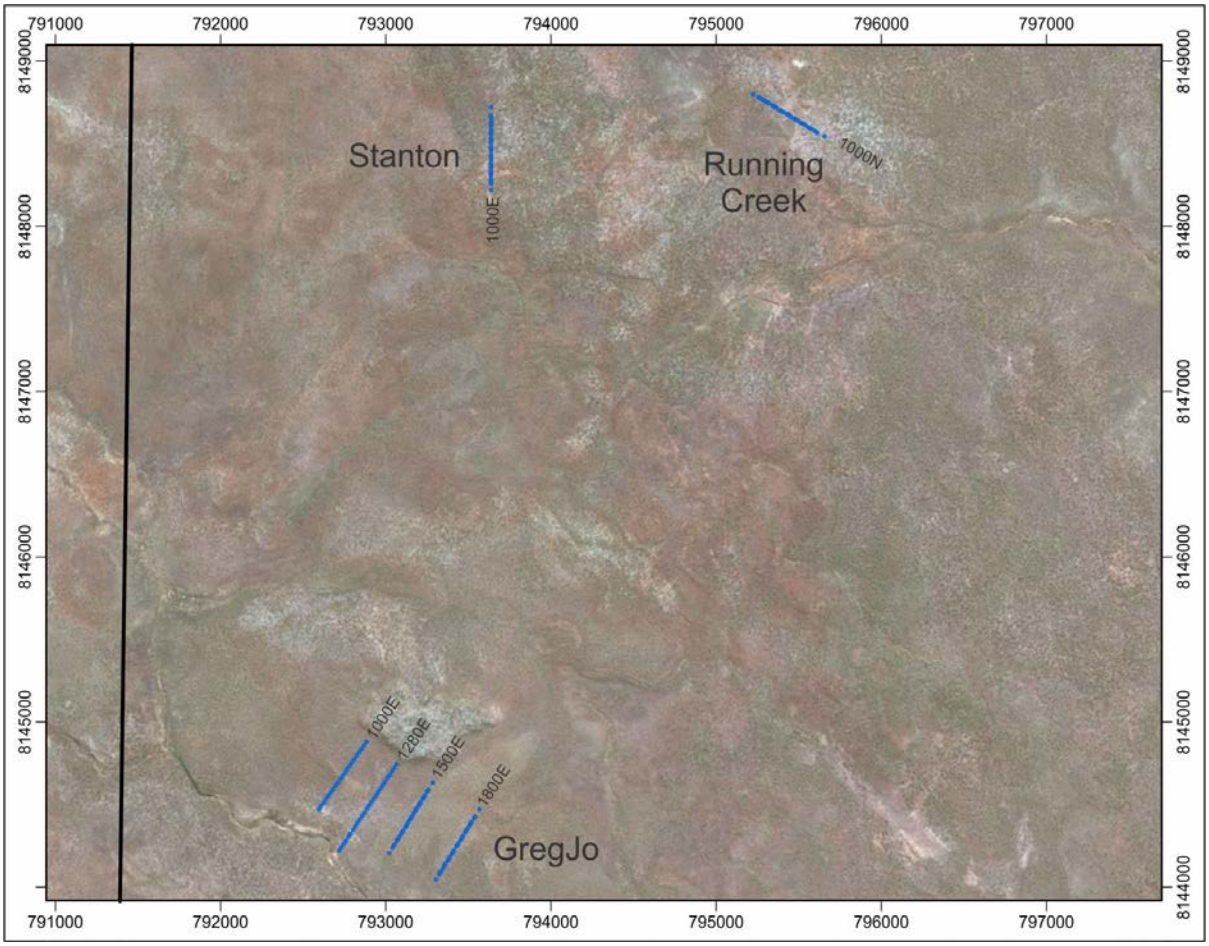

Figure 24 IP Survey Lines (Blundell, 2018).

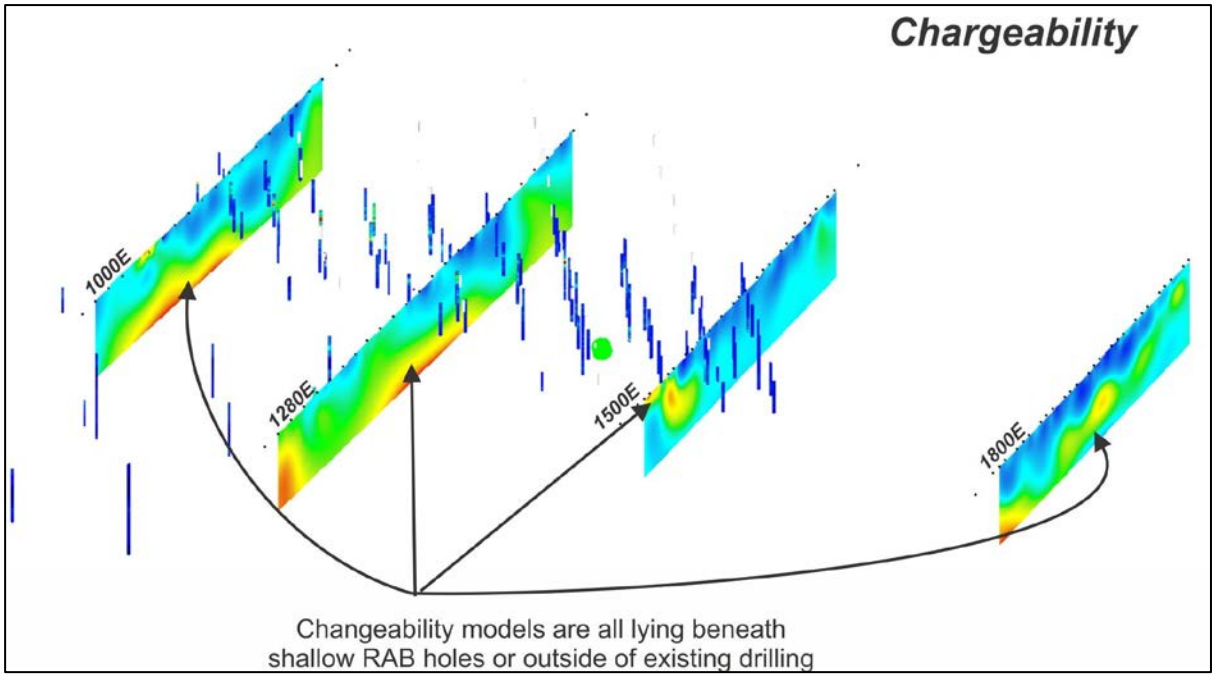

Figure 25 IP Chargeability verse RAB/AC drilling at GregJo (Blundell, 2018)

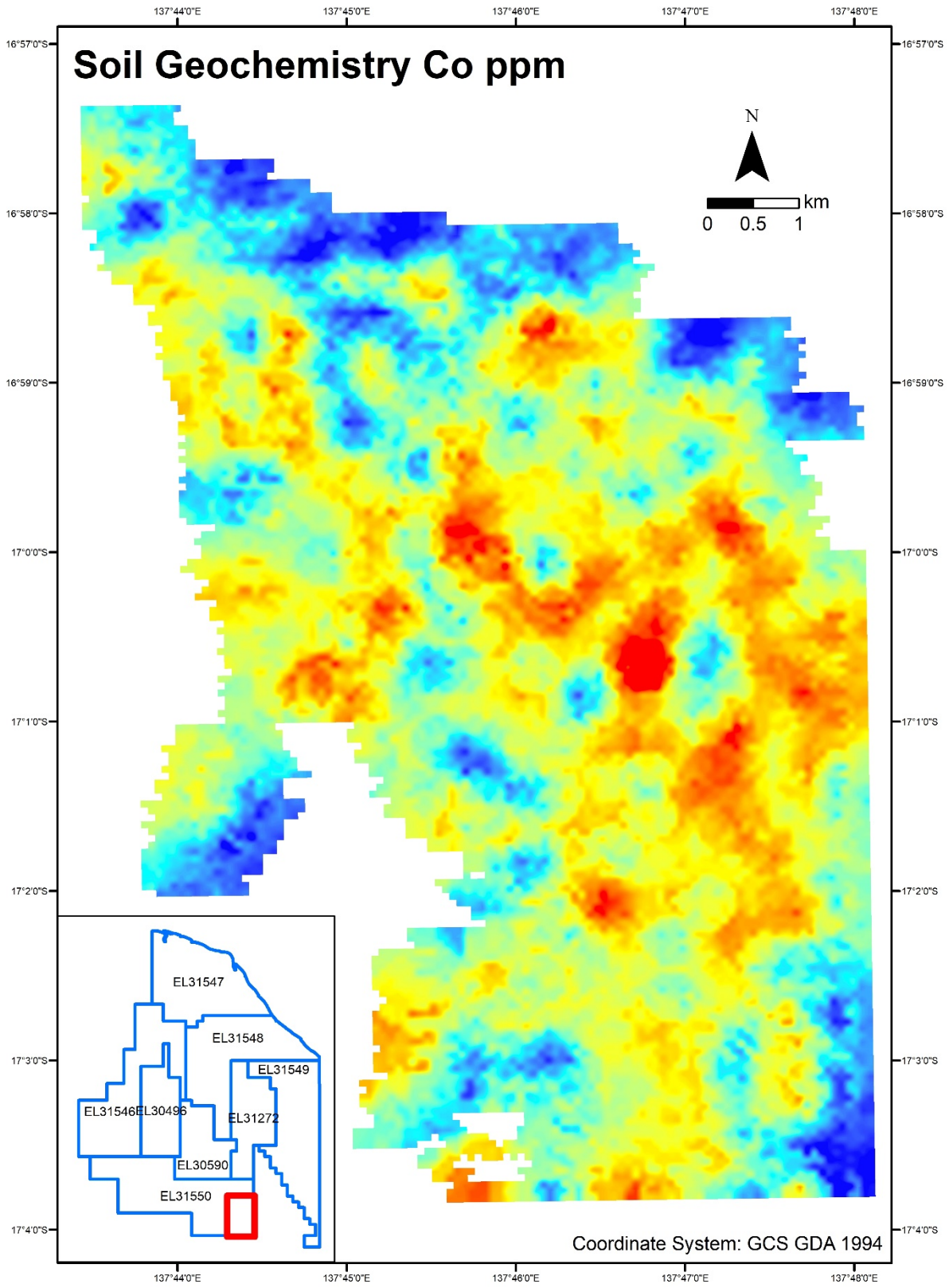

Figure 26 Soil sampling grid for Co ppm for EL 31550 (red represents max value of 100 ppm Co)

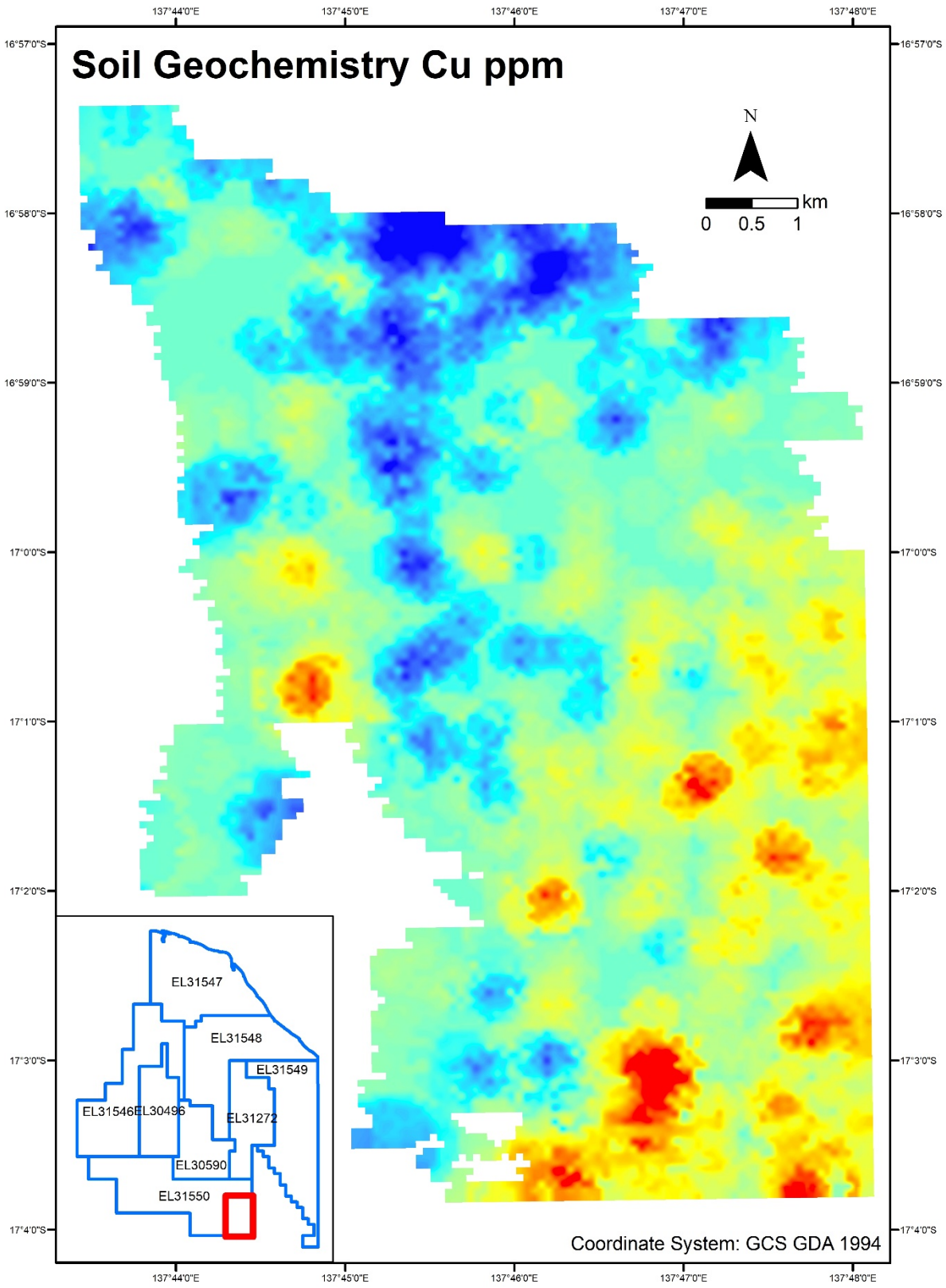

Figure 27 Soil sampling grid for Cu ppm for EL 31550 (red represents max value of 120 ppm Cu)

2.4 Drilling

A Regional RAB/AC drilling program was undertaken to test numerous Stanton-style targets defined in the regional airborne heli-magnetic/radiometric survey (i.e. magnetic low coincident with pull-apart basin structures).

In total, 977 AC holes for 6431.9m, 225 RAB holes for 7918.5m and one 38m RC hole were completed (**Figure 28**). All AC samples were subject to laboratory analysis, whereas RAB samples were analysed using a portable XRF first, then selectively submitted for laboratory analysis (i.e. only samples with portable XRF cobalt values > 300ppm). In total 14,502 samples were collected.

The best assay results were returned from drillholes along the GregJo Fault which included:

- **18RAB020**: 18m @ 0.5% Cu from 1m (including 1m @ 1.1% Cu from 13m and 1m @ 1.06% Cu from 18m)
- **18RAB031:** 11m @ 0.45% Cu from 16m (including 1m @ 1.22% Cu from 18m)
- **18RAB051:** 4m @ 1.14% Cu from 12m

The best assay results returned from the Running Creek prospect include:

- **18RAB102:** 55 m @ 0.78% Cu from 0 m (including 13 m @ 2.01% Cu from 11 m and 12 m @ 380 ppm Co from 22m)
- **18RAB123:** 5m @ 1604 ppm Co from 20m

A comparison of the portable XRF results verse laboratory analysis was completed on the available data in late 2018. In general, there was found to be a reasonable correlation in the copper values, but the portable XRF underestimated cobalt by approximately 1/3.

At the end of the reporting period, over 2000 samples (2 weeks drilling) remained outstanding for portable XRF and selective laboratory analysis. These results will be provided during the next reporting period.

Note: A number of RC and Diamond drillholes completed during the 2017 field season were missing in the previous Annual Technical Report (submitted 2018). For completeness, these drill holes have been added to the 2018 data files and resubmitted (**Figure 29**). Additional holes include 61 RC drillholes for 4,870m (Regional) & 10 Diamond for 773.4m (Stanton Resource). Magnetic susceptibility readings were collected at 1m intervals downhole using a Fugro GMS-2 meter. All data is provided in SI units with an instrument factor code of x 10-5.

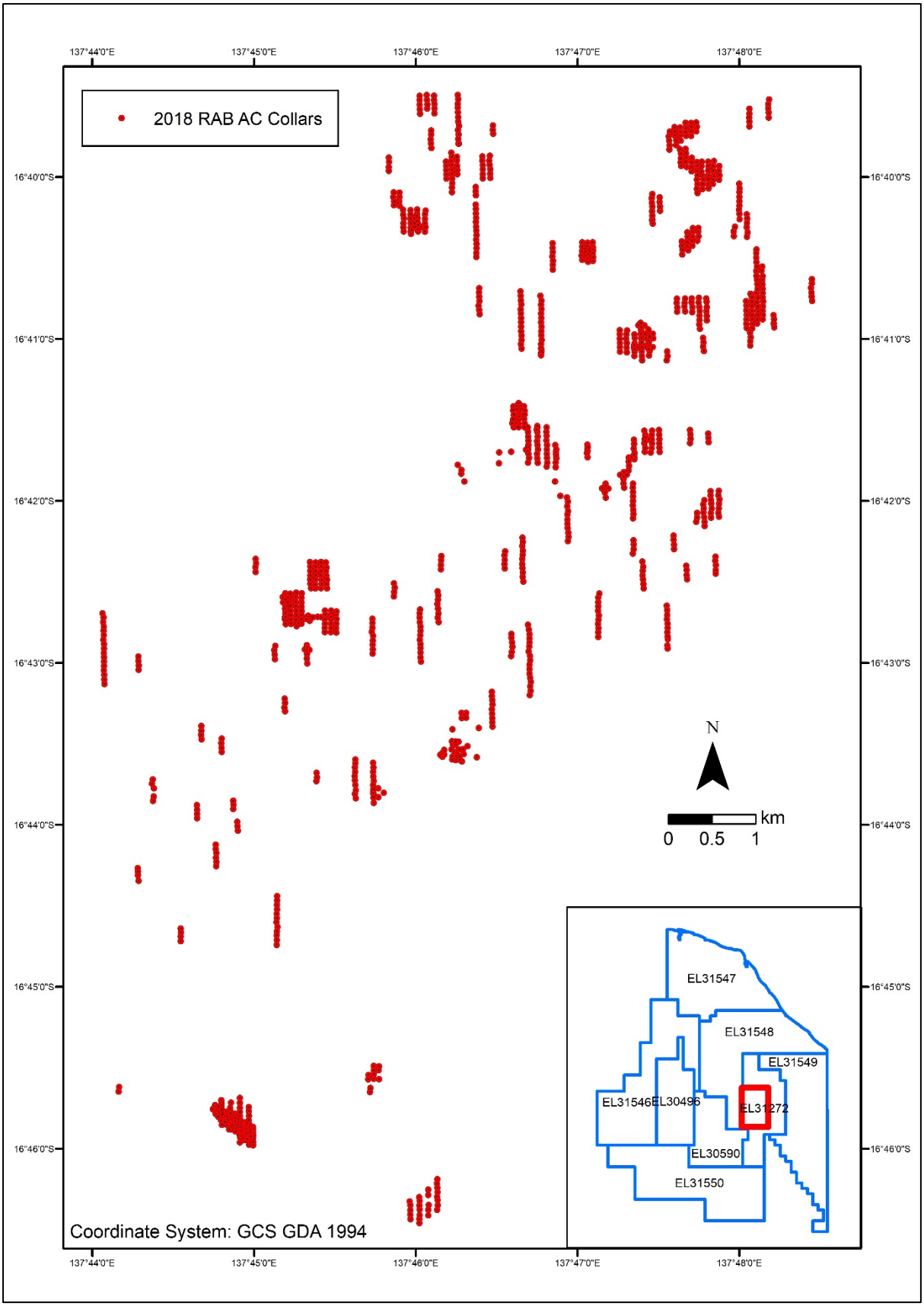

Figure 28 2018 Regional RAB/AC drilling collars

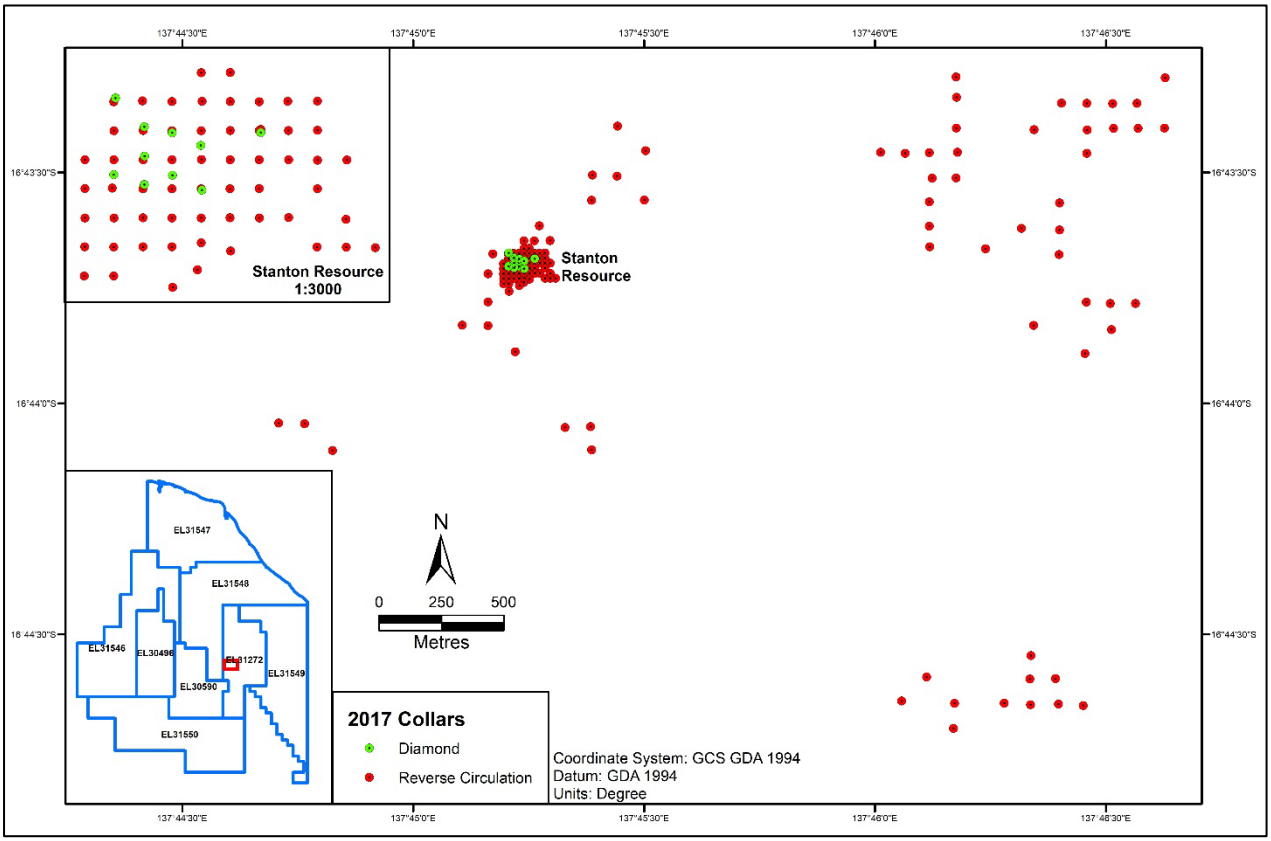

Figure 29 2017 RC/Diamond drilling collars

2.5 Geotechnical Studies

During the reporting period, metallurgical test work was completed on halved diamond drill core samples from the Stanton Deposit. The Stanton Deposit contains a JORC 2012 compliant Total Mineral Resource estimate of 942,000t @ 0.13% Co, 0.06% Ni and 0.12% Cu (released on the 9th of April 2018).

Test work was completed on three different sample materials from the Stanton deposit

- Ore from the oxide zone (60 kg)
- Ore from the transition zone (65 kg)
- High-grade ore (3.7 kg)

The ore from the oxide and the transition zone was used for concentration and purification test work, the material from the high-grade zone was used for additional chemical and mineralogical analyses.

Since the oxide zone ore sample represents the dominant portion of ore in the Stanton deposit, beneficiation test work focused on this zone.

In February 2019, Dorfner ANZAPLAN provided a report on the beneficiation of cobalt ore for the Stanton deposit including a flow sheet for battery-grade cobalt sulfate production.

3 Conclusion & Recommendations

Work over the reporting period included a regional airborne magnetic/radiometric survey, a regional RAB/AC drilling program, an IP survey, surface geochemistry and metallurgical test work on the previously defined JORC 2012 compliant Resource for the Stanton Deposit.

The regional airborne magnetic/radiometric survey was used to design the regional RAB drilling program, which successfully identified the GregJo Cu prospect. A follow-up IP program defined IP chargeability anomalies at depth, beneath the mineralised RAB/AC holes at GregJo. Further chargeability anomalies were also modelled outside the areas covered by drilling.

The positive results from the regional Magnetics/Radiometrics, RAB/AC drilling, surface geochemistry and IP programs have positioned the company for extensive regional exploration work over the next reporting period.

Planned work for the next 12 months is summarised by tenement below.

EL 30496
(1) Complete negotiations for a land access agreement with the Australian Wildlife Conservancy.
(2) Drill a single 500m deep RC/Diamond hole to test the Karns target.

EL 30590
(1) Undertake a deep IP survey over the Selby targets.
(2) Modelling of the IP data.
(3) Plan for drill testing of prospective IP anomalies in 2020.
EL 31272
(1) RC drilling program at GregJo and Running Creek.

EL 31546 & EL31547
(1) Regional Heli-borne Magnetic/Radiometric survey.

EL 31548 & EL 31549
(1) Regional surface geochemical sampling across magnetic targets defined in the heli-borne survey.

EL 31550
(1) Extend and infill surface geochemical sampling.
(2) IP survey if drill testing of other GR390 IP anomalies proves effective.

4 References

Blundell, K., 2018. Wollogorang Project (EL31272) 2018 Dipole-Dipole IP Data Review and Interpretation.

Schwartz, M., 2017. #GR390 - Combined Annual Technical Report Wollogorang Project April 2017.