



# **Bridging Report**

## **Exploration Licence 29689**

### **“Copper Queen - Virginia”**

**For the period:**  
**20<sup>th</sup> August 2014 – 31<sup>st</sup> January 2015 (Bridging Period)**

Author:	Colin Skidmore
Date:	31 <sup>st</sup> March 2015
Tenement Holders:	DBL Blues Pty Ltd 100%
Tenement:	EL29689 “Copper Queen-Virginia”
Reporting Period:	20 <sup>th</sup> August 2014 – 31 <sup>st</sup> January 2015 (Bridging period)
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Keywords:	Iron oxide copper-gold, RC Drilling, VTEM AEM, CSIRO Study

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EL29689\_2015\_A\_01\_Bridging Report.pdf  
EL29689\_2015\_A\_02\_Appendices.pdf  
EL29689\_2015\_A\_03\_Drill Collars.txt  
EL29689\_2015\_A\_04\_Drilling Information.txt  
EL29689\_2015\_A\_05\_Drillhole Surveys.txt  
EL29689\_2015\_A\_06\_Geological Logging.txt  
EL29689\_2015\_A\_07\_Drillhole Sampling.txt  
EL29689\_2015\_A\_08\_Drilling Quality.txt  
EL29689\_2015\_A\_09\_Drilling Assays.txt

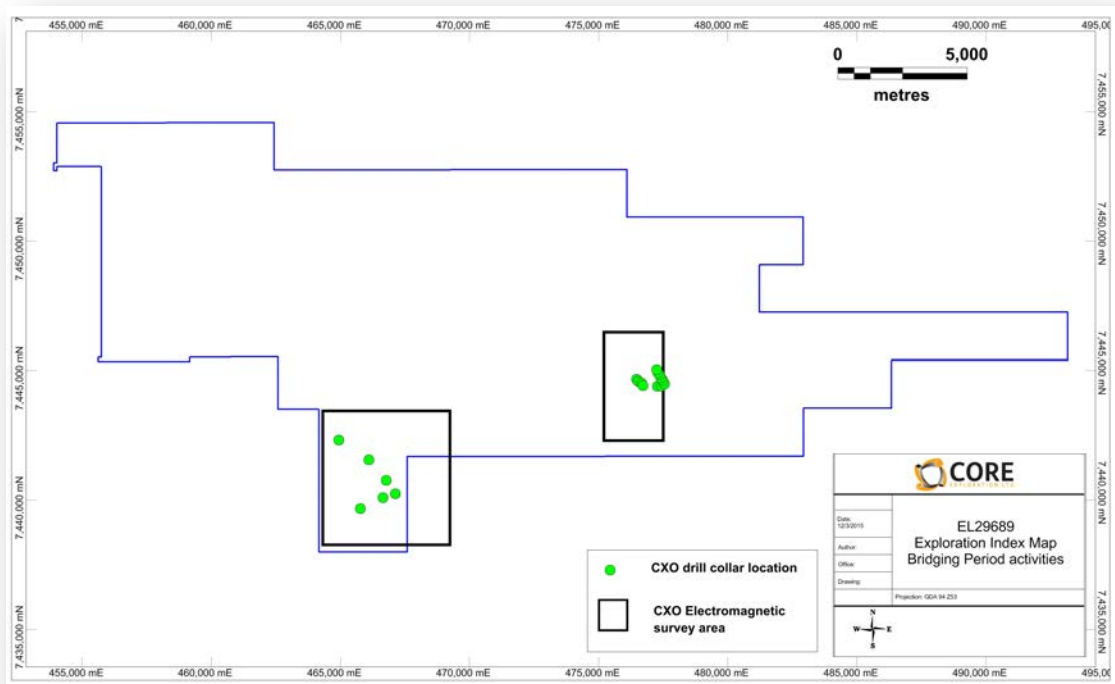
Note a full digital datapack containing the Final VTEM survey data as provided from GeoTech has been submitted to NT Dept Mines & Energy separate to this report.

## 1.0 Summary

Exploration Licence 29689 “Copper Queen - Virginia” is located approximately 100 km northeast of Alice Springs. Vehicle access into the area is reasonable, via the Stuart Highway and Plenty Highway to Mt Riddock Station and then by station tracks.

During the reduced bridging period 2014-2015 Core undertook a reconnaissance phase one drilling program within EL29689 at the Virginia Prospect and at the Copper Royals target area. This reconnaissance program drilled 18 RC holes (12 at Virginia, 6 at Copper Royals area) and intersected a thin ~3-6m low grade copper body at the Virginia Prospect. Core interprets this result as a demonstration of the mineralization model within the Riddock Amphibolite in the Irindina Province, however the initial results at Virginia are not worthy of immediate follow up drilling.

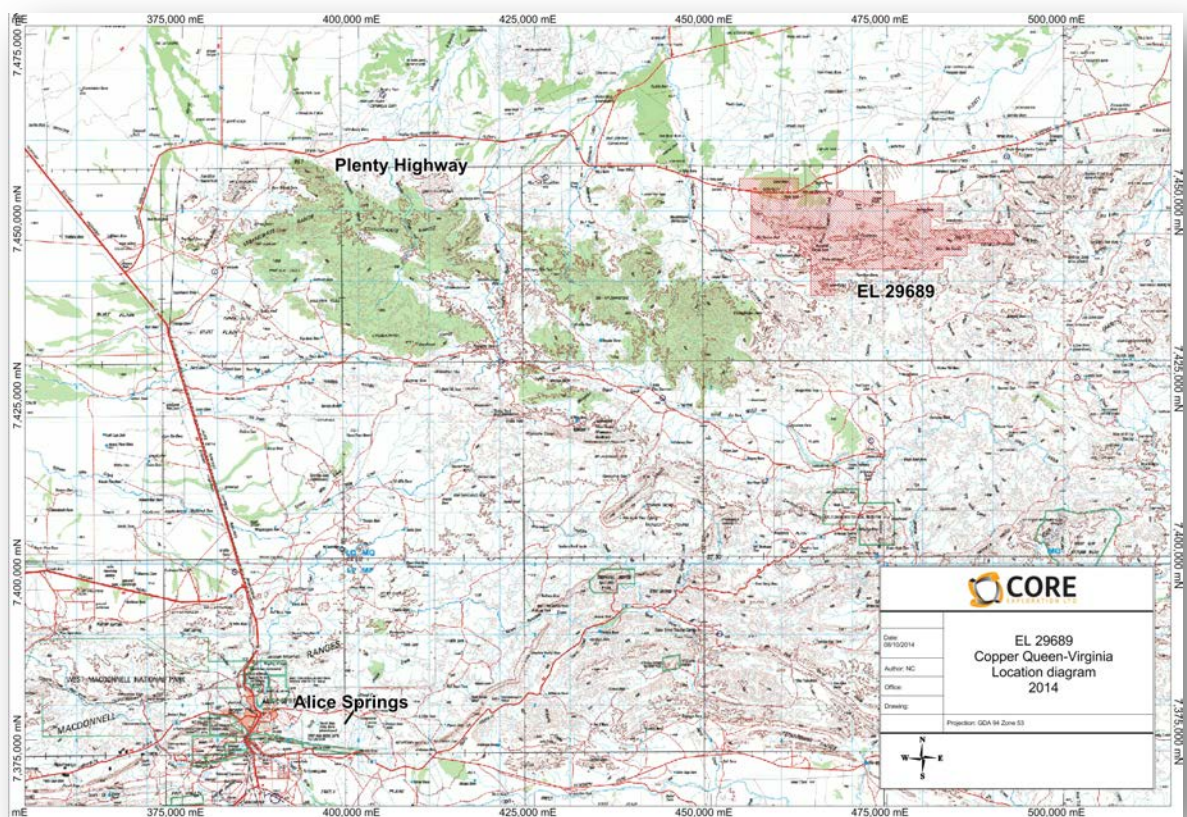
During this bridging period Core undertook an electromagnetic (EM) airborne survey over the Virginia Prospect and the Copper Royals area as part of a collaborative research initiative with the CSIRO (see Figure 1.1). Only preliminary results were available before the end of the bridging period with Core expecting processed and modelled data from the CSIRO during the first year of the grouped reporting, Alberta North GR 359. Core will assess the results of the processed data to determine if any anomalism is interpreted to be sourced from sulphides and as such is a follow up drilling target.



**Figure 1.1** Exploration Index Map, bridging period

## 2.0 Introduction

This report details first year exploration activities completed by Core Exploration Ltd within EL29689 “Copper Queen - Virginia”. The tenement is owned and operated by Core Exploration through its 100% subsidiary DBL Blues Pty Ltd. The tenement is located approximately 110 kilometres northeast of Alice Springs, midway between the Harts Range and Hale River. Light vehicle travel time to the project area is just under three hours from the township of Alice Springs (Figure 2.1) via the Stuart Highway and Plenty Highway to Mt Riddock Station and then by station tracks.



**Figure 2.1** Location Map of EL 29689

Vehicle access within the tenement is limited, the general area is hilly with only a few vehicle tracks available. The climate is typical of central Australia, hot summers and mild winters. Due to seasonal rains, much of the area is overgrown inhibiting detailed ground exploration activities and access, and the rivers are prone to flooding during heavy rainfalls over the summer. Accommodation can be found at Gemtree Caravan Park (approximate one hour drive).

### 3.0 Tenure

EL29689 was granted on the 20<sup>th</sup> August 2013 and overlies pastoral lease PPL 989 (Mt Riddock) (Table 3.1). Core Exploration 100% holds the tenement through its wholly owned subsidiary DBL Blues (whom the tenement is held under).

Tenement	Owner	Date Granted	Tenure	Size	Rent Year 1	Expenditure Commitment
EL 29689	Core Exploration (DBL Blues)	20/8/2013	6 Years	99 blocks	\$3,643	\$41,000

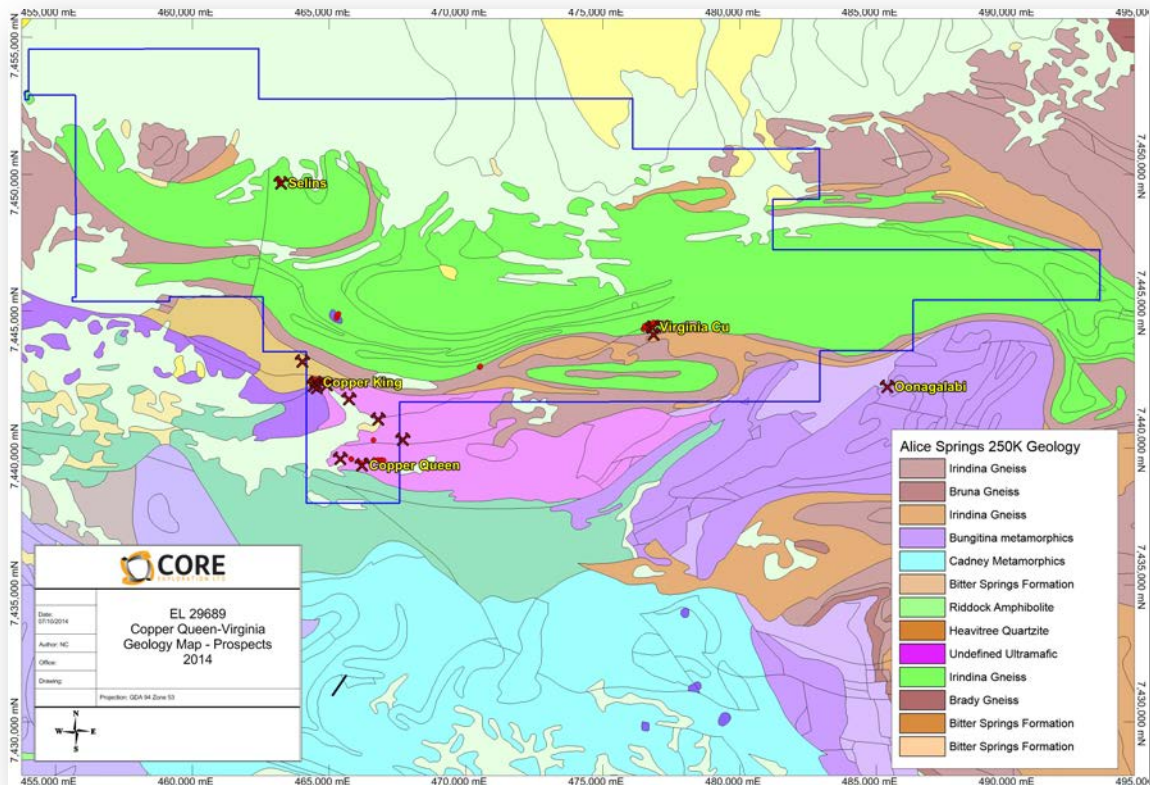
**Table 3.1:** Tenement Summary

### 4.0 Geology and Mineralisation

EL 29689 covers both the Proterozoic Aileron Province and the Neoproterozoic Irindina Province and their contact in the Central Arunta Region. The Aileron Province rocks mostly comprise variably metamorphosed sediments, volcanics, calc-silicates, amphibolites and granite (Figure 4.1). Detailed geology of the Aileron Province is covered by Murrell (1989) and Zhao & Cooper (1992).

The Irindina Province is a Neoproterozoic to Cambrian aged province that has been highly metamorphosed and multiply deformed by the Larapinta Event and the Alice Springs Orogeny. The bulk of the units within the Irindina Province are interpreted as forming the Harts Range Metamorphic Complex which includes Irindina Gneiss (which includes the Naringa Calcareous Member, the Stanovos Gneiss Member and the Riddock Amphibolite) and the stratigraphically overlying Brady Gneiss (Maidment 2005). The Virginia Prospect is interpreted to be within the Riddock Amphibolite. The Riddock Amphibolite is described as a variably deformed metagabbro or metadolerite, interlayered with layered, quartz rich amphibolite, metapsammopelitic rock, and minor marble calc-silicate rock and quartzo-feldspathic gneiss (Scrimgeour IR, 2013). It is also interpreted to be interlayered with the Irindina Gneiss in places.

Core has studied the recent investigations undertaken by Geoscience Australia (GA) and the Geological Survey of the Northern Territory, in conjunction with other explorers in the region, all of whom suggest Iron Oxide Copper Gold (IOCG) affinities can be attributed to the Aileron Province, making it a newly identified IOCG terrain.



**Figure 4.1** Extract from Alice Springs 1:250,000 Geology

This recently suggested IOCG terrain represents a newly-recognised Proterozoic copper – gold province characterised by a long belt of structurally deformed granite and sedimentary sequences that contain variable amounts of quartz veining, strong iron and fluorite alteration, and outcropping copper- silver- gold mineralisation.

The Irindina Province has become an area of greater interest for mineral exploration in the last decade due to some recent discoveries by exploration companies. Mithril Resources (MTH) have identified a number of Cu-Co and Cu-Ni prospects within the Irindina Province including at Basil where an inferred resource of 26.5 Mt @ 0.57 % Cu, 0.05% Co at a 0.3% Cu cut off was identified (MTH ASX release 21-03-2012). Studies of the Basil Cu-Co deposit (Sharrad et al., 2013) suggest a volcanic – exhalative (VHMS) on the seafloor emplacement history for the deposit which was metamorphosed by the Ordovician Larapinta Event, making it a metamorphosed VHMS style deposit hosted within the Riddock Amphibolite.

Within EL29689, a number of existing prospects were identified when Core was granted the tenement. Copper Queen, Copper King, Skippy Tail and Copper Mogul had been previously identified and reconnaissance drill tested by Tanami Gold in the early 2000's. These prospects are all located within the Aileron Province within the Strangways Metamorphic Complex. The Virginia and Selins Prospects were also identified as historic copper prospects which have never been drill tested, these two prospects are hosted in the Riddock Amphibolite of the Irindina Province (Figure 4.1).

## 5.0 Previous Exploration

The earliest modern exploration in the area was conducted on EL346 by Russgar Minerals NL during the early 1970's. The work included geological mapping and extensive rock chip sampling for base metals and gold. The majority of the work was concentrated on the Oonagalabi prospect which had been discovered in the 1930's.

Kinex held EL1337 over the area between 1977 and 1983. Geopeko, Amoco Minerals and Pan D'Or Mining farmed into the tenement at various times. Most of the work was concentrated on the Oonagalabi prospect where geophysical surveys and drilling were carried out.

White Industries and BHP Minerals jointly explored EL 2648 between 1981 and 1984 primarily for diamond. Stream sediment samples were collected and the silt fraction was analysed for base metals. No significant anomalous values were found.

Astron Resources carried out a heavy mineral survey over EL4462. The aim of the survey was to determine if gold or gahnite (zinc spinel) were present in the stream sediments. Gahnite was found in a number of the samples and may indicate the presence of Oonagalabi style mineralisation. No further work was done.

Clarence River Finance Group held the ground under EL 6940 and EL 9420 from 1990 to 2000. They are also the current holders of the mining lease over the Oonagalabi prospect. Exploration was mainly conducted for industrial minerals (garnet). Some minor exploration work was done on the Oonagalabi prospect.

Tanami Gold explored the area under EL10078 and EL22917 between 2001 and 2006. Soil and rock chip sampling, RAB drilling and a hyperspectral airborne survey (Hymap) were completed. Unfortunately these ELs were part of a project group for a number of years and the group annual reports were not included in the compilation. Work was completed at the Virginia Prospect which was described as "a stratiform copper horizon over 1 km strike hosted by a 3-5 m thick leucocratic garnet gneiss band within mafic gneisses" of the Riddoch Amphibolite. Rock chip sampling of the malachite stained rocks returned values in the 1-5% Cu range. Soil sampling showed a strong copper anomaly extending along strike from the main prospect. The prospect does not appear to have been drilled.

The Copper King prospect was identified from regional 400x40 soil traverses. An area of abundant malachite staining measuring 10x30m returned rock chip assays <1% Cu with a peak gold value of 38.5 g/t Au. Two other prospects lie close to Copper King – Skippy Hole and MR3. Fifty one RAB holes were drilled on these prospects. Narrow zones of anomalous copper were intersected with the best result being 3m at 0.25% Cu from 6m in hole MRB029 at Copper King.

The CSIRO undertook some investigations of the Oonagalabi prospect in 2004, and showed that the mineralisation had a distinct geochemical signature – Au-Bi-Cd-Cu-Pb-Sn-W-Zn.

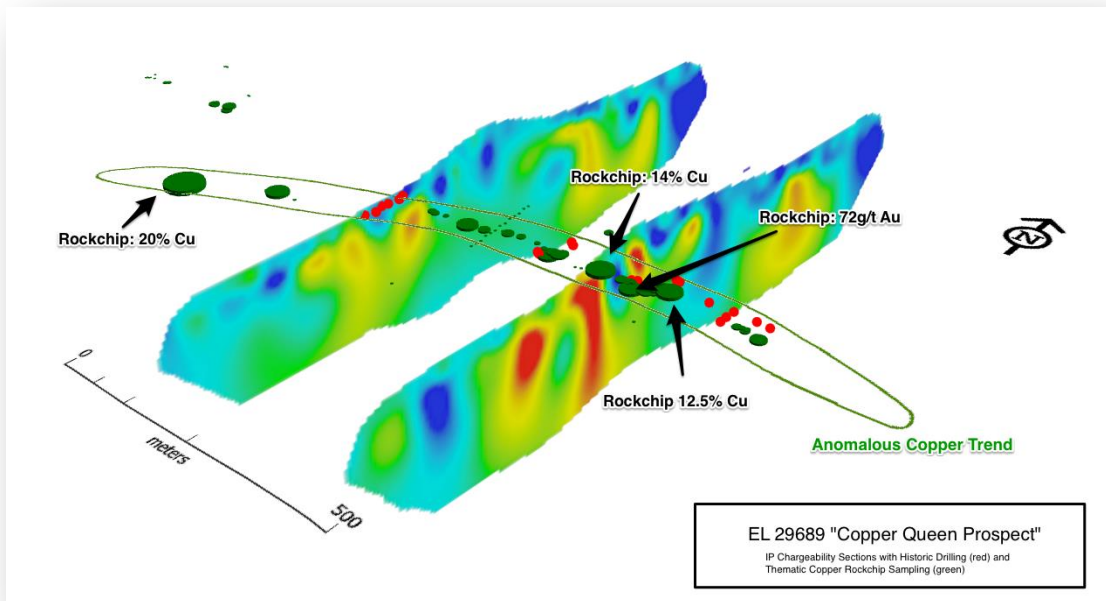


Most of the previous exploration work conducted in this area has been concentrated on the Oonagalabi Prospect. The mineralisation at Oonagalabi is stratabound in a distinct package of rocks which also trends southwest into Core's adjoining tenement EL 29280. Primary mineralisation consists of chalcopyrite and sphalerite patches, disseminations and veinlets in calc-silicate rocks, minor pyrrhotite, pyrite and galena are also found. The mineralisation is thought to have either a syngenetic volcanogenic or epigenetic origin. Soil sampling should identify any outcropping zones of mineralisation. Blind zones of mineralisation may be detectable by IP or EM surveys.

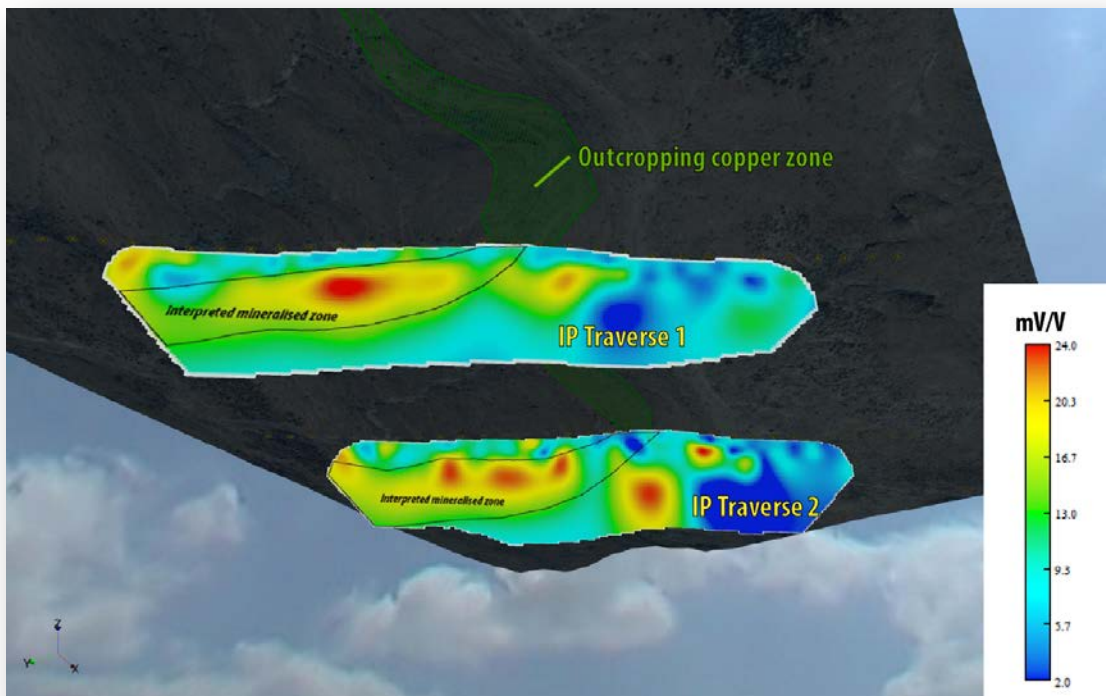
During the first year of tenure, Core Exploration completed the following exploration activities within EL 29689:

- Historical literature and data review including reconnaissance field visits.
- Reconnaissance field trips to meet stakeholders, assess access tracks, rock chip sample existing prospects and target lithologies/stratigraphy with mapping observations. A total of forty three (43) rock chip samples were collected and assayed from within EL29689.
- Induced Polarisation (IP) surveys were completed at the Copper Queen and Virginia Prospects. Two IP lines were completed at each prospect, with lines between 1-1.5km long (Figure 5.1). The lines of IP identified chargeable bodies underneath outcropping mineralisation at the Virginia Prospect, which dip parallel with the measured dip of surface outcrops at depth. This has led to the interpretation that the chargeable feature may represent the observed surface mineralisation (disseminated malachite) at depth, represented by chargeable disseminated copper sulphides (Figure 5.2).
- Mine Management Plans (MMP) for proposed drill programs at both the Virginia and Copper Queen Prospects have been submitted to the NT government department for consideration.

During the second year of tenure, Core Exploration completed the following exploration activities within EL 29689:



**Figure 5.1:** IP chargeability sections underneath locations of copper bearing rock chips from Copper Queen Prospect



**Figure 5.2:** IP chargeability sections underneath outcropping copper bearing rock chips at the Virginia Prospect

## 6.0 Bridging Period Exploration Activities

During this bridging period Core continued its active exploration program on EL29689 within both the Aileron and Irindina Provinces. Core has focused on the copper  $\pm$  gold potential of structurally hosted and calc-silicate hosted mineralization within the Aileron Province at its Copper Royals project. Additionally, Core continued its Cu  $\pm$  Ni  $\pm$  Co exploration within the Irindina Province specifically at the Virginia Prospect. The Virginia Prospect is hosted within the Riddock Amphibolite that locally is a shallowly dipping layered meta-amphibolite.

During this reduced bridging period Core's exploration activities included:

- Further reconnaissance fieldwork along the Selin's Prospect trend.
- Receipt of the EMMP approval for the planned drilling program and an AAPA Clearance Certificate
- Core flew 176 line kilometres of electromagnetics over the Virginia and Copper Royals Prospects.
- Completed 18 slim line RC drill holes at the Virginia Prospect (12 holes) and Copper Royals Area (6 holes) for a total of 1,745 meters.
- CXO entered into a collaborative research agreement with CSIRO to undertake high-level studies to generate new targets across the broader Albarta Project area.

### 6.1 Selins Prospect

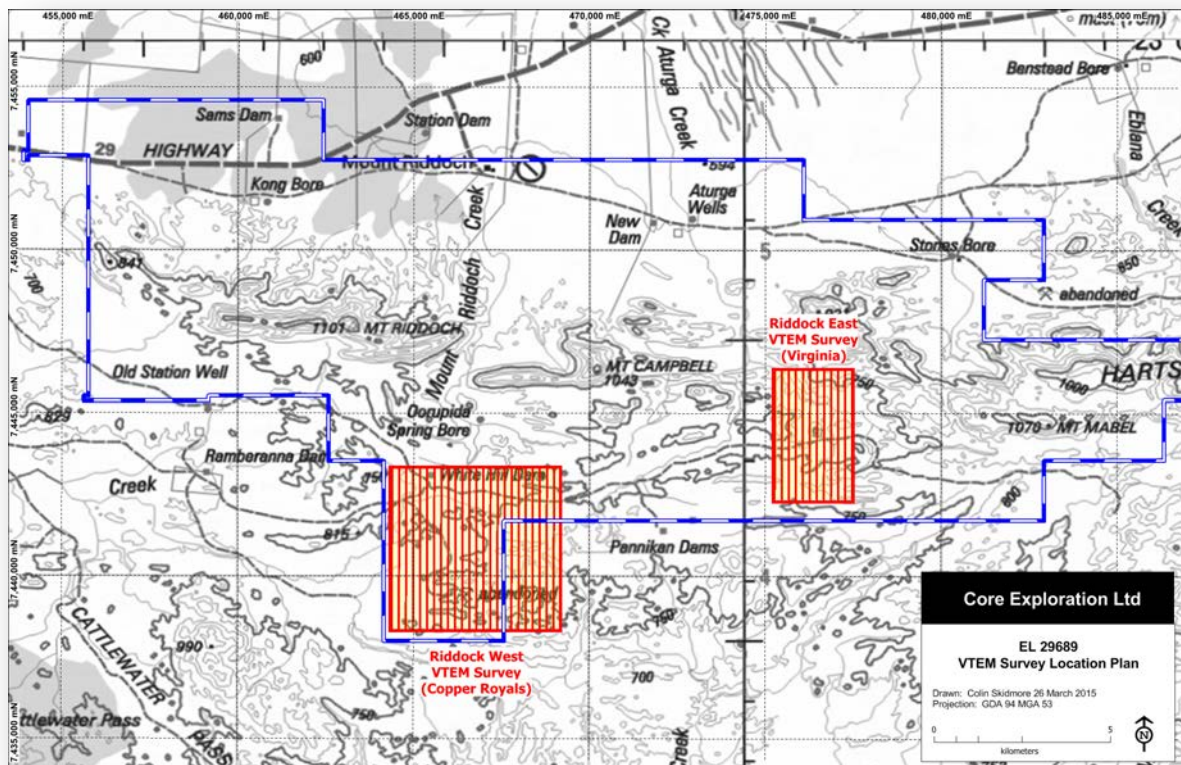
At the Selins Prospect in the northern half of EL29689 Core followed up with reconnaissance mapping exploring for a historic copper occurrence which had been recorded on the eastern limb of an open fold which hosts the Selins Prospect on its western limb. Unfortunately no further evidence of mineralization was located on the eastern limb. This subsequently downgraded the prospectivity of the distinctive fold within the Riddock Amphibolite.

### 6.2 Airborne Electro-Magnetics (VTEM)

Piggybacking on the mobilization of GeoTech's VTEM system to CXO's Jervois tenure two areas on EL 29669 were also surveyed using this system. CSIRO oversaw the acquisition process on behalf of CXO including contract and QAQC management. A total of 467.6 line kilometres of VTEM Supermax was flown between 23rd and 30th October 2014 by GeoTech Airborne Pty Ltd over two areas on EL29669 on 200m spaced traverses as illustrated in Figure 6.1 and Table 6.1.

Survey Block	Line Spacing (m)	Area (Km2)	Plan Line-km	Actual Line-km	Flight Direction	Line Numbers
Riddock East	Traverse:200	9	48	49	N 0° E / N 180° E	L4000-L4110
Riddock West	Traverse:200	24	125	127	N 0° E / N 180° E	L5000-L5240

**Table 6.1:** Mt Riddock VTEM Survey location details



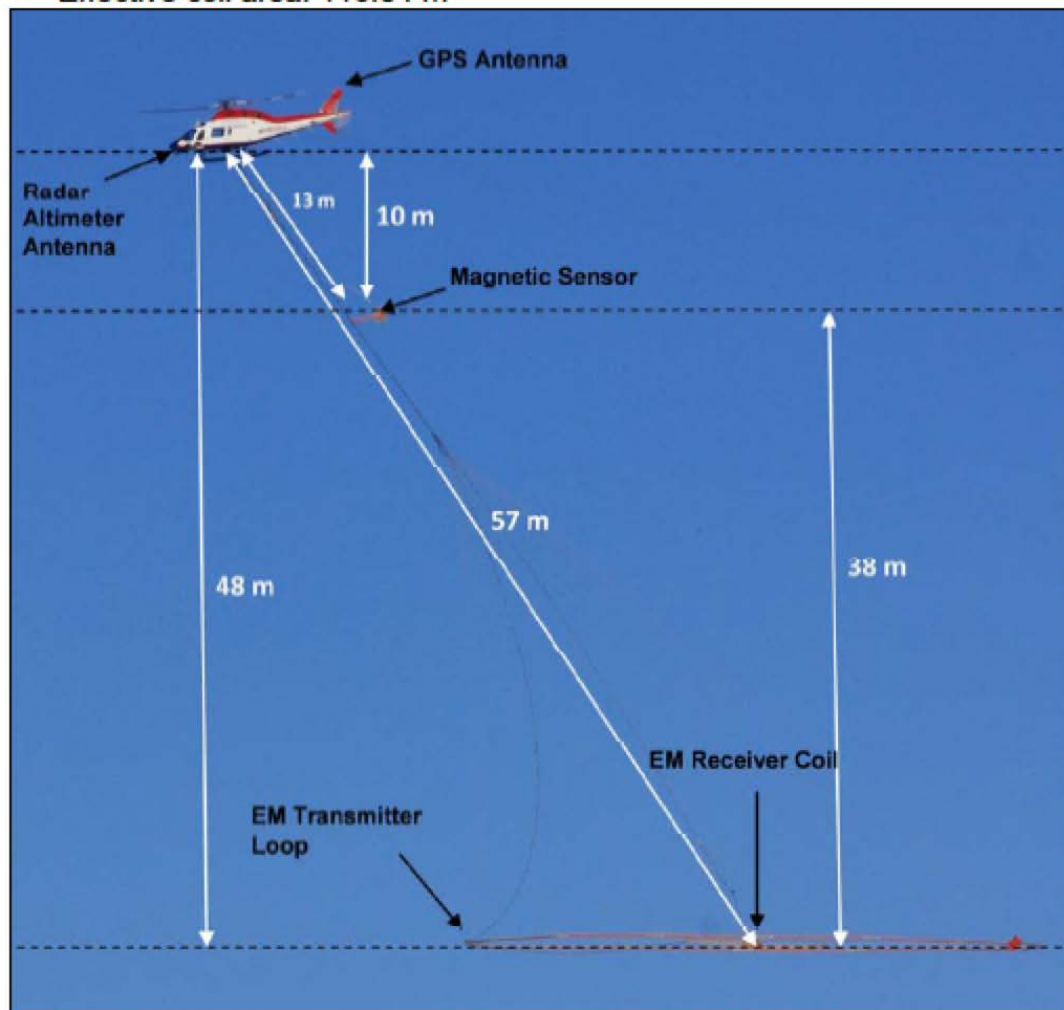
**Figure 6.1:** Riddock VTEM Survey location plan

**Transmitter**

- Transmitter loop diameter: 34.6 m
- Effective Transmitter loop area: 3848 m<sup>2</sup>
- Number of turns: 4
- Transmitter base frequency: 25 Hz
- Peak current: 289 A
- Pulse width: 4.89 ms
- Wave form shape: trapezoid
- Peak dipole moment: 1,112,072 nIA
- Actual average EM Transmitter-receiver loop terrain clearance: 38 metres above the ground

**Receiver**

- X Coil diameter: 0.32 m
- Number of turns: 245
- Effective coil area: 19.69 m<sup>2</sup>
- Z-Coil diameter: 1.2 m
- Number of turns: 100
- Effective coil area: 113.04 m<sup>2</sup>



**Figure 6.2:** VTEM Supermax System Specifications

The Contractor's Acquisition Report is attached as Appendix 1 and a full set of final products, from the contractor GeoTech Ltd (Aurora, Ontario CA), outlined below accompanies this report:

- Digital electro-magnetic and magnetic product datasets in Geosoft Database Format,
- Ancillary data including waveforms,
- Electromagnetic stacked profiles of the B-field Z Components,
- Electromagnetic stacked profiles of dB/dt Z Components,
- Colour grids of a B-Field Z Component Channel,
- Fraser Filtered dB/dt X Component Channel,
- Reduced to Pole (RTP) Total Magnetic Intensity (TMI), and
- EM Time-constant dB/dt Z Component (Tau).

### **6.3 CSIRO Collaborative Research Study**

During the latter part of 2014 extensive discussions were held with CSIRO and the Australian Government regarding the establishment of a Research In Business Partnership whilst a major focus will be on CXO's Jervois Domain Project the Alberta Project will also be addressed including processing of the Riddock VTEM datasets. The aim of this study is to leverage on the technical expertise of Australia's premier research organization and gain access to their software and super-computing resources.

In summary the collaboration CSIRO and CXO will investigate in detail the application of an integrated analysis of magnetics and airborne electromagnetic (AEM) data, tied into an understanding of the mineral systems that are present in the Jervois and Mt Riddock areas in the Arunta Block of the Northern Territory, to aid exploration targeting. The research will be undertaken at two scales:

1. At the brownfields/camp scale, targeted at defining extension of the known Jervois base-metal mineral system in adjacent undercover areas; and
2. At a regional scale, targeting IOCG, Cu-VMS and other mineral systems, across CXO's tenements.

The project aims to enhance the prospectivity of Core Exploration's tenement holding, by providing processed and interpreted geophysical data, from which follow-up ground investigations can be planned and executed.

The Activities will be undertaken in the following phases:

#### *Phase 1:*

- Analysis of VTEM SuperMax AEM data involving application of fast approximate transforms, full non-linear inversion, and parametric modelling of

the amplitude data to identify potentially mineralised targets. Time required ~50 days.

- Petrophysical analyses (Susceptibility, Remanence and AMS) of the known mineralisation at Jervois, and use these analyses to constrain modelling targeted toward identifying the most prospective sites for similar mineralisation.

#### *Phase 2:*

Prospect refinement activity undertaken at a regional scale over a large area. It would be a desktop study only, but would be underpinned by prior knowledge from previous studies, and ongoing studies in the area (e.g., CSIRO/NTGS study of Mordor Pound). The basic idea is to use magnetic modeling to determine magnetisation intensity of a large number (+100) of discreet anomalies, determine depth to source and likely volume.

#### *Phase 3:*

This component of the study will synthesise the results from the magnetics and AEM analysis and link their interpretation to an understanding of the mineral systems in the region, most notably those akin to the Jervois base metal deposit. This component of the study will require 10 days and will also involve a workshop in Adelaide with Core Exploration. The deliverables from this component will involve a mineral system description and discussion of the exploration potential for the Core tenements around Jervois.

CSIRO will provide digital copies of processed and interpreted (inverted) AEM (VTEM SuperMax) data acquired over the Jervois and Mt Riddock tenements. Specific deliverables include:

- Digital databases for fully inverted/transformed survey data sets as Geosoft format files
- Conductivity/resistivity-depth sections for each survey line
- 3D XYDepth conductivity/resistivity image database
- Conductivity/resistivity depth image slices from fully inverted data for survey areas in ERMapper format.
- Attributed digital coverage of target locations with target details from EM anomaly modelling.
- For the magnetic data interpretation CSIRO will provide GIS data (MapInfo) with all spatial data located including:
  - All magnetic data and magnetic data transforms (e.g., 1VD, Analytic Signal, RTP, HPF, Tilt Filter, customised RTP data for specific tectonic events, etc).
  - All relevant complimentary raster/grid data (e.g., gravity data + derivative datasets, radiometrics)
  - Line and Polygon data, such as geological map polygons, fault polylines, vehicular tracks

- Point data structural measurements (e.g., Dips, foliations, fault planes, mylonite)
- Sample locations

A workshop will be held with Core Exploration staff to summarise results and to set interpretation into a mineral systems framework.

## 6.4 RC Drilling

During the bridging period Core received a site survey clearance certificate from AAPA covering the proposed drill areas at Virginia and the Copper Royals region (Appendix 2). Core also received final approval of its Exploration Mine Management Plan (EMMP) from the Department of Mines and Energy and paid its deposit to gain final approval of the proposed drilling program on EL29689 (Appendix 3).

During November a total of 18 slimline RC holes for a total of 1,745m were drilled at Virginia and Copper Royals Areas as detailed in Table 2. Bullion Drilling undertook the drilling supported by Barber Hire undertaking earthworks and rehabilitation using a small loader. At the end of the drilling program all drill sites and new access tracks were rehabilitated.

A total of 635 samples including QAQC certified standards and sample duplicates were submitted to Intertek Genalysis for multi-element analysis including fire assay gold. Whilst all sampling submitted for analysis was undertaken as three-metre speared composites the quality of individual one-metre drilled intervals were assessed for sample quality. Full digital records of drilling, sampling and analysis accompany this report. It should be noted all assay results are presented in ppm. The analytical suite used included 25g fire assay with AAS finish for gold with multi-element geochemistry analyzed after near-total digest using by 4 acids and finished with a combination of ICP-OES and ICP-MS as detailed in Table 6.4.

Element	Range ppm	Finish	Element	Range ppm	Finish	Element	Range ppm	Finish
Ag	0.1 - 500	ICP-MS	In	0.05 - 2000	ICP-MS	Se	2 - 1%	ICP-MS
Al	50 - 15%	ICP-OES	K	20 - 10%	ICP-OES	Sn	0.1 - 2000	ICP-MS
As	2 - 1%	ICP-MS	Li	0.1 - 5000	ICP-MS	Sr	0.5 - 1%	ICP-MS
Ba	1 - 5000	ICP-MS	Mg	20 - 40%	ICP-OES	Ta	0.05 - 2000	ICP-MS
Be	0.5 - 2000	ICP-MS	Mn	1 - 2%	ICP-OES	Te	0.1 - 2000	ICP-MS
Bi	0.05 - 1%	ICP-MS	Mo	0.1 - 1%	ICP-MS	Th	0.05 - 5000	ICP-MS
Ca	50 - 40%	ICP-OES	Na	20 - 10%	ICP-OES	Ti	5 - 2%	ICP-OES
Cd	0.05 - 2000	ICP-MS	Nb	0.1 - 2000	ICP-MS	Tl	0.02 - 2000	ICP-MS
Co	0.1 - 1%	ICP-MS	Ni	1 - 2%	ICP-OES	U	0.05 - 1%	ICP-MS
Cr	5 - 2%	ICP-OES	P	50 - 5%	ICP-OES	V	1 - 1%	ICP-OES
Cs	0.1 - 2000	ICP-MS	Pb	1 - 1%	ICP-MS	W	0.1 - 2000	ICP-MS
Cu	1 - 2%	ICP-OES	Rb	0.1 - 2000	ICP-MS	Y	0.1 - 2000	ICP-MS
Fe	100 - 50%	ICP-OES	Re	0.05 - 2000	ICP-MS	Zn	1 - 2%	ICP-OES
Ga	0.1 - 2000	ICP-MS	S	50 - 10%	ICP-OES	Zr	0.5 - 2000	ICP-MS
Ge	0.1 - 2000	ICP-MS	Sb	0.1 - 1%	ICP-MS			
Hf	0.1 - 2000	ICP-MS	Sc	1 - 5000	ICP-OES			

**Table 6.2:** Summary of multi-element analysis



#### 6.4.1 Virginia Prospect

A total of twelve holes were drilled at the Virginia Prospect along the two IP traverses collected by CXO in early 2014. In addition two holes were drilled into the peak of the preliminary Channel 25 VTEM anomaly (Figure 1). All of the IP chargeable anomalies on both lines were tested with termination depths determined by either intersection of underlying basement gneiss or were drilled to rig capacity of 120 metres depth.

Hole_ID	Easting	Northing	RL	DIP	Azimuth	Total Depth
VGRC001	476465	7444684	685	-90	0	120
VGRC002	476539	7444598	691	-90	0	110
VGRC003	476661	7444533	699	-90	0	120
VGRC004	476720	7444431	694	-90	0	108
VGRC005	477279	7444411	712	-70	350	99
VGRC006	477422	7444424	704	-70	355	99
VGRC007	477549	7444499	698	-90	0	51
VGRC008	477480	7444643	699	-90	0	120
VGRC009	477406	7444734	692	-90	0	108
VGRC010	477353	7444853	684	-90	0	99
VGRC011	477288	7444943	677	-90	0	99
VGRC012	477247	7445049	665	-90	0	120

**Table 6.3:** Summary of drilling at Virginia

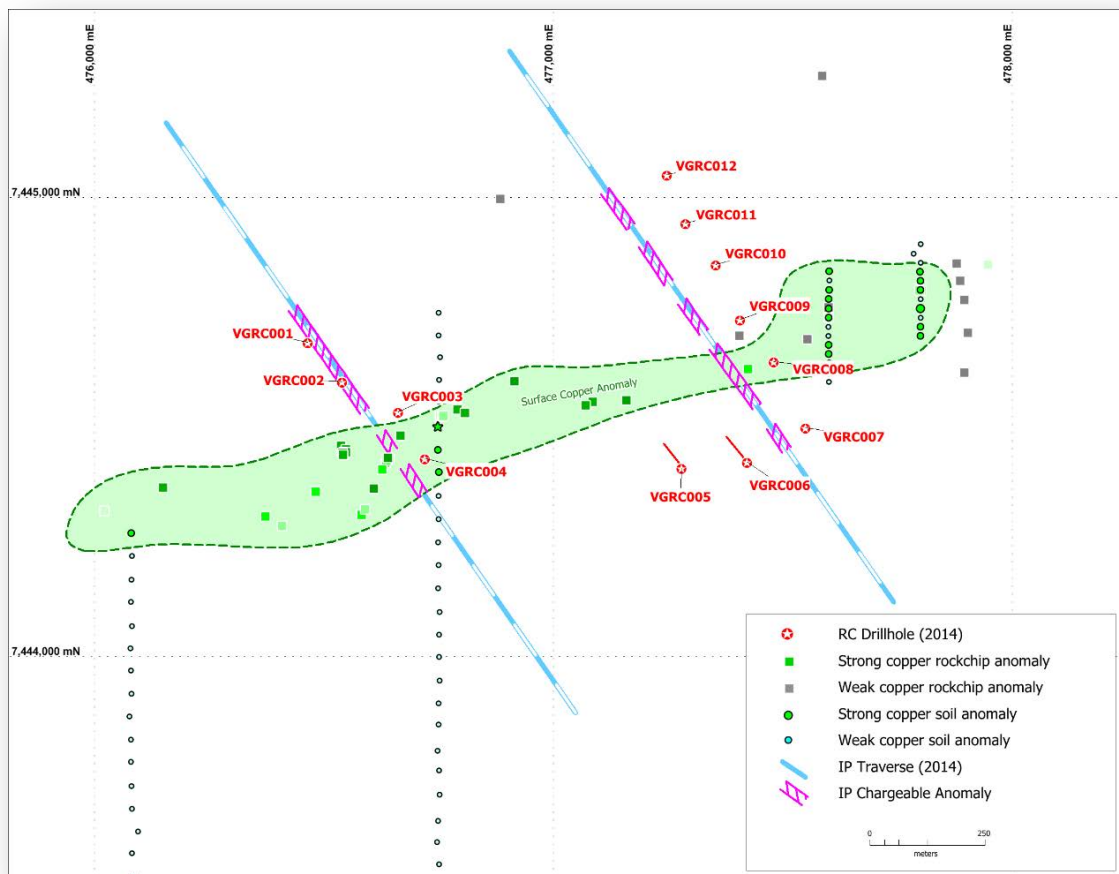
As predicted, drilling intersected variable silica and garnet altered cyclical sequences of Riddock Amphibolite that shallowly dip to the northwest. Underlying the Riddock Amphibolite are garnet-biotite-plagioclase-quartz gneiss and minor calc-silicate units of the Lower Harts Range Group.

Whilst disseminated and fracture fill pyrite was common throughout the amphibolite units in most holes, visual evidence of copper minerals was scant and constrained to areas close to the known mineralised outcrops. An increase of sulphides around coarse grained garnet porphyroblasts was evident in some holes but was highly variable and inconsistent with little ability to define favourable mineralised stratigraphic layering. It is suggested that hydromorphic mobilisation of copper from the amphibolite package has brought copper to the surface where it outcrops as distinct copper carbonates but that there is little to no economic potential for copper

sulphides below ~10 metres depth. Copious potable groundwater was encountered in several holes.

Assay results for Virginia were particularly disappointing with only a few narrow low-order copper intersections returned from the western traverse. The eastern traverse and the two holes drilled into the preliminary VTEM anomaly did not return any significant results with only broad zones of elevated copper-zinc in a generally depleted system. It is suggested the high temperature-pressure metamorphic events have in part mobilised the economic constituents leaving only iron sulphide in the amphibolite package. Significant intersections for Virginia are limited to:

VGRC001	6m @ 1,502ppm Cu [93-99m]
VGRC002	3m @ 4,337ppm Cu [51-54m]
VGRC003	3m @ 8,686ppm Cu [3-6m]



**Figure 6.3:** Virginia Prospect drill hole location plan

### 6.4.2 Copper Royals Area

Six holes were drilled at various locations across the broader Copper Royals Area.

Re-evaluation of previous work by Tanami Gold, who drilled 230 RAB holes (6,843m) in 2002, highlighted that the majority of the surface geochemical anomalies were adequately tested which included extensive drilling at Copper King and Copper Queen Prospects to depths approaching 100 metres. CXO's targeting was thus designed to test new targets with a single hole to determine potential for future follow up. Within the Copper Royals area access can be a constraining factor due to very rugged terrain with extreme relief.

Hole_ID	Easting	Northing	RL	DIP	Azimuth	Total Depth
<b>CRRC001</b>	464932	7442322	738	-70	45	84
Skippy Hollow: outcropping malachite and historic costean hole drilled under mineralised outcrop						
<b>CRRC002</b>	466641	7440094	753	-90	0	105
IP anomaly on northern end of 2014 Copper Queen IP Line						
<b>CRRC003</b>	467120	7440253	763	-90	0	84
Preliminary VTEM Ch 25 anomaly in proximity to anomalous rockchips						
<b>CRRC004</b>	466099	7441561	750	-70	001	60
Copper soil anomaly at end of magnetic feature						
<b>CRRC005</b>	466769	7440770	748	-60	195	81
Anomalous gold and copper rock chip geochemistry situated over a low hill of structurally highly convoluted, tight chevron folded amphibolite outcrop with small quartz blows and abundant malachite-azurite staining						
<b>CRRC006</b>	465768	7439667	762	-90	0	78
Copper soil anomaly along strike (west) from Copper Queen						

**Table 6.4:** Summary of drilling at Copper Royals

**CRRC001** was drilled under an outcrop of malachite staining at Skippy Hollow close to Copper King. No previous drilling has been undertaken however a short shallow historic costean was evident with minor disseminated copper staining. The hole intersected minor calc-silicate zones and felsic gneiss near surface but passed into a mafic biotite gneiss and amphibolite package from 42m depth. The hole was terminated at 84m with no visible sulphides.

**CRRC002** targeted an IP chargeable anomaly on the northern end of the Copper Queen IP traverse collected by CXO over Copper Queen in 2014. Drilled to 105 metres depth this vertical hole intersected several thick diopside bearing calc-silicate zones within a generally mafic gneiss. Whilst brick red haematite staining was evident the hole failed to encounter any visible sulphide mineralisation.

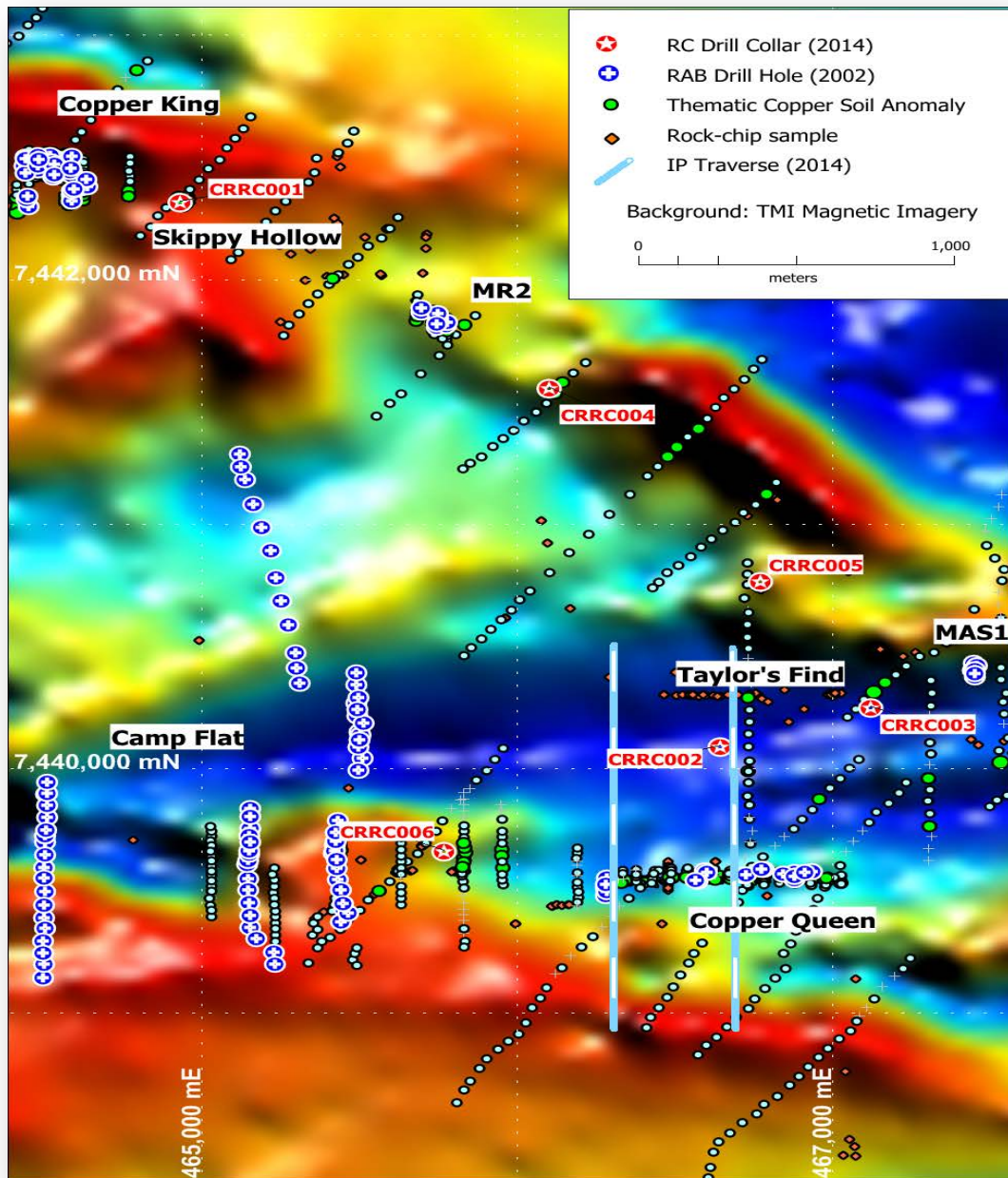
**CRRC003** targeted the end of a preliminary channel 25 VTEM anomaly in close proximity to anomalous rock chips. Several attempts were made to better test the anomalous copper and gold rock chip anomalies however steep terrain prohibited access. This hole again intersected mafic gneiss and diopside-bearing calc-silicate zones but no visible sulphides.

**CRRC004** targeted under an untested copper soil anomaly at the northern end of a discrete magnetic feature. The outcrop itself was only expressed as a narrow patchy sub-metre zone of malachite staining within a steeply dipping amphibolite. No mineralisation was encountered in this hole and the magnetic feature was explained as a thick pile of amphibolite

**CRRC005** was targeted on a discrete gold and copper rock-chip anomaly situated on a low hill of structurally highly convoluted, tight chevron folded amphibolite outcrop with small quartz blows and abundant malachite-azurite staining. Malachite and azurite were intersected between 15-17 metres depth directly underneath the surface anomaly associated with quartz-rich zones but there were no visible sulphides at depth as the hole passed through amphibolite and mafic gneiss lithologies.

**CRRC006** targeted a previously untested copper soil anomaly directly along strike to the west of the Copper Queen Prospect. The hole passed through a well-developed calcrete zone into un-mineralised amphibolite and mafic gneiss. Unlike Copper Queen no calc-silicates or marbles were intersected.

No significant results were returned from the Copper Royals Drilling Program



**Figure 6.4:** Copper Royals drill hole location plan on RTP Magnetic Imagery

Geology - costs	\$59,160.87
Geophysics - costs	\$37,699.09
Drilling - costs	\$99,100.65
Assays - contractors	\$34,486.19
Miscellaneous items	\$1,775.65
Depreciation of equipment	\$339.00
Access - heritage contractors	\$10,253.00
Environment - contractors	\$6,185.00
TOTAL	\$245,999.45

**Table 6.5:** Exploration expenditure details for bridging period.

## 7.0 Rehabilitation

During the maiden RC drilling program at Virginia and the Copper Royals area Core utilized existing station tracks as much as possible. When required new tracks and drill pads were prepared in accordance with the procedures and processes outlined by Core in the EMMP (Appendix 3). All new tracks and drill pads were rehabilitated during the drilling program with all rehabilitation completed before staff left site. A full rehabilitation report will be completed after the area has had 6 months to regenerate and Core has undertaken follow up checks on the area.

## 8.0 Conclusion and Recommendations

At the conclusion of Core's exploration activities within EL29689 during this bridging period the company has a much clearer understanding of the copper-gold mineralization model within the Aileron Province and the copper-nickel-cobalt mineralization model in the Irindina Province. Core's reconnaissance drilling within the Copper Royals target area in the Aileron Province was unsuccessful in identifying new mineralization zones. At the Virginia Prospect, the reconnaissance drilling program identified a consistent mineralized body in one of the two drilling transects, but its ~3-6m thickness and low copper grade (0.1-0.8% Cu) meant that the prospect was downgraded in priority. Core believes that the Irindina Province remains highly prospective for copper based mineralization systems within the Riddock Amphibolite. Within EL29689 large areas of Riddock Amphibolite are recorded, but have had limited first pass exploration (mapping, sampling, geophysics), making it underexplored within EL 29689.

## 9.0 References

BARTRAM, G.D., 1985. Astron Resources Ltd. *Oongalabi regional heavy mineral investigation – Exploration Licence 4462*. NTGS Open file report CR1985-0260.

CLARENCE RIVER FINANCE GROUP, 2000. *Final Report – Exploration Licence 9420 – for the period to 6/7/2000*. NTGS Open file report CR2000-0331.

MACCULLOCH, I.R. AND NEILSEN, K.I., 1983. Kinex Pty Ltd. *Annual and final report – Exploration Licence 1337*. NTGS Open file report CR1983-0338.

MAIDMENT, D.W., HAND, M., WILLIAMS, I.S., 2005. Tectonic cycles in the Strangways Metamorphic Complex, Arunta Inlier, central Australia: geochronological evidence for exhumation and basin formation between two high-grade metamorphic events. *Aust. J. Earth Sci.* 52, 205–215

MITHRIL RESOURCES LTD., 2012. Inferred Mineral Resource Estimate for the Basil Copper–Cobalt Deposit. ASX Press Release (21 March 2012, 5 pp. (<http://www.mithrilresources.com.au>))

MURRELL, B., 1988. Annual Report – Exploration Licence 4674 – for the period 21/2/1987 to 20/2/1988. NTGS Open file report CR1988-0070.

ROHDE, C., 2004. Tanami Gold. Partial Relinquishment Report – Exploration Licence 22917 – Eldorado –for the period 10/7/2002 to 9/7/2004. NTGS Open file report CR2004-0504.

ROHDE, C., 2005. Tanami Gold. Final Report – Exploration Licence 10078 – Mount Riddoch – for the period 5/9/2001 to 4/9/2005. NTGS Open file report CR2005-0445.

RUSSGAR MINERALS NL, 1973. Oonagalabi Copper-zinc prospect – stage one exploration programme. NTGS Open file report CR1973-0067.

SCRIMGEOUR IR, 2013. Chapter 12: Aileron Province: in Ahmad M and Munson TJ (compilers). 'Geology and mineral resources of the Northern Territory'. Northern Territory Geological Survey, Special Publication 5

SCRIMGEOUR IR, 2013. Chapter 29: Irindina Province: in Ahmad M and Munson TJ (compilers). 'Geology and mineral resources of the Northern Territory'. Northern Territory Geological Survey, Special Publication 5

SHARRAD, K.A, MCKINNON-MATTHEWS, J, COOK, N.J, CIOBANU, C.L, HAND, M, 2014. The Basil Cu–Co deposit, Eastern Arunta Region, Northern Territory, Australia: A metamorphosed volcanic-hosted massive sulphide deposit. *Ore Geology Reviews* 56, 141-158

SKWARNECKI, M.S., 2004. *Oongalabi Base Metal Prospect, NT*. CRC LEME open file report 82.

WHITE INDUSTRIES/BHP MINERALS, 1984. *Final Report – Exploration Licence 2648*. NTGS Open file report CR1984-0102.

ZHAO, J.-X & COOPER, J.A., 1992. The Atnarpa Igneous Complex, S.E. Arunta Inlier, central Australia: implications for subduction at an early-mid Proterozoic continental margin. *Precambrian Research*, 56, 227-253.