

EL28620 – Barkly, Tennant Creek Northern Territory

ANNUAL REPORT

Reporting period 16 December 2015 to 15 December 2016

Project Holder: Colour Minerals Pty Ltd (70%), Meteoric Resources NL (30%)

Project Operator: Blaze International Limited

Target Commodity: Copper, Gold

Standard Map Sheet: Tennant Creek (SE 53-14), Tennant Creek (5758), Grosse River (5858)

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Table of Contents

ABS	RACI		4
1	LOC	ATION TITLE HISTORY AND ACCESS	4
2	GEO	OGICAL SETTING, EXPLORATION HISTORY AND EXPLORATION RATIONALE	6
	2.1	Geological setting	6
	2.2	Previous exploration	9
3	EXPL	ORATION ACTIVITIES	23
	3.1	Future Work	23
4	CON	CLUSIONS	25
	VERI	FICATION LISTING FORM	26

List of Figures

Figure 1: Tenement Location	5
Figure 2: Regional Geology of the Barkly Project	6
Figure 3: EL28620 on NTGS 1:250 000 outcrop geology mapping.	8
Figure 4: Bluebird gravity image showing geochemistry, drill intercepts and ground EM survey	13
Figure 5: Bluebird conductivity image showing target conductors and drilling	14
Figure 6: Bluebird Drill Section 448400E with 1 m sampling	15
Figure 7: Location of drill collars – Phase I and Phase II	16
Figure 8: Bluebird long section, looking north showing copper equivalent (CuEQ%)** x m contour Note the priority drill targets marked by dark grey hatching.	rs. 18
Figure 9:– Regional prospectivity map of the Barkly Cu-Au project showing ironstone structural trends in blue, gravity ridge in black and copper geochemical anomaly in red.	19
Figure 10: First vertical derivative ground magnetic image showing remnant magnetic anomalies as white stars, high priority targets as labelled yellow stars, NE trending structural interpretation as bla lines and the gravity ridge	s ack 20
Figure 11: Residual gravity image showing remnant magnetic anomalies as white stars, high priorit targets as labelled yellow stars, NE trending structural interpretation as black lines and the gravity ridge hatched in light grey	ty 20
Figure 12: Longitudinal projection of the Bluebird Trend looking north, showing drill hole pierce points in grey labelled with significant intercepts where appropriate, and high priority targets in red	1
stars.	21
Figure 13: Locations of soil samples and mapping points	21
Figure 14: Cross section at 448420mE, looking west. Note the interpreted position of the Harpic Fault resulting in the change in dip / thickening of the mineralisation at Bluebird	23
Figure 15: Residual gravity image of the Barkly project with remnant magnetic anomalies as white stars, high priority targets as yellow stars, NE trending structural interpretation as black lines and the gravity ridge hatched in light grey	ne 25

List of tables

Table 1: Bluebird 2011-12 exploration target model	12
Table 2: EL28260 2012 drilling results	14
Table 3: 2014 Bluebird Phase I and Phase II Drilling	16
Table 4: 2014 Significant drill results – Phase I and Phase II	17
Table 5: Proposed Drilling – 2017 Field Season	24

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ABSTRACT

1 LOCATION TITLE HISTORY AND ACCESS

This report details exploration carried out in the 2016 reporting year at the Barkly project, EL28620, which was granted on 16 December 2011 and extended for a further two year term on 16 December 2015. The Barkly project is located in the Tennant Creek area of the Northern Territory as shown in Figures 1 and 2. Figure 1 shows the regional setting and Figure 2 shows the tenement details. The target commodities are copper and gold.

EL28620 comprises 13 blocks covering an area of 39.16 km², situated 45 km east-northeast of the Tennant Creek township, south of the Barkly Highway and falls within the Gosse River (5858) and Tennant Creek (5758) 1:100,000-scale map sheets.

The tenement is within NT Portions 494 & 1075, Perpetual Pastoral Lease 1142, Tennant Creek Station. Mining Leases 57 and 217–224 contain an Exclusion Zone encompassing unusual outcropping rocks deemed to be a fairly sensitive registered sacred site (Fig. 1). Negotiations with the CLC (Central Land Council) are ongoing regarding access.

The northern part of EL2860 can be reached from Tennant Creek township by driving along the Barkly Highway, and thence via secondary unsealed tracks to the south. Access into the central part of the tenement is gained via the Lonestar track to the Gigantic mine and then along secondary tracks from the Tennant Creek township or from the old Overland Telegraph Station.

Access to the southern region of the Licence area from the Tennant Creek Township is via the sealed road to the Peko and Nobles Nob mines, and then via the unsealed Gosse River Road. A network of unsealed tracks provides reasonable vehicular access to the remainder of the tenement.

The climate of the project area is semi-arid with a mean annual rainfall of about 460 mm, with rainfall mostly in the period November to March. Temperatures are moderate to high in the summer months with an average of 18.8 days per year over 40°C between October and March and the winters are mild with the lowest temperature recorded being 4.5°C during the month of July.

The topography of the project area is dominated by hilly ridges separated by flat to undulating areas of sheet wash and soil-covered areas. Vegetation is dominated by spinifex with local patches of low to medium Eucalyptus woodland and areas of salt-tolerant shrub.



Figure 1: Tenement Location

2 GEOLOGICAL SETTING, EXPLORATION HISTORY AND EXPLORATION RATIONALE

2.1 Geological setting

EL28620 is located in the Tennant Creek Inlier, an area of Proterozoic rocks consisting of three distinct geological provinces; the Davenport Province to the southeast, the central Tennant Creek Block and the Tompkinson Creek Province to the northwest. The Inlier is composed of a gneissic basement overlain by Proterozoic sediments of the Warramunga Formation, Hatches Creek Group and the Tompkinson Creek Beds. The sequence of Proterozoic sediments was intruded by younger Proterozoic granitoids around 1858 to 1845 Ma during the Barramundi Orogeny. The Proterozoic rocks were subsequently overlain by Cambrian sediments of the Georgina Basin.

The Tennant Creek goldfield is located within the central block where the oldest rocks are the metasedimentary rocks of the Warramunga Formation, which host the ironstone–gold–copper–bismuth mineralisation, and which underlie most of the Barkly project area (Fig. 2).

The Warramunga Formation comprises of a sequence of argillaceous sedimentary rocks that includes greywacke, siltstone, shale and units of haematite–magnetite shale. Cross-cutting and conformable quartz–feldspar porphyries occur within the sedimentary sequence.

Following deformation and uplift of the basement, the volcanic and volcaniclastic rocks of the Flynn Sub-Group were erupted (1845 to 1827 Ma), with intrusion of porphyries and minor granitoids into the Warramunga Formation. The Warramunga Formation has been subjected to three phases of deformation, the first of which formed tight to isoclinal folds with an east–west axis. The two later phases formed west-northwest trending faults and shear zones, and finally northwest trending faults. The project covers an area of poor outcrop consisting of Cenozoic and Quaternary eolian and alluvial sand cover.





The Barkly project covers the southeast extension of the Tennant Creek mineral field which has a production history of 5 Moz of gold and 350 Kt of copper which was won from high-grade ironstone-related deposits. The tenements cover the old Perseverence workings where previous drilling showed a best result of 3 m at 43.2 g/t Au from 72 m depth. Those workings are covered by a Central Land Council exclusion zone, whereas the shallow Bluebird workings where historical records indicate 172 tonnes of ore at 9.3 g/t Au were produced are outside the exclusion zone.

The ironstones form part of the Golden Mile line of historical workings that strike over a length of 4.5 km outside the prospect area. Mineral Licences 57 & 217–224 cover a small wedge of Warramunga Formation sediments at the eastern end of a westerly trending ridge containing a good anticlinal exposure of interbedded siltstones, shale and greywacke along the Golden Mile. Magnetic surveys indicate that this trend extends into the project area through the Perseverence–Bluebird workings.

To the north of the leases a low-lying granite body that is largely covered by eolian sands and silts truncates the Warramunga Formation. Overlying both the sediments and the granite to the northeast are Cambrian cherts which form the western margin of the Georgina Basin sequence.

Coarsening quartz-rich sedimentary units and porphyries of the overlying Flynn Subgroup bound the easterly and southerly extent of the Warramunga Formation to the south of the leases. The Warramunga Formation within the leases is host to several small haematite–quartz–(magnetite–jasper) ironstones, hosted by westerly trending haematite-chlorite shear zones.





2.2 Previous exploration

The area has had a long history of exploration.

The nine Mineral Leases covering the Perseverance workings (30 km east of Tennant Creek), where pre-1991 drilling showed a best result of 3 m at 43.2g/t Au from 72 m in hole PERC-01 and 4 m at 4.7 g/t Au from 14 m in hole PERC-06. This high-grade mineralisation is associated with a series of outcropping haematite and magnetite ironstones. Recorded production from the mine was 192 oz, but no record of tonnes/grade exists, although the tonnage appears to be small. The workings are covered by a Central Land Council exclusion zone.

Just east of the exclusion zone the shallow Bluebird workings with recorded historical production of 172 tonnes at 9.3 g/t Au for a recovered 51 oz of gold are outside the exclusion zone. The Bluebird prospect is a Tennant Creek ironstone-hosted Au–Cu–Bi target. The host rocks are folded siltstones of the Proterozoic Tennant Creek Inlier.

The ironstones form part of the Golden Mile line of historical workings that strike over a length of 4.5 km. All the ironstones in this line are associated with numerous dipolar bullseye magnetic features with ground magnetic anomalies varying between 100 nT and 5000 nT. Within the Perseverance area the haematite ironstones are associated with the 100 nT anomalies, whereas the magnetite ironstones are associated with the 5000 nT anomalies.

Summary of exploration activities:

- geological evaluation of the Perseverance area in 1967 by the BMR included a ground magnetic survey, which indicated that the ironstone (jasper-quartz) bodies were located in the hinge of a west-plunging anticline.
- Peko drilled one diamond hole in 1969 on MLC57 into main magnetic anomaly which intersected 10.8 m of haematite–quartz–jasper from 36.3 m, on the hangingwall of a haematite–magnetite–chlorite ironstone containing minor chalcopyrite and malachite, from 47.1 m to 91.4 m. Peak assays were 1.2 m at 1.2 g/t Au from 49.7 m and 1.2 m at 0.2% Cu from 88.4 m.
- ADL then completed a ground magnetic survey over the magnetic anomalies and defined a small intense anomaly 300 m west of the Perseverance Mine workings, at Perseverance Extended. Drilling identified 1.5 m at 3.7 g/t Au from 15.2 m, 3.0 m at 3.1 g/t Au from 18.3 m, 1.5 m at 2.3 g/t Au from 54.9 m, and 1.5 m at 8.2 g/t Au from 62.5 m.
- ADL then Posgold (1987–92) drilled several targets including 20 holes at Perserverance Mine with 8 of these holes returning >1 g/t Au. Best results included 3 m at 43.2 g/t Au from 72 m in PERC-001, 4 m at 4.7 g/t Au from 14 m in PERC-006, 3 m at 3.3 g/t Au from 77 m in PERC-009, 3 m at 50 g/t Au from 42 m in PERC-015. Further ground magnetic and gravity surveys were conducted. Three north-dipping bodies were modelled, 2 sub-parallel bodies in the No.1 (North) Pod, and 1 body in the No.2 (South) Pod.
- Limited work was conducted by Giants Reef Mining from 2000 to 2004.

Meteoric Resources Exploration History

Meteoric Resources has explored in the area since 2004 with various joint venture partners on EL10370 and the nine MLC's57, 217–224.

Ground magnetic and gravity surveying followed by soil sampling focused attention on Bluebird, which is a small outcropping ironstone body pitted by historic mining and prospecting. Followup RAB drilling during 2006 tested anomalous gold and copper intersections in previous drill holes around Bluebird, and also tested a belt of anomalous auger soil geochemistry extending from the Bluebird area to the east. Target areas within the Barkly tenements were identified adjacent to the Perseverance gold workings covering the potential eastern extension of the Golden Mile line over an area of 2×6 km to test for haematite Au–Cu-rich ironstones, and at the pronounced Flag aeromagnetic anomaly at R29 located in the southern part of the Barkley project area, where a number of holes were drilled in 1974 with best results of 3 m at 2.8 g/t from 70 m in hole DDH 468. None of the holes intersected any magnetic material to explain the aeromagnetic anomaly.

Detailed gravity (5,831 stations) and ground magnetic surveys (220 line km) were completed over the two target areas in 2005.

The gravity survey at Perseverance–Bluebird outlined a well-defined west – north westerly trending gravity ridge about 8 km in length flanked by several pronounced gravity anomalies, including the Perseverance gold workings. Twelve other gravity targets were identified for detailed follow-up ground magnetic surveys.

The ground magnetic survey in the Perseverance–Bluebird area outlined 8 discrete haematitic targets, which correlate in part with apparent density anomalies that have been generated from inversion of detailed gravity data. These targets vary in size from 4 Ha up to 22 Ha. These combined magnetic–gravity targets are considered to be worthwhile targets for Nobles Nob-style haematite–Au/Cu deposits. In particular, 5 targets close to the Perseverance and Bluebird historical gold workings represent high-priority areas.

The detailed gravity and ground magnetic surveys at the Flag anomaly identified a coincident magnetic and gravity feature about 600 m in length situated about 15 km along strike from the Golden Kangaroo and Black Snake prospects where Giants Reef announced high-grade gold intersections.

In mid-2005 a 7,544 m shallow vertical RAB drilling programme was completed over combined magnetic–gravity targets in the Perseverance–Bluebird area. The drilling defined a 600 m long bedrock copper anomaly, open to the east, along strike from the Bluebird workings. Follow-up inclined RAB drilling (1,373 m) at Bluebird and on this anomaly gave a best intercept of 8 m at 1.0% Cu and 0.3 g/t Au from 72 m at end of hole in drill hole TBRB-717. The geochemical anomaly coincides with a pronounced gravity ridge indicating the presence of a haematite ironstone or haematite alteration. Weak to moderate Cu–Bi–Au values were intersected near the Bluebird workings, in particular an assay of 1.27% Cu associated with ironstone near the base of TBRB-717.

In 2006 a 36-hole, 2,215 m RAB drilling programme was completed at the Bluebird prospect. The drilling was designed to complete infill drilling around TBRB-717, followed by reconnaissance drilling of the 600 m long east–west gravity and magnetic anomaly extending 600 m east of Bluebird, as outlined in the 2005 program.

The drilling (TBRB-735 to TBRB-770), on 100 m line spacings, intersected haematite ironstone and/or haematite–chlorite alteration over the 600 m strike length tested. This work determined that the Bluebird ironstone body had a southerly dip, and that the earlier south-inclined RAB drilling was in fact sub-parallel to the dip of the target. The steeply south-dipping ironstone unit ranges from 10 to 50 m in thickness and remains open to the east.

Anomalous copper, gold and bismuth values were intersected within haematite alteration in four drill lines over a 100 m strike length with values over various 4 m intervals of up to 0.2% Cu, 1.1 g/t Au and 0.13% Bi. These anomalous values suggest that the mineralised ironstone intersected in TBRB-717 extends at least 100 m to the east.

A second anomalous copper–gold zone was intersected at the eastern end of the ironstone horizon. Massive ironstone was not intersected, but there was haematite stringer alteration with associated anomalous Au, Cu and Bi. Two 100 m spaced lines intersected values up to 0.1% Cu, 0.25 g/t Au and 189 ppm Bi over various 4 m intervals in or adjacent to haematite alteration. This anomalous zone was not adequately tested by the easternmost drill line and remains open in that direction and coincident with a discrete magnetic anomaly.

Both of these anomalous zones remained open at depth.

In 2007 mapping showed that there is little outcrop, except near the Bluebird workings which are sited near small outcrops of ironstone on top of a low hill occupying the centre of a circle of ironstone–siltstone talus 200 m in diameter. Sand–clay overburden overgrown with spinifex and scattered scrub occupies the remainder of the explored area.

Two varieties of ironstone are present. The most common is a red brecciated haematitic chert that forms a bouldery outcrop measuring 50×30 m on the hill top. The second is a black, specular, haematitic ironstone forming a smaller outcrop measuring 20×10 m and situated 20 m to the southeast. The haematitic chert is brecciated and shot through with stringers of quartz and specular haematite, suggesting that the cherty phase developed initially and that the specular haematitic phase and quartz are secondary overprints. The third outcropping lithology is a red massive siltstone that outcrops on the sides of the hill below the ironstones.

The Bluebird workings consist of a single vertical shaft and two decline shafts in a collapsed pit about 20 m apart, as well as various pits and trenches. The shafts were started in siltstone, presumably to access the margins of the ironstone by drives. The greatest amount of mullock is adjacent to the pit with its two shaft openings suggesting that these were the main mine workings. A previous report cites Bluebird as having recorded a production of 172 tonnes at 9.3 g/t Au.

Minor outcrop or subcrop of brecciated cherty-haematitic ironstone also occurs occasionally to the east of the main outcrop zone in otherwise flat soil-covered terrain.

The results of Meteoric's exploration to date suggested that the ironstone body at the Bluebird prospect is mineralised with a typical Tennant Creek-style Cu–Bi–Au association. The distribution of spotty anomalous gold and the downward opening configuration of anomalous copper below 50 m vertical depth may be indicative of zonation with depth, another typical feature of mineralised Tennant Creek ironstones. Typically, the smaller deposits have been small, but of high grade once the gold-rich zone of alteration was discovered, such as the TC-8 deposit.

There is compelling evidence in favour of downward zonation of mineralisation beneath the Bluebird ironstone, open from 25 to 30 m vertical depth and extending below the depth tested by RAB drilling, and as such deeper drilling to explore this possibility is warranted.

During 2008 a 225 line-km ground radiometric survey with a Gamma Spectrometer PGIS SP was carried out over the general area, followed by soil and rock chip sampling to test anomalous zones generated. A total of 217 soil and 36 rock chip samples were analysed. The results of the soil sampling were disappointing, but the rock chip sampling gave encouraging results. The results of the radiometric survey and geochemistry generated targets worthy of drill testing but planned deeper RC and diamond drilling did not commence.

In 2009 joint venture partner Emmerson Resources completed several detailed geoscientific desktop appraisals. They noted that the Perseverance area had the best exploration potential with three targets at Perseverance, Perseverance Extended and Bluebird. The review did not identify Tier 1 targets (>1 Moz Au or Au equivalent) from previous exploration, but Bluebird and Perseverance Extended were seen to be reasonable targets and typical of many early-stage, greenfield exploration targets within the Tennant Creek Mineral Field.

Emmerson were searching for large ore deposits (Tier 1) that would ultimately provide the ore required to re-open the Warrego CIP milling facility. Although they determined that a world class deposit was unlikely to come from either Bluebird or Perseverance Extended, they were hoping that further evaluation and possibly some deeper drilling may upgrade the Bluebird target.

The three identified targets are further complicated by sacred site access issues. Several indigenous clearances have been conducted over the years throughout this exploration area resulting in excisions and registered sacred sites. Exploration in and around the ironstone outcrops is becoming increasingly difficult. As a result Emmerson deliberately moved away from

exploring within exposed sections of the Warramunga Formation including the iron and jasper ironstone ridges and targeted areas under cover in an attempt to secure less stringent indigenous clearance.

In 2010 in-house magnetic modelling by Emmerson using Vector Remnant Magnetic Intensity (VRMI) processing of magnetic surveys which takes into account the size and intensity of the magnetic bodies and provides a robust means of discriminating the large hydrothermal iron-oxide bodies (that host the Au and Cu mineralisation) from the background (magnetic sediments) identified 3 residual VRMI anomalies with the most interesting anomaly in ML57 covered by a sacred site exclusion zone.

When EL10370 expired on 19 March 2011, part of the area was reapplied for as EL28620 and the nine MLs retained by Meteoric Resources NL. Meteoric holds 100% of EL28620 with the exception of a 30% interest held by Emmerson Resources over nine mineral leases within the exclusion zone and over a single sub-block of EL28620 situated several kilometres to the south of Bluebird. EL28620 is now the subject of a JV/Farmin agreement with Blaze International.

Exploration in 2011–12 focused on the Bluebird prospect, with the exploration target model shown in Table 1.

Gravity Target:	200 m x 50 m plan dimension
Geochemical Target:	200 m plus 50 ppb Au in RAB
	600 m plus 50 ppm Cu in RAB
Best RAB Intersection:	8 m at 1% Cu and 0.3 g/t Au from 72 m to eoh in TBRB717
Target Type:	Tennant Creek style pipe-like haematite-magnetite-sulphide body. Average
	Tennant Creek orebody size and grade: 1.4 Mt at 2.1% Cu and 9.0 g/Au
Target Dimensions:	120 m strike x 15 m width x 200 m plunge. SG 3.6: 1.3 Mt
Target Grade:	2% Cu and 5 g/t Au
Contained Metal:	26 Kt Cu and 200 Kozs Au. Value per tonne: \$400
In Ground Value:	26 Kt Cu at \$7500/t: \$195M
	200 Kozs Au at \$1600/oz : \$320M
	Total: \$515M
Recoverable Value:	70%: \$360M

 Table 1: Bluebird 2011-12 exploration target model

In July 2012 a fixed loop electromagnetic (FLEM) survey was carried out over a 1.8 km long coincident anomalous magnetic, radiometric and gravity trend and coinciding with a bedrock copper anomaly (open to the east) and copper–gold RAB drill intersections at Bluebird (Fig. 4). The EM survey was designed to identify conductors associated with high-grade Tennant Creek-style copper–gold mineralisation. The gravity ridge is interpreted to be associated with haematite ironstone or haematite alteration. The gravity ridge extends into an aboriginal sacred site exclusion zone where historical drilling of outcropping ironstones is reported to have intersected high-grade gold mineralisation with a best intersection of 3 m at 43.2 g/t Au, confirming the prospectivity of this trend.



Figure 4: Bluebird gravity image showing geochemistry, drill intercepts and ground EM survey

Geophysical modelling of the ground FLEM data has confirmed a strong localised bedrock conductor (BRK1-C1) at Bluebird with high conductance (3000–8000S) situated within 100 m of anomalous drill hole TBRB717 as shown in Figure 5.

This drill hole does not appear to have tested the conductor (termed BRK1-C1) which appears to be a pipe-shaped feature with an EM response characteristic of well developed sulphides.

Four other possible EM anomalies were identified along the gravity trend to the east of BRK1-C1, two of which coincide with anomalous copper–gold in drill holes TBRB-762 (4 m at 0.1% Cu from 20 m and 4 m at 0.11 g/t Au from 44 m) and TBRB-744 (12 m at 0.16% Cu from 68 m and 16 m at 0.35 g/t Au from 64 m). In addition a moderately strong EM anomaly was identified in a parallel trend to the north of Bluebird, however, this appears to be stratigraphic in nature rather than a discrete Tennant Creek-style copper–gold target.

Following the results of the FLEM survey, Meteoric planned a reverse circulation drilling program at Bluebird to test conductor BRK1-C1 and to test below two previous anomalous RAB intersections on the Bluebird gravity ridge.

In October 2012 three reverse circulation drill holes (BBRC1–3) were completed for 392 m total depth, testing the BRK1-C1 conductor; drilling below the mineralisation intersected in TBRB717; and testing an EM conductor and gravity high about 100 m east of TBRB717. A total of ninety nine 4 m composite samples from the three drill holes as well as thirty seven 1 m samples from BBRC2 and BBRC3 were assayed at ALS Minerals in Perth for Au, As, Bi, Cu, Fe and S. Table 2 shows the drilling details.

Ironstone alteration was intersected but no massive sulphides were identified.



Figure 5: Bluebird conductivity image showing target conductors and drilling

Drill hole BBRC1 tested the BRK1-C1 conductor and intersected weathered siltstones but did not intersect mineralisation. A downhole EM survey did not identify any off-hole conductors indicative of a near miss. The ground EM anomaly may have been the result of super paramagnetic effects caused by near surface iron oxides. Drill hole BBRC2 tested down-dip from the 8 m at 1.0% Cu and 0.29 g/t Au intersection in hole TBRB-717. The drill hole intersected 22 m of haematite ironstone before being terminated in ironstone at 137 m because of broken ground and high water flows. Significantly, the upper part of the ironstone grades 8 m at 2.20% Cu and 0.26 g/t Au from 112 m including 4 m at 3.70% Cu and 0.30 g/t Au from 116 m (4 m composite samples), as summarised in Table 2.

Hole Number	Coordinates	Coordinates	From	То	Interval	Cu	Au
	E	Ν	m	m	m	%	g/t
BBRC1*	448330	7827205			nsi		
BBRC2	448400	7827050	112	120	8	2.20	0.26
		including	116	120	4	3.70	0.30
BBRC3	448520	7827030	64	72	8	0.03	-

Table 2: EL28260 2012 drilling results

The remainder of the ironstone intersection contains anomalous copper levels ranging from 0.17-0.29% Cu; however, there was some sample loss in this section which could possibly result in under estimation of the grade.

The target ironstone is surrounded by a broad anomalous copper halo with evidence of talcchlorite alteration and appears to be widening with depth. No sulphides are evident in the ironstone, which appears to be deeply weathered.

Follow-up sampling of 1 m intervals from the mineralised ironstone in drill hole BBRC2 has returned a grade of 4 m at 4.69% Cu and 0.38 g/t Au from 115 m (0.5% Cu cut-off) including 1 m at 16.2% Cu and 1.19 g/t Au from 116 m as shown in Figure 6.

The check analyses confirmed the high grade intersection based on 4 m composite samples.

Drill hole BBRC3, tested down-dip from an intersection of 8 m at 0.18% Cu and 0.44 g/t Au from 72 m in hole TBRB-744. BBRC3 is situated 120 m east of BBRC2 and in the centre of a pronounced gravity high within the Bluebird gravity ridge. The hole intersected 10 m of copper-anomalous haematite ironstone from 64 m.



Figure 6: Bluebird Drill Section 448400E with 1 m sampling

There were no ground exploration activities carried out during the 2013 reporting period apart from completion of rehabilitation after the RC drilling program of 2012. Most of the work carried out was office based interpretation and report preparation for the JV/Farmin proposal with Blaze International.

During May 2014 a first pass program of deeper RC drilling (Phase I) was initiated at the Bluebird Prospect. The program aimed to accurately define the grade and geometry of Cu-Au-Bi mineralisation at Bluebird with drilling along several cross sections. Four RC holes and two pre-collars for diamond holes were completed. Gold, copper and bismuth grades that were intercepted in the six hole drill program exceeded expectations.

A second phase (Phase II) of drilling was completed at Bluebird during August and September 2014, with this drilling confirming and extending the mineralisation intersected by Phase I. Drill hole locations for Phase I and Phase II drilling are shown in Figure 7, with drilling statistics in Table 3.



Figure 7: Location of drill collars – Phase I and Phase II

Hole Type	Hole Number Range	No of Holes	Total Metres
RC	BBRC0004-13/BBDD0003	11	1760.5
Diamond	BBDD0006	1	113.2
RC/Diamond	BBDD0001-5	4	690.5
Grand Total	-	16	2546.2

Table 3: 2014 Bluebird Phase I and Phase II Drilling

The Phase II drilling returned a high grade transitional copper sulphide intersection in BBDD0004, as well as several other very encouraging intersections. The high grade, broad thickness and sulphide association in the intersection in BBDD0004 demonstrated the potential for a significant primary sulphide mineral resource at Bluebird.

The very positive results from Phase II diamond drilling were achieved even though broken ground conditions resulted in significant core loss through the interpreted high grade lower contact gold position. This forced the abandonment of two holes. Therefore several key areas of the mineralisation are yet to be fully tested.

The core loss and hole abandonments were the result of a zone of broken ground running east-west through the prospect at approximately 125m below surface. The broken ground is interpreted to be associated with late stage faulting, which strikes east-west and dips shallowly to the north. This late stage faulting is also interpreted to enhance the supergene enrichment at Bluebird, resulting in the high grade gold mineralisation intersected by BBDD0002.

All holes intersected significant Cu-Au-Bi mineralisation as shown in Table 4. The standout holes were BBDD0002: 20m at 8.17g/t Au, 0.61% Cu and 0.22% Bi from 157m (including 4 metres at 37.9g/t Au, 0.66% Cu and 0.80% Bi from 169m) and BBRC0005: 25m at 1.9% Cu and 0.3g/t Au from 69m (including 4 metres at 8.99% Cu and 1.06g/t Au from 74 metres). Mineralisation has now been defined to a depth of at least 150m vertical and over a strike length of up to 120m, starting at less than 50m below surface.

Sample			Sample Location				Drilling	Sample Statistics (True Thick	(ness)	
Hole No	Hole Dip	Hole Azimuth	Zone	MGA East (m)	MGA North (m)	Sample	Signific	ant intersections	Total depth	Comments
						(m)	From (m)	Cut-offs: 0.5 g/t Au, 0.5% Cu, 0.01% Bi	(m)	
BBDD0002	-60	0	53	448400.09	7827024.69	1	157	8.17g/t Au, 0.61% Cu and 0.22% Bi	20	
BBRC0005	-60	0	53	448400.03	7827097.34	1	69	1.9% Cu and 0.3g/t Au	25	
BBDD0004	-60	0	53	448420	7827012.86	1	139	3.02% Cu, 0.65g/t Au and 0.1% Bi	16	
BBRC0012	-62	359	53	448380	7827049.46	1	116	2.48% Cu, 0.21g/t Au and 0.03% Bi	31	
BBRC0010	-60	0	53	448379.98	7827082.07	1	77	0.98g/t Au, 0.68% Cu and 0.03% Bi	11	
BBRC0013	-62	357	53	448360	7827040	1	162	1.31% Cu, 0.54 g/t Au and 0.03% Bi	14	
BBDD0005	-60	0	53	448420.01	7827084.87	1	85	1.04% Cu, 0.55g/t Au and 0.04% Bi	4	

Table 4: 2014 Significant drill results - Phase I and Phase II

The highest grade mineralisation is located on the footwall contact of the ironstone body. BBRC2, which was drilled in 2012, did not penetrate this footwall contact position, resulting in a narrower and lower grade intercept compared to the recent drilling. The high grade gold intersected by BBDD0002 is a particularly encouraging development for the Bluebird Prospect as it is the deepest hole drilled to date. Gold grades and mineralisation thickness appear to be increasing substantially with depth.

The Bluebird copper-gold mineralisation is hosted by an east-west striking, steeply south dipping ironstone body interpreted to be controlled by a major east-west structure, and appears to pre-date the mineralising event. Copper, gold and bismuth mineralisation appear to be associated with a later set of interpreted cross cutting structures and is found where the cross cutting structures intersect the ironstone. Magnetite has been altered to haematite and chlorite during the mineralising event. The

strongest mineralisation is found in a chlorite and haematite altered breccia/shear zone on the margin of the ironstone body. Pervasive mineralisation is also present throughout the ironstone body.

The Bluebird mineralisation follows the typical Tennant Creek style model in that it is copper rich near surface and transitions into high grade gold as it gets deeper. Bluebird is therefore interpreted as a Tennant Creek style Cu-Au-Bi mineralised system, with the high-grade mineralisation at Bluebird directly comparable in many respects, including grades, to other Tennant Creek style mines, including the Peko Mine (production of 3.6Mt @ 3.5g/t Au and 4% Cu for 400,000oz Au and 146,000t Cu) and Nobles Nob (production of 2Mt at 17g/t Au for 1.1Moz), both located just 20km away. The ore metal ratio at Bluebird appears to be similar to the Peko deposit.

The mineralisation appears to be open along strike and down dip, despite not being visible at surface (due to weathering processes) as shown on the long section in Figure 8. The interpreted high grade gold lower contact position was insufficiently tested by Phase II drilling and a new interpretation of supergene enrichment was also insufficiently tested, leaving three key areas of the mineralised system as targets for the next phase of drilling, as indicated by dark grey hatching in Figure 8.



Figure 8: Bluebird long section, looking north showing copper equivalent (CuEQ%)** x m contours. Note the priority drill targets marked by dark grey hatching.

**CuEQ grade is calculated by combining the metals of interest based on their prices. In this case Cu% + (Au ppm x 0.66) + (Bi% x 3.84) = CuEQ%. It is used as a visualisation tool only and is required at Bluebird due to the poly metallic and strongly zoned nature of the mineralisation. In this situation a CuEQ% provides a better picture of the overall geometry of the mineralisation than by using copper or gold grade alone. Metallurgical recoveries were not taken into account when calculating CuEQ%. CuEQ% x m is used for the contouring to give a spatial representation of total metal accumulation. Raw data from historical aeromagnetic and gravity surveys within the Barkly Project area has been acquired, re processed, gridded and imaged, allowing Blaze geologists to fingerprint the signature of the Bluebird host ironstone and identify other similar features within the Barkly Project area (see Figure 9). The magnetite rich ironstones hosting the mineralisation strongly contrast with the relatively weakly magnetic Warramunga Formation country rock sediments. The ironstones and associated sulphide mineralisation are also denser than the country rock and may therefore be amenable to detection by gravity surveying. Gravity is particularly important in targeting nonmagnetic haematite hosted deposits. Peko and Nobles Nob are both examples of haematite hosted orebodies within the TCMF.



Figure 9:– Regional prospectivity map of the Barkly Cu-Au project showing ironstone structural trends in blue, gravity ridge in black and copper geochemical anomaly in red.

A number of targets have been generated and ranked based on coincident magnetic, gravity, and/or geochemical anomalies similar to Bluebird or other deposits in the Tennant Creek Mineral Field (TCMF). Nine targets have ranked as very high priority based on remnant magnetism similar to Bluebird, proximity to the gravity ridge and strike extensions of Bluebird, and the coincidence of geochemistry and/or gravity anomalies (Figure 10).

The highest ranking targets are Red Parrot and Dillon. These are located directly along strike to the east of Bluebird, are on the gravity ridge, have a similar remnant magnetic response to Bluebird, and are both associated with gold grades of up to 0.6g/t in historic RAB and RC drilling (Figures 10, 11 and 12). Another target of particular interest is General Electric (Figure 10). This is a large body of strongly magnetic material with a deep root system. 3D inversion modelling of the ground magnetics has substantially refined this anomaly. General Electric hosts several remnant magnetic features and coincident gravity anomalies, which will be the initial focus of follow-up activity.



Figure 10: First vertical derivative ground magnetic image showing remnant magnetic anomalies as white stars, high priority targets as labelled yellow stars, NE trending structural interpretation as black lines and the gravity ridge



Figure 11: Residual gravity image showing remnant magnetic anomalies as white stars, high priority targets as labelled yellow stars, NE trending structural interpretation as black lines and the gravity ridge hatched in light grey



Figure 12: Longitudinal projection of the Bluebird Trend looking north, showing drill hole pierce points in grey labelled with significant intercepts where appropriate, and high priority targets in red stars.

During September 2014 a program of geological mapping was conducted in the eastern part of the Barkly Project area to confirm and examine any surface expression of interpreted geophysical trends. XRF testing of selected outcrop exposures was then conducted to detect the presence of anomalous Fe-Cu-Au-Bi and/or other elements potentially related to mineralisation (see Figure 13).



Figure 13: Locations of soil samples and mapping points

The mapping and XRF testing program identified the following key findings:

- Surface expression of faulting identified by mapping; NE-SW strike trend identified
- Identified previously unidentified ironstone containing significantly anomalous XRF results including; 58% Fe, 0.26% Pb, 396ppmW and 19.5ppmAg
- Identified other potentially significant outcrop anomalies including; a brecciated outcrop containing anomalous copper, uranium, thorium and strontium and pegmatite veining containing anomalous vanadium and lead

Mapping and XRF testing further validated geophysical interpretation for Bluebird which highlighted potential for economic mineralisation to occur at the intersection between NE-SW magnetic trends with the E-W trending Bluebird corridor.

Exploration completed in the 2015 reporting period consisted of down hole EM (DHTEM) surveying of hole BBDD0004, detailed petrology on the mineralised interval in drill hole BBDD0002 and updated geological modelling / interpretation of the Bluebird copper-gold prospect.

Downhole magnetic probing of hole BBDD0004 (transitional copper sulphide intersection of 16m at 3.02% Cu, 0.65g/t Au and 0.1% Bi) provided a 3D magnetic target for future drill testing and proved that the copper sulphides at Bluebird are moderately conductive. A subsequent DHTEM survey of BBDD0004 detected several subtle electromagnetic responses, none of which were strong enough to warrant 3D modelling.

Detailed petrology work was carried out on selected samples from high grade intervals in drill hole BBDD0002 – BBDD-2-143.3, BBDD-2-171.25 and BBDD-2-195.0. BBDD-2-143.3 consisted of crackle brecciated, chlorite slate and quartz infill, veined with supergene goethite with minor native copper and clays, BBDD-2-171.15 consisted of finely chloritised rock showing crackle brecciation and quartz-hematite-sulphide-gold infill, with supergene goethite and dubreeite and BBDD-2-195.0 consisted of haematitic cherty or silicified shale/siltstone. In BBDD-2-143.3 the native copper, representing the majority of copper in the sample, is supergene, with lesser amounts of primary copper occurring as chalcopyrite. The gold occurring in BBDD-2-171.15 is a mix of mainly coarser hypogene grains and minor tiny grains and stringers in quartz are supergene. The quartz infill / mineralisation in BBDD-2-143.3, was deformed, indicating that some of the brecciation probably post-dated mineralisation, where as weak strain in the quartz infill / mineralisation in BBDD-2-171.15

Geological modelling and interpretation of the Bluebird copper-gold prospect included modelling of the late stage Harpic Fault, which caused the geotechnical issues suffered in the Phase II drilling program, including significant core loss through the interpreted high grade lower contact gold position and the abandonment of two holes. The modelling of this fault will allow its position to be predicted, thereby assisting in mitigating ground stability issues for future drilling.

Offsetting caused by the Harpic Fault is interpreted to result in the apparent thickening observed in the mineralisation at Bluebird, not a change of dip or folding as previously modelled. This late stage faulting is also interpreted to enhance the supergene enrichment at Bluebird, resulting in the high grade gold mineralisation intersected by BBDD0002.



Figure 14: Cross section at 448420mE, looking west. Note the interpreted position of the Harpic Fault resulting in the change in dip / thickening of the mineralisation at Bluebird

3 EXPLORATION ACTIVITIES

A change of control of Blaze International Limited, the parent Company of the majority tenement owner Colour Minerals Pty Ltd, occurred during the reporting period. As a result of this change in control of the parent entity there was also a transition to a new corporate and technical management team.

During the reporting period the new corporate and technical management team completed desk top reviews of all past exploration activity to enable a full assessment of the technical merits of the project and to produce a plan for ongoing exploration of the project. This work has resulted in the design of a drilling program to further evaluate the quantum and grade of the Bluebird mineralisation, with particular focus on the importance of the modelling of the late stage Harpic Fault.

3.1 Future Work

Blaze has designed a drilling program to follow up the previous drilling completed on EL28260 by Meteoric Resources NL and Colour Minerals Pty Ltd. The designed program consists of up to 25 holes for a total of up to 5,565m, with a maximum hole depth of 320m (see Table 5 for details of the proposed holes). Planned holes will generally consist of RC precollars with diamond tales, with work planned to proceed in the second quarter of 2017 after the finish of the wet season.

The Bluebird copper-gold mineralisation is hosted by an east-west striking, steeply south dipping ironstone body which is interpreted to be controlled by a major east-west structure. The mineralisation appears to be open along strike and down dip, despite not being visible at surface.

The designed program will aim to test:

- the interpreted high grade gold position on the lower ironstone contact, which was insufficiently tested by previous drilling,
- the extension of the primary copper-gold-bismuth mineralisation at depth (see Figure 8),
- the lateral extents of the newly interpreted supergene enrichment zone (see Figure 8),
- the magnetic target generated by the downhole magnetic probing of hole BBDD0004, and
- the subtle off hole conductors generated by the DHTEM survey of BBDD0004.

Hole numbers	Northing	Easting	RL	Dip	Azimuth	Length
BBPD0007	7827109	448360	330	-60	0.00	100
BBPD0008	7827107	448440	331	-60	0.00	100
BBPD0009	7826985	448400	328	-60	0.00	290
BBPD0010	7826986	448440	328	-60	0.00	270
BBPD0011	7827100	448480	333	-60	0.00	110
BBPD0012	7827070	448440	330	-60	0.00	145
BBPD0013	7827059	448480	330	-60	0.00	145
BBPD0014	7827072	448460	330	-60	0.00	160
BBPD0015	7827043	448460	329	-60	0.00	200
BBPD0016	7827015	448460	328	-60	0.00	235
BBPD0017	7826987	448460	328	-60	0.00	280
BBPD0018	7826958	448460	328	-60	0.00	320
BBPD0019	7827011	448440	328	-60	0.00	240
BBPD0020	7826958	448440	328	-60	0.00	320
BBPD0021	7827002	448420	328	-60	0.00	270
BBPD0022	7826974	448420	328	-60	0.00	300
BBPD0023	7827041	448400	329	-60	0.00	190
BBPD0024	7827028	448380	329	-60	0.00	210
BBPD0025	7827064	448360	329	-60	0.00	200
BBPD0026	7827021	448360	329	-60	0.00	250
BBPD0027	7827054	448340	330	-60	0.00	200
BBPD0028	7827031	448340	329	-60	0.00	230
BBPD0029	7827047	448320	330	-60	0.00	230
BBPD0030	7826969	448480	328	-60	0.00	270
BBPD0031	7826939	448480	327	-60	0.00	300

Table 5: Proposed Drilling – 2017 Field Season

Future work will also aim to follow up the nine very high priority targets previously generated from the reprocessing of magnetic and gravity geophysical datasets (see Figure 16). The targets have been identified based on remnant magnetism similar to Bluebird, proximity to the gravity ridge and strike extensions of Bluebird, and the coincidence of geochemistry and/or gravity anomalies. Each of the targets is believed to have the potential to host mineralisation similar to Bluebird.



Figure 15: Residual gravity image of the Barkly project with remnant magnetic anomalies as white stars, high priority targets as yellow stars, NE trending structural interpretation as black lines and the gravity ridge hatched in light grey

The priority magnetic targets, Red Parrot and Dillon, are located directly along strike to the east of Bluebird, are on the gravity ridge, have a similar remnant magnetic response to Bluebird, and are associated with gold grades of up to 0.6g/t in historic RAB and RC drilling. Another target of particular interest is General Electric, a large body of strongly magnetic material with a deep root system which hosts several remnant magnetic features and coincident gravity anomalies.

4 CONCLUSIONS

Exploration work completed by Meteoric Resources and Blaze International on the Barkly project has confirmed the presence of a high-grade Cu-Au-Bi mineralised ironstone associated with a +600 m long geochemical copper anomaly situated on a gravity ridge interpreted to reflect extensive haematite ironstone at the Bluebird prospect.

The gravity ridge extends to the west, but is not currently accessible because of the exclusion zone around an aboriginal site. The copper anomalism, haematite ironstone and talc–chlorite alteration are considered to be favourable indicators of Tennant Creek style copper-gold mineralisation within this 1.6 km-long gravity ridge target.

The mineralisation at Bluebird, which has been drill tested to a depth of approximately 200m vertical, remains open at depth and along strike, particularly in the supergene zone. The drilling program planned for the 2017 field season will aim to test these extensions as well the interpreted high grade gold position on the lower ironstone contact and the geophysical targets generated from the downhole surveys of hole BBDD0004.

A JORC 2012 mineral resource estimate is intended to be published after the completion of this next phase of drilling. A high level scoping study will commence after the publication of a JORC 2012 mineral resource estimate.

VERIFICATION LISTING FORM

Exploration Work Type	File Name	Format
Office Studies	•	
Literature search		
Database compilation		
Computer modelling		
Reprocessing of data		
General research		
Report preparation	EL28620_2016_A_01_Report	pdf
Airborne Exploration Surveys	•	
Aeromagnetics		
Radiometrics		
Electromagnetics		
Gravity		
Digital terrain modelling		
Other (specify)		
Remote Sensing		
Aerial photography		
LANDSAT		
SPOT		
MSS		
Radar		
Other (specify)		
Ground Exploration Surveys	1	
Geological Mapping		
Regional		
Reconnaissance		
Prospect		
Underground		
Costean		
Ground geophysics		
Radiometrics		
Magnetics		
Gravity		
Digital terrain modelling		
Electromagnetics		
SP/AP/EP		
IP		
AMT		
Resistivity		
Complex resistivity		
Seismic reflection		
Seismic refraction		
Well logging		
Geophysical interpretation		
Other (specify)		
Geochemical Surveying		1
Drill sample		

Stream sediment	
Soil	
Rock chip	
Laterite	
Water	
Biogeochemistry	
Isotope	
Whole rock	
Mineral analysis	
Other (specify)	
Drilling	
Diamond	
Reverse circulation	
Rotary air blast	
Air-core	
Auger	
Groundwater drilling	
All drilling	