# PC GOLD PTY LTD ANNUAL TENEMENT REPORT EL28855

TM GOLD PTY LTD

3<sup>rd</sup> February 2017 – 2<sup>nd</sup> February 2018

E28855 Annual Tenement Report							
Contact	rob@pcgold.com.au						
Target Commodities	Gold, Tin & Base Metals						
Projection	MGA95-Z52						
1:250,000 Map Sheet	Pine Creek						
1:100,000	Pine Creek						
Distribution	Department of Mines & Energy NT						
	TM Gold Pty Ltd						
	PC Gold Pty Ltd						
	Thor Mining PLC						
Date	April 2018						

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# 1. Summary

This Annual Tenement Report provides a synthesis of the activities undertaken across EL28855 ("the Licence") for the period of 3<sup>rd</sup> February 2017 through to the 2<sup>nd</sup> of February 2018. The Lease was granted on the 3<sup>rd</sup> of February 2012 and was managed by TM Gold Pty Ltd. On the 16th of December 2016, Thor Mining PLC entered into an option agreement to sell 100% of Spring Hill Project via the sale of TM Gold Pty Ltd. Subsequently PC Gold Pty Ltd acquired 100% equity interest in TM Gold Pty Ltd (owner of Spring Hill Project).

During the reporting period extensive environmental studies and permitting processes were undertaken across the tenure. In additional a geochemical investigation was undertaken.

# 1. Introduction

This report summarises exploration activities carried on EL28855 out between 3<sup>rd</sup> February 2017 to 2<sup>nd</sup> February 2018.

# 2. Location & Access



#### Figure 1: Location of EL28855

EL28855 is located on pastoral leasehold land approximately 150 km south east of Darwin. The location is served by all-weather access and is in close proximity to the sealed arterial Stuart Highway, north-south rail, gas pipeline and trunk power lines.

2.1 Climate

The climate is tropical with warm dry winters and hot wet summers. The average annual rainfall is 1200mm with most falls in the three month wet season, usually between December and February.

#### 2.2 Topography and Vegetation

The Spring Hill project is located within the Bonnie Ranges. Its topography comprises steep-sided hills rising to 180 metres above surrounding country separated by narrow valleys. The country is typically described as highly dissected tropical savannah. Soils are skeletal and poorly developed.

The project area lies entirely within the McKinlay River drainage system which drains to the north. Project area vegetation is classified as Low Woodland being lightly timbered with *Eucalyptus tintinnans* (Salmon Gum) with a *Soghum* grassland understorey.

## 3. Tenure

Tenement	Area	Grant	TM Gold Equity
EL 28855	13.21 km²	3 February 2012	100%

### 4. Geology

#### 4.1 Regional Geology

The project area is located within the Palaeoproterozoic Pine Creek Orogen, which is aged between 2470-1870Ma. The Pine Creek Orogen consists of a sequence of psammitic and pelitic sediments, tuffs and minor volcanics. The sediments have been intruded by granitoids of the Cullen Batholith of Palaeoproterozoic age.



Figure 2: Regional Geology – Spring Hill area

#### 4.2 Local Geology

The group tenements are underlain by sedimentary rocks of the South Alligator Group and the Finniss Group of Palaeo-proterozoic age. These rocks have been folded along NW trending axes and the folds are tight to isoclinal. A major anticline, the Spring Hill Anticline, occurs in the project area and plunges to the south. The Pine Creek Shear, a regional NW trending structure, trends through the tenement group.

The oldest rocks present in the area occur in the core of the Spring Hill Anticline in the north west of the tenement. Here carbonaceous siltstones/mudstones, ironstones and chert of the Koolpin Formation have been intruded by Zamu Dolerite. These rocks are overlain by the Gerowie Tuff, a sequence of siltstones, cherts and tuffaceous sediments. The Mt Bonnie Formation overlies the Gerowie Tuff and is host to the gold mineralisation at Spring Hill. This formation consists of interbedded shales, siltstones and greywacke with minor chert and BIF bands. The youngest formation present in the area is the Burrell Creek Formation which is a monotonous sequence of shales, siltstones and greywacke.

The Mckinlay Granite of the Palaeoproterozoic Cullen Batholith outcrops within the tenement group area.

#### 4.3 Mineralisation

The gold mineralisation occurs in the Spring Hill goldfield hosted predominantly within the Mount Bonnie Formation.

Tin mineralisation as cassiterite occurs in quartz-filled fractures in Mt Bonnie Formation carbonaceous sediments close to or at a contact with a quartz-syenite intrusive (Ahmad et al 1993).



Figure 3: Local Geology

## 5. Exploration History

EL28855 covers some historic gold workings, which have been the subject of exploration activities by various operators over at least the last 130 years.

Discovered around 1880, the Main and Middle Lodes of the Spring Hill gold deposit were worked extensively from that time until 1905 and then intermittently until 1966. The greatest part of the total recorded gold production of 21,170 ounces (15-30 g/t) was attained between 1882 and 1885 from workings on the Main Lode where oxidised ore was mined to a depth of 109m below surface. Between 1886 and 1905 limited shallow mining was carried out by Chinese tributers.

In 1933 Spring Hill Gold Mining Company drove an adit from the east at a level of 120m below the surface exposure of the Main Lode but ran out of funds by 1938. In the five years of operations the adit progressed only 300m and did not reach the Main Lode. It did however intersect the East and Middle Lodes.

In 1949, Northern Territory Prospecting and Development Company extended the adit to 427m and reached the Main Lode however, only limited development was carried out on the East Lode.Spring Hill Gold N.L. carried out some mining on the East Lode however crushings were limited by a lack of water. The adit was briefly re-opened for exploration purposes in 1995-96 but there has been no further activity since that time. Total gold production from the East Lode between 1959 and 1966 was recorded as 649 ounces at an average grade of 18.6 g/t.

In more recent times, Ross Mining acquired the project from Territory Resources in 1989 and formed an exploration joint venture with Billiton who, as the farminee, carried out a major programme of work until it withdrew from the joint venture in March 1992. Ross Mining continued to explore the Project area until 1994, relinquishing it in 1996 but, not before it undertook feasibility studies, which included environmental, hydrological and metallurgical work as well as resource modelling and pit optimisation. In the mid-1990s Ross Mining was acquired by Placer Dome and in 1998 the project area was relinquished. No record has been found relating to the tenement between 1998 and 2003. It is assumed that no mining tenement existed over the project during that time.

During 2003, the owner of the Project area, Tennant Creek Gold (NT) Pty Ltd, commissioned McDonald Speijers to undertake a first pass economic assessment of the mineralisation and to create a preliminary pit design for the Hong Kong, Main, Middle and East Zones on the southern part of the project area. The resulting resource estimate comprised 3.6 Mt @ 2.34 g/t Au for a total of 274,000 ounces of gold.

In 2007 Western Desert Resources Limited (WDR) acquired the project from Tennant Creek Gold (NT) Pty Ltd. Project development work undertaken by WDR in the four years that they managed the tenements included; Bemex metallurgical scoping study, acquisition of 150 metre spaced SkyTEM airborne EM data and Quickbird VHR satellite imagery, in addition to completing various office studies.

In mid-2011 WDR Gold entered into an agreement with TM Gold (a subsidiary of Thor Mining PLC) for a 25% share in the project, with a potential share of 80% to be acquired based on a mixture of expenditure and cash and share payments. To date, TM Gold has acquired a 51% interest in the project and has completed 60% (A\$900,000) of the \$1.5 million expenditure obligation to increase its interest to 80%.

Tin was discovered at the Jimmys Knob mine in the late 1880's. A considerable amount of underground development was undertaken until 1909. It appears that several tons of tin concentrate were probably produced, however no records exist for the period. The mine was reopened in 1964-68 and in 1977 with production of about 1.4t of tin concentrate (Ahmad et al 1993).

Since September 2011, Thor Mining has completed; two drill programs, undertaken metallurgical test work, evaluated the application of continuous vat leaching and updated the Spring Hill resource estimate.



Figure 4: Gold prospects in the vicinity of the Spring Hill resource

# 6. Exploration Completed – 2012/2013

The principal exploration activity undertaken by TM Gold during the period was the Helimag survey over the entire EL group. This data and accompanying report have previously been submitted to the department with the EL22957 annual report lodged in March 2013.

The geophysical surveys was flown using nominal terrain clearance of 30 m, line spacing was 50m and tie line spacing of 500m. The aircraft data system magnetic noise was measured using a fourth difference computation on the digital data.

Although known mineralisation targets within the tenement area are not magnetic in themselves, it was intended that, associated structural

features may be identified which could assist in targeting subsequent exploration. Evaluation of this data is ongoing. A review of reports describing previous exploration activities in the north west of EL28855 (Sheldon, et al. 1994) has highlighted gold exploration targets which warrant follow up evaluation work. In several areas, gold mineralisation was intersected and not fully evaluated or closed off including:

**Steve's Gully**: Target defined by mapping of sheeted veining over a one kilometre strike length and supported by rock chip assays of up to 16.9g/t Au. Sixteen RC drill holes have been historically completed with results including: 1.4g/t Au over 30m from 15m in hole SHRC193 and 13m @ 2.04 from 27m in hole SHRC195. These two holes are spaced 400 metres apart along strike.

**Vein Heaven**: Identified from mapping of sheeted veining supported by rock chip assays up to 15.2g/t Au (Sheldon et al). Nineteen RC drill holes were historically completed in 100 metre spaced fences. Intersection highlights include;

- 6m @ 1.8g/t Au from 29m including 1m @ 6.7g/t from 34m in hole SHRC220, and
- 17m @ 1.3 g/t from 43m hole SHRC061

**Zbonski**: A 50–100 metre wide soil anomaly extending 300m north-south encompassing moderate intensity sheeted veining. The north end appears to be truncated by change of rock unit but the south has potential to extend. Best historical drill intersections were from SHRC214 in the north end comprising;

- 2m @ 7.31g/t Au from 13m
- 2m @ 1.49g/t Au from 29m and
- 19m@ 0.88g/t Au from 69m

## 7. Exploration Completed 2013-2015

No exploration activities were undertaken during the period due to financial difficulties.

# 8. Exploration 2015-2016

During the period, PC Gold Pty Ltd acquired a 60% equity interest in TM Gold Pty Ltd (owner of Spring Hill Project). Through this process PC Gold Pty Ltd completed extensive due diligence activities involving an audit of all previous exploration activities undertaken across the Project.

Historical reports were reviewed and it was determined that further information could be captured and digitised from these reports. The process of digitising historical detailed geological mapping and geochemical sampling is presently underway.

Similarly geophysical datasets are undergoing reprocessing and interpretation. It is expected that further targets will be generated as a result of these processes which will be provided in the subsequent reporting period.



# 9. Exploration 2016-2017

Figure 5: Northern Targets

Field verification of historical mapping and sampling activities was undertaken. From the activities undertaken it was determined that significant drilling is warranted across the targets to the north of the mineral resource defined at Spring Hill.

In addition, a high resolution airborne survey was flown by PC Gold in October 2016 covering its concessions around and including Spring Hill. The survey was completed by a fixed wing aircraft at a mean terrain clearance of 7,500ft. The output pixel size generated was 15cm (GSD) with a spatial accuracy of +- 0.3m RMSE horizontal.

# 10. Exploration 2017-18

During the reporting period, additional historical data which had not previously been known of or previously reported was acquired from local prospectors. The data consisted of:

- 16 rock chip samples
- 3 RC drill holes
- 3 Diamond drill holes

The location of the historical rock chipping and drill collar locations was indicated by the prospectors on site.

Sampl e	Au pp	Au 2 pp	Cu pp	Pb%	Zn pp	Ag pp	Bi pp	Sn pp	W pp	As %
	m	m	m		m	m	m	m	m	
240851	3.61	3.57	342	2.0	580	50	94	13	5	1.8
240852	3.43	3.49	212	0.814	166	23	75	133	27	1.0
240853	1.98	2.00	110	2.63	542	23	48	29	5	1.7
240854	7.49	7.07	323	9.8	810	232	60	35	88	5.5
240855	0.13	0.12	45	0.139 5	146	3	35	7	6	0.08
240856	4.4	4.37	414	6.1	840	130	68	67	59	2.5
240857	0.1	0.11	54	0.233	334	4	28	9	5	0.06
240858	0.42	0.48	126	0.877	158	19	17	5	5	0.37
240865	1.46	1.40								
240866	4.10	4.93								
240867	0.25	0.27								
240868	4.71	4.32								
240869	6.61	5.85								
240870	3.87	3.85								
240871	5.35	6.15								
240872	0.75	0.75								

Table 2: Historical Rock Chip Sampling Results

Two grab samples PC009 and PC010, 794,958mE; 8,491,415mN and 794,919mE; 8,491,510mN respectively, were additionally taken in proximity to the gold/lead target documented by the prospectors in order to verify the tenor of mineralisation.

Sampl e	Au ppm	Au(R) ppm	Au(R) ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Bi ppm	Fe ppm	S pp m
PC 009	11.2	11.2	10.4	611	4609 0	272	274	1884 0	46	1056 50	133 25
PC 010	0.37	0.21		296	1106 5	1624	2	3843	27	9825 0	135 0

Table 3: Rock Chip Samples Taken To Verify Historical Results



Figure 6: Historical Shaft

The results returned a maximum of 11.2g/t Au and 4.6% Pb indicating a

polymetallic nature of mineralisation, distinctly different to that traditionally found at Spring Hill. A bulk sample of this mineralisation has been submitted for analysis and further metallurgical testing. The results are presently pending.

## 11. Conclusion/Recommendations

The identification of base metals-gold mineralisation at Spring Hill presents as a discretely different target style previously unrecognised by prior explorers. Detailed mapping and systematic geochemical sampling is proposed to be conducted in order to gain an understanding of the controls and extent of this style of mineralisation. In addition, reinterpretation and reprocessing of available geophysical coverages will be completed to determine if a signature relating to this style of mineralisation is present.

# 12. Proposed work programme for 2018/19

The work program proposed for 2017/18 reporting period includes:

- Geochemical sampling program to evaluate the potential of the newly identified polymetallic mineralisation style
- Evaluation of available drill core across the licence which may be prospective for hosting polymetallic mineralisation style
- Drill targeting and planning in order to drill test these styles of mineralisation.

## 13. Summary & Conclusions

The historical results acquired during the reporting period have outlined a style of mineralisation that was previously not documented by prior operators. The tenor of the polymetallic mineralisation style justifies further investigation to the potential extents. Further work is required to understand the economic significance of this deposit style.