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Dalmorton Project – Revised Resource Estimate and Exploration Targets

H&S Consultants Pty Ltd (H&SC) was requested by Revolution Metals to provide a revised resource estimate for the Pine Creek deposit and to quantify several exploration targets on its tenements. Pine Creek is the best drilled prospect in the Dalmorton Goldfield, northern NSW, and is part of the more extensive Pine Creek lode horizon. These mineral resources and exploration targets are reportable under the 2012 JORC code and a JORC Table 1 has been prepared to support any public release of these results.

Revolution Metals initially provided H&SC with a drill hole database containing drill hole collar, assay, density and recovery data and some examples of hand written drill logs in order to ascertain what additional data remained to be compiled.

The scope for this work required H&SC to:

1. Compile and analyse available QAQC data including check assays,
2. Compile basic geological logs of rock type and oxidation for the 30 drill holes located at Pine Creek,
3. Assess relationship between grade and oxidation and lithology and prepare basic geology model if considered necessary,
4. Assess relationship between density and lithology and oxidation in order to decide how to estimate density,
5. Prepare Mineral Resource Estimate of gold grade and density for the ironstone formation,
6. Prepare draft of JORC Table 1 to meet requirements for reporting Mineral Resource Estimates to ASX,
7. Prepare a summary technical report to support the resource estimate,
8. Examine data for the surrounding epithermal gold reefs with a view to generate an exploration target reportable under the JORC Code.

This report summarises the methodology, analysis and results of the resource estimate and exploration targets; additional details can be found in the accompanying JORC Table 1.

Database

Glenn Coianiz of ExplorIS compiled the drill hole database using available historical reports and converted the old local grid to MGA94. H&SC was also provided with a three dimensional digital terrain model (DTM) in order to check drill hole collars and constrain resource estimates. ExplorIS provided a file (Grafton 250K_DEM) which is based on NASA's SRTM (Shuttle Radar Topography Mission) data.

Three drilling programs were completed on the Pine Creek deposit between 1982 and 1986:

- In 1982 three (3) HQ core holes were drilled by Little River Goldfields NL (LRG),
- In 1983-84 seventeen (17) reverse circulation (RC) percussion holes were drilled by Getty Oil Development Company Ltd (GODC),
- In 1986 twelve (12) reverse circulation percussion holes were drilled by Little River Goldfields NL.

A summary of the data used for the revised resource estimate is given in the table below.

Year	1982		1983-84		1986		Total	
Item	Holes	Records	Holes	Records	Holes	Records	Holes	Records
Depth	3	174.3m	17	2199.1m	12	803.0m	32	3176.4m
Survey	3	3	17	29	12	12	32	44
Au Assay	3	153	17	1,381	12	308	32	1,842
Core_rec	3	115					3	115
Density					8	160	8	160
Oxidation	3	5	15	33	12	26	30	64
Rocktype	3	21	17	136	12	57	32	214

A number of database issues needed to be addressed before the data could be used. Some hole locations did not match their relative positions when compared to historical maps, so all collar locations were checked and some required correction. Another issue was collar elevation – some holes had elevation recorded, while others did not and were projected on to the available topography. However, it was observed that the two sets of elevations did not correspond, resulting in differences of up to 20m, so elevation was derived from historical cross sections for holes without recorded values. H&SC ultimately decided to use the old local grid, rather than MGA94, because it was easier to match the data to historical records and produce a consistent data set.

The database contained no down hole survey records apart from a record at each collar. However, some holes (1983) clearly had down hole surveys, as shown by their curved paths on historical plans and sections. Therefore H&SC measured the deviation (azimuth and dip) from the available maps (plans and cross-sections) to derive data that gave appropriately curved drill hole paths.

Summary geological data – rocktype and oxidation – was compiled by H&SC from available drill hole logs, although oxidation was not recorded for all holes.

This revised and validated database was then used to generate an interpretation of the ironstone mineralisation that was compatible with the historical LRG reports and maps.

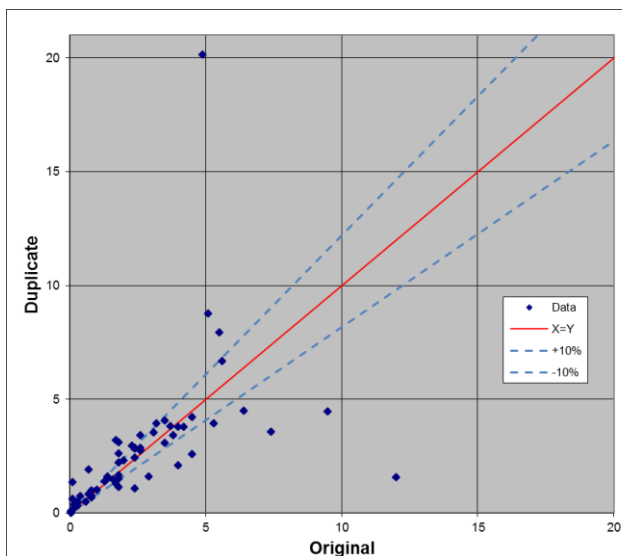
QAQC Analysis

The available QAQC data comprise of:

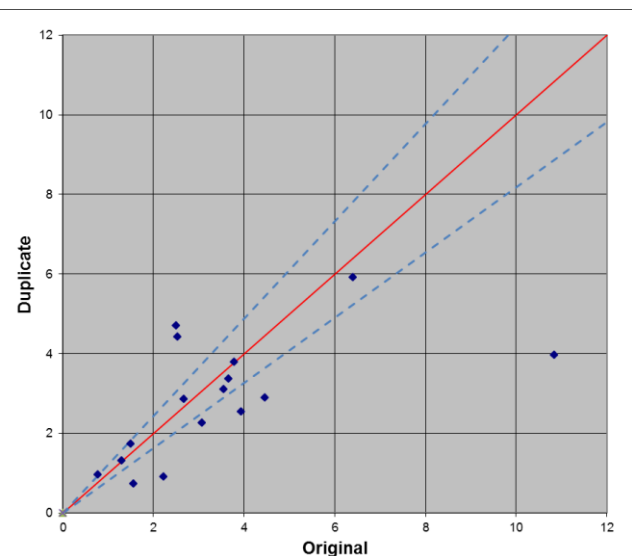
- 68 historical Amoco check fire assays compared to original aqua-regia AAS gold assays,
- 16 recent Au-AA25 check assays by aqua-regia/AAS on quarter core by Revolution compared to original fire assays on half core,
- Core and RC sample recovery data.

No details are given of the material used for the Amoco check assays but it seems likely that these were pulp duplicates. The recent check assays by Revolution are effectively field duplicates. Results for both sets of data are presented below in both tabulated and diagrammatic format.

Company	Samples	Original	Duplicates	% Difference
Amoco	68	2.34	2.39	2.3%
Revolution	16	3.42	2.85	-16.9%



Amoco FA vs Original AAS

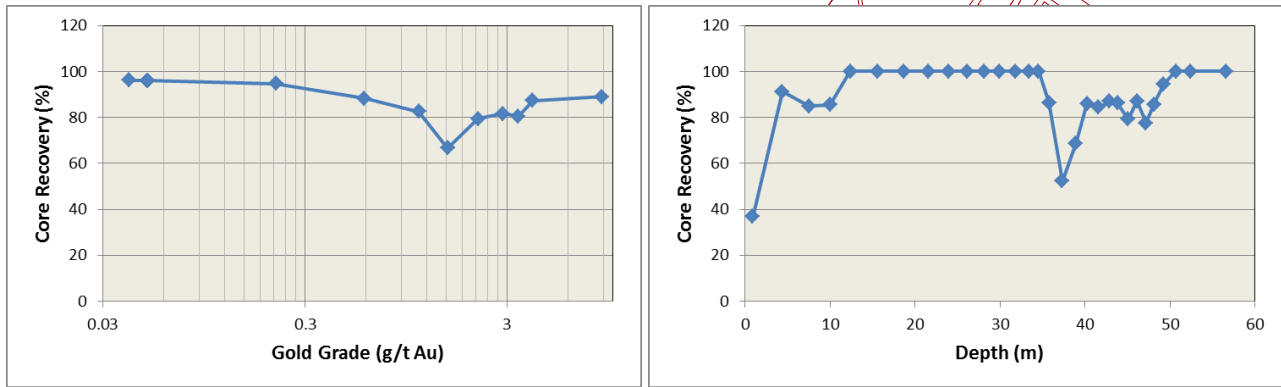


Revolution AAS vs Original FA

The Amoco checks show that AAS and fire assay results are reasonably comparable, with no obvious bias; precision is poor, but is likely due to erratic nuggetty gold and/or sample mix-ups. The Revolution checks are adversely affected by a single sample pair, but otherwise compare quite well with no obvious bias.

Sample recovery data was recorded for the 3 core holes, but no sample recoveries or weights were located for the RC holes. One RC hole was re-drilled due to poor sample recovery and the other holes were reported to have "good sample recoveries".

Core recoveries were generally reasonable, averaging 90.3%. Lower core recoveries tend to occur close to surface and within the mineralised zone, although there is no obvious simple relationship between gold grade and low core recovery.



Interpretation

The gold mineralisation in the Pine Creek lode is described as ironstone hosted. Gold is found in discontinuous, stratiform quartz-hematite-magnetite ironstones that occur in association with a thin horizon of basic volcanics that forms part of the Little River Beds. The sequence of interbedded sediments and volcanics is Silurian to Devonian in age, and forms part of the New England Fold Belt.

The lode horizon was interpreted using a combination of summary logging, assay data and historical cross-sections; the new interpretation defines a wider zone of mineralisation because a lower grade threshold (~0.1 g/t Au) was adopted. The mineralised section of the lode at Pine Creek has a strike length of 175m and a plan width averaging 8m (4-16m); the lode starts at surface and extends to 150m below.

An oxidation surface was defined using the available logging data; depth of oxidation is typically around 10m.

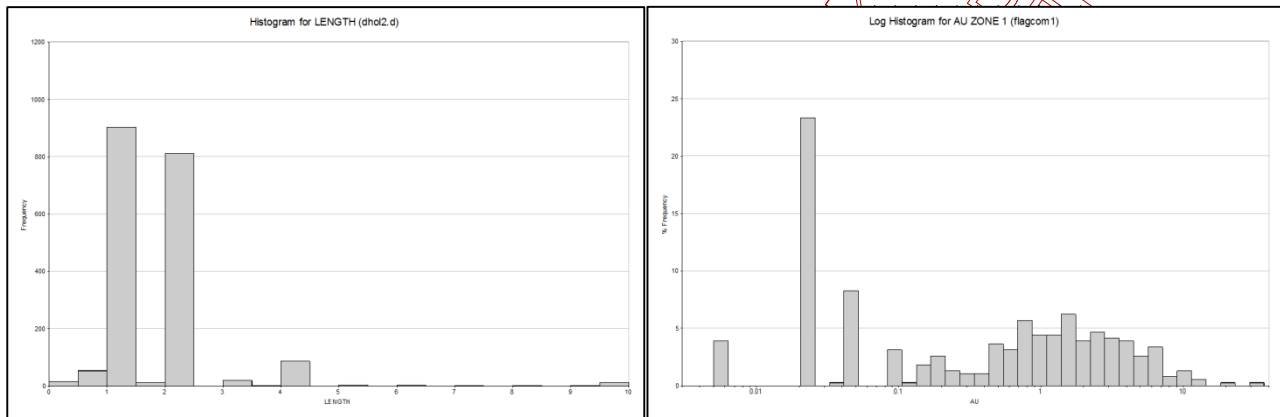
Data Analysis

Samples were composited to regular 1.0m intervals for data analysis and resource estimation. The histogram of sample length (below left) shows slightly more 1m samples than 2m samples, so the dominant sample length was chosen.

Statistics for various attributes of the composites within the lode are tabulated below.

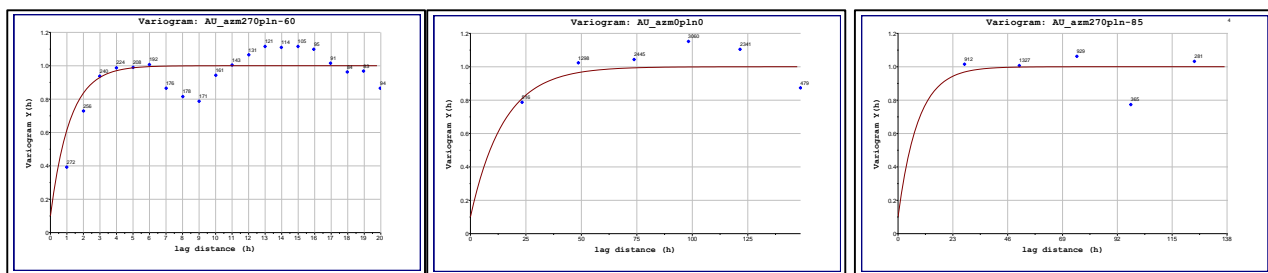
Attribute	Samples	Min	Max	Mean	SD	CV
Au	386	0.005	29.3	1.52	2.72	1.79
Ag	174	0.25	6.50	0.75	0.64	0.86
As	100	1.0	6520	587.3	984.0	1.68
SG	132	2.20	4.17	2.91	0.26	0.09

There are insufficient drill hole intersections within the oxide zone of the lode to assess the impact of oxidation on the gold mineralisation.



A variogram model was generated for gold, as shown below; it is oriented with an 85° dip to the south. The variogram ranges are 45m along strike, 25m down dip and 1.5m across the lode.

Structure	Variance	Variogram Ranges		
Type		X	Y	Z
Nugget	0.10	0	0	0
Exp_1	0.90	45	1.5	25



Density

160 density measurements were performed by AMDEL in 1986/87 on samples from the 86DL series of holes. The technique was given as “Method: Z”; it is unclear what this method was, but it appears likely to have been by air pycnometer as the samples were percussion chips.

Air pycnometer does not adequately account for void spaces because measurements are made on pulverised samples and any void spaces are destroyed. However, for fresh rock this is not necessarily a problem if the rock has no obvious porosity. Weathered rocks are more likely to have void spaces and this method does tend to over-estimate density for this type of material.

The majority of measurements are in fresh rock, which was assigned a density of 2.90 t/m³, equivalent to the average density of the fresh samples tested and identical to earlier historical estimates. The oxide mineralisation was assigned a density of 2.70 t/m³, based on 6 samples within this zone; this material only constitutes 5% of resource tonnage, so any potential errors in density values would have minimal impact on the resource estimates.

Resource Estimate

The dimensions of the block model are given in the table below; the block size is nominally half the drill hole spacing in X and Z (Easting and elevation) and 2 samples wide. Sub-blocks of half these dimensions were used on the boundaries of the lode.

Parameter/Direction	X	Y	Z
Origin (minimum)	15,000	4,975	75
Maximum	15,175	5,005	250
Block Size	12.5	2	12.5
Number of blocks	14	15	14
Length	175	30	175

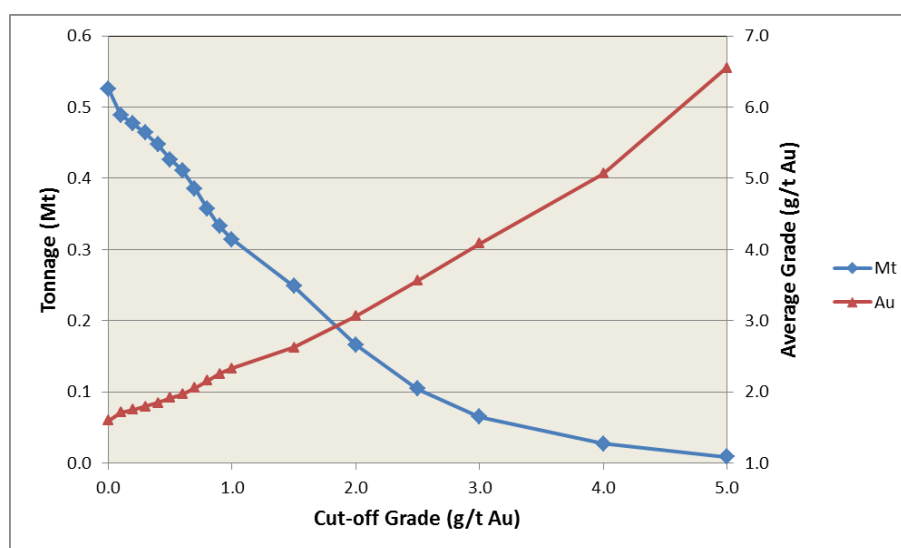
Gold grades were estimated using ordinary kriging (OK) – this was considered appropriate because of the relatively low coefficient of variation ($CV=SD/mean$). The three pass search strategy was used, as shown in the table below.

Pass	X radius	Y radius	Z radius	Minimum Samples	Maximum Samples	Minimum Octants	Minimum Holes
1	25	2.5	25	8	32	4	2
2	50	5.0	50	8	32	4	2
3	50	5.0	50	8	32	-	1
Rotations	5	0	0				

The sensitivity of the model to grade cutting was tested by applying a few different top-cuts. Compared to the uncut model, a 15 g/t Au top-cut (affecting 2 samples) reduced grade and metal content by 2% (for cut-off grades up to 1.0 g/t Au), while a 12 g/t Au top-cut (affecting 3 samples) reduced grade and metal content by 3%. It was concluded that grade cutting had little impact on the result, so the uncut model was adopted as the preferred version.

The grade-tonnage results of the final model are shown in the table and graph below.

CUTOFF	Kt	g/t Au	Koz Au
0.0	525	1.60	26.9
0.1	489	1.71	26.9
0.2	477	1.75	26.8
0.3	464	1.79	26.7
0.4	448	1.84	26.6
0.5	426	1.91	26.2
0.6	411	1.97	26.0
0.7	385	2.05	25.4
0.8	357	2.16	24.8
0.9	332	2.25	24.1
1.0	314	2.33	23.5
1.5	249	2.63	21.0
2.0	166	3.06	16.4
2.5	104	3.56	11.9
3.0	65	4.08	8.5
4.0	27	5.06	4.4
5.0	9	6.55	1.8



Breakdowns of the resources by estimation pass and oxidation are shown in the following table at a 0.5 g/t Au cut-off grade.

Class	Kt	g/t Au	Koz Au
Pass 1	139	2.15	9.6
Pass 2	191	1.89	11.6
Pass 3	96	1.63	5.0
Primary	404	1.91	24.8
Oxide	22	1.98	1.4
Total	426	1.91	26.2

A comparison of the new model with previous estimates is shown in the table below.

Estimate	COG	Kt	g/t Au	Koz Au	SG
GODC 1984	1.0	500	2.30	37.0	2.90
LRG 1987	1.0	232	3.27	24.4	2.90
H&SC 2015	1.0	314	2.33	23.5	Variable
H&SC 2015	0.5	426	1.91	26.2	Variable

The GODC estimate has a grade similar to the new model at a 1.0 g/t Au cut-off grade; the GODC tonnage is higher than subsequent estimates because later drilling restricted the assumed extent of mineralisation. The LRG estimate is comparable to the H&SC estimates in terms of contained metal.

Obviously the LRG and H&SC models are quite different:

- The LRG estimate used a “cut-off grade of 1.0 g/t Au, no assay cutting, no assigned skin dilution”.
- The H&SC model used a nominal mineralisation cut-off of 0.1 g/t Au, no assay cutting and obviously included dilution, which allows the model to be assessed at a range of cut-off grades.

H&SC believes that its estimates are indicative of grades that could be achieved with open-pit mining, while the LRG estimate would need dilution added to give a realistic mining grade.

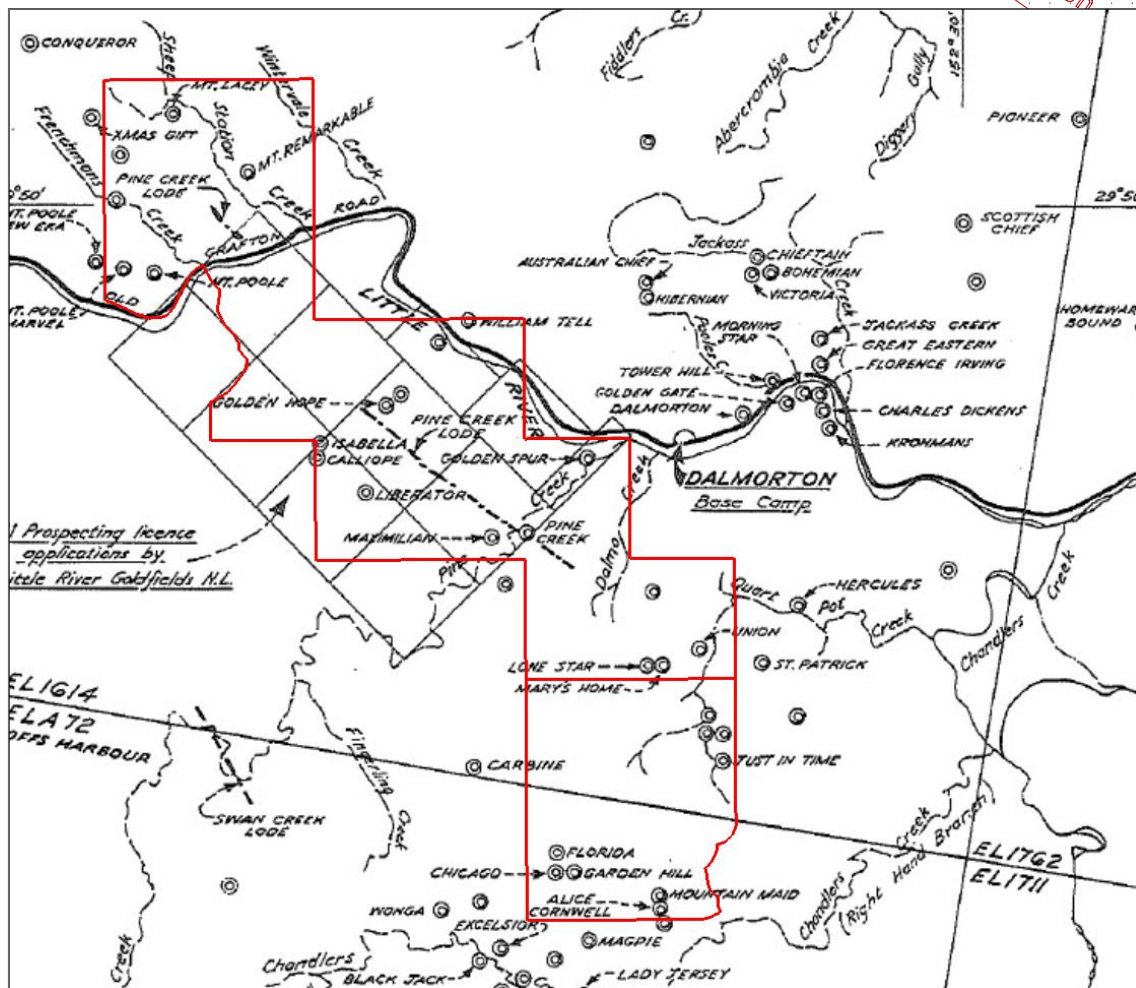
The entire Pine Creek resource is currently classified as Inferred because there are potential issues with the reliability of the historical input data. Additional QAQC and data verification would be required to upgrade part of the resource to higher confidence categories. The estimation passes are an indication of the potential quantity of Measured (Pass 1) and Indicated (Pass 2) resources that might be achieved if the existing data can be verified as accurate and complete.

Verification measures to upgrade the resources to higher confidence categories would include:

- Accurate surveying of drill hole collar locations in the field,
- Location of down hole survey records,
- Additional check assays with appropriate QAQC,
- Compilation of detailed geological data,
- Generation of a detailed geological model,
- Verification drilling, ie twinning of some historical holes.

Exploration Potential

There are a significant number of historical gold occurrences within the Revolution exploration licenses, as indicated in the map below. The location of the lease boundary (red) is somewhat approximate because the underlying historical map had to be digitised and geo-referenced.



There are two main styles of gold mineralisation in the Dalmorton area:

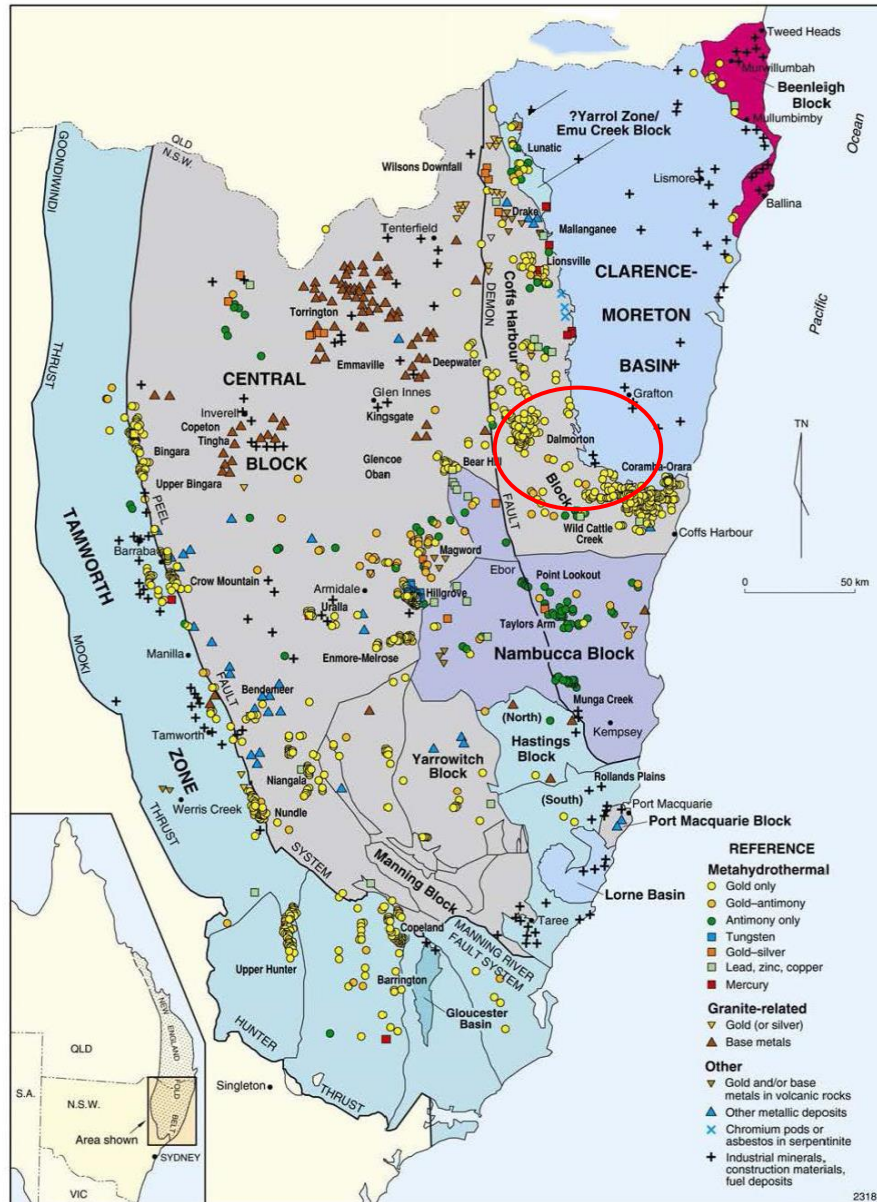
1. Ironstone lodes, eg Pine Creek lode
2. Narrow epithermal quartz veins, eg Mt Remarkable

There are a substantial number of old workings on narrow epithermal quartz veins within the Revolution license area. The more important prospects include Mt Remarkable, Mt Pool and Alice Cornwall – these three have been prioritised because they appear to be larger and more prospective than many of the other prospects.

The prospectivity of the Dalmorton gold field is described by Suppel, Barnes and Scheibner, 1998: *“Deposits in the Dalmorton gold field show no preferred orientation and occur as a regional stockwork. In the case of the Coramba-Orara and Dalmorton fields, low-angle thrust faults may have controlled fluid flow, with deposits forming in local structures above the thrusts. Such thrusts have not been identified in the area to date, owing to lack of detailed lithological or structural mapping. Also, any such features often lie sub-parallel to bedding and can hence be very difficult to identify. As a result, it is not possible to use existing fault data to help elucidate the prospectivity for further deposits of this type in the Coramba- Orara and*

Dalmorton areas, except to suggest that more deposits may well occur at depth, especially near known mineralisation."

A map of mineral occurrences within the New England Fold Belt shows a substantial clustering of gold occurrences in the Dalmorton area, further highlighting the prospectivity of the area.



Pine Creek Target

The Pine Creek lode horizon has a strike length of around 4km in the vicinity of the Pine Creek deposit, with about 1km to the southeast and 3km to the northwest of the deposit. The northern end of this section of the lode appears to be overlain by intermediate to basic volcanics, so the lode could continue under these volcanics.

Further to the northwest, another section of the lode is exposed on the north side of the Little River and has a strike length of several hundred metres. The length of lode from here to the other side of Pine Creek is around 8km, assuming it is continuous beneath the volcanics.

Consequently, extensions of the Pine Creek lode beyond the Pine Creek deposit represent a substantial exploration target, as the Pine Creek deposit contains around 26 thousand ounces of gold over a strike length of 175m.

In 1987, an additional 3 holes were drilled immediately to the east of the Pine Creek deposit; one hole intersected 6m @ 3.0 g/t Au while the other two were barren. There are several barren holes between this intersection and the main mineralised zone, so it appears somewhat isolated, although it is possible that the other two holes were not drilled deep enough.

There has been some exploration along other parts of the lode including drilling at Dalmo Creek to the southeast, at Darby's Creek about 1.6km to the northwest and at Cat Head Spur on the north side of the Little River.

At Dalmo Creek, the best intersection out of 7 holes was 10m @ 8.7 g/t Au in a grey cherty ironstone in hole DL15, including 3m @ 24 g/t Au; however, there were no significant intersections either down dip (40m) or along strike (12.5 or 25m) so this intersection appears isolated.

At Darby's Creek, the best intersection out of 7 holes was 4m @ 1.4 g/t Au in hole DL18, including 2m @ 2.3 g/t Au; there are traces of mineralisation, including 4m @ 0.19 g/t Au, 50m either side of the DL18 intercept.

At Cat Head Spur, the best intersection out of 4 holes was 2m @ 0.2 g/t Au in hole CATRC2 between 44 and 46m.

The gold mineralisation in the Pine Creek lode does appear to form lenses that can be quite discontinuous locally. However, over a strike length of 8km (5km exposed), there is still significant potential to find one or more additional deposits of the size of the Pine Creek deposit.

To quantify the exploration potential of the Pine Creek lode, H&SC consider that it is quite possible that 1 to 3 more deposits of the size of Pine Creek could be discovered. Therefore, the exploration target is assessed to be between 400 and 1,200 Kt with a grade range of 1 to 3 g/t Au.

Mt Remarkable

Kater 1981 reports that several reefs were discovered at Mt Remarkable, one at least 84m long and 0.3m wide bearing northerly and another at least 125m along strike and up to 1m wide, bearing at 70° and dipping 60° south. Lewis 2006 reports on two intersecting quartz veins, which may be the two referred to by Kater.

Recorded production from Mt Remarkable (from Kater 1981) totals 1,254 tonnes at 15.2 g/t Au for 611 oz Au, which includes 500 tonnes of stockpiled tailings.

Rayner 1959 is quoted by other sources to have reported:

- proven reserves of 7,000t @ 24.8g/t Au
- possible reserves of 130,800t @ 18.5g/t Au (over 312x154m)

Note that the terminology used for reserves is pre-JORC and does not conform to JORC (2012) terminology. H&SC checked these estimates against a diagram by Rayner in Lewis 2006 – these estimates suggest an average thickness of around 1.0m, which appears to be the maximum thickness reported. H&SC estimate a total tonnage of 130,000 for the larger area (590x326m) indicated on the diagram assuming an average thickness of 0.5m.

The exploration target at Mt Remarkable is assessed to be between 1/2 and 2 times the existing estimate; the lower limit assumes an average thickness of 0.5m, while the upper limit assumes a

1.0m thickness over the larger area (or possibly thinner vein over an even larger area). Therefore, the exploration target is assessed to be between 65 and 260 Kt with a grade range of 15 to 25 g/t Au.

Mt Poole

The lease diagram above indicates that both Mt Poole and Mt Poole Marvel are within the Revolution tenements, although Mt Poole New Era appears to be outside the leases. This needs to be confirmed with a more accurate assessment of the location of these occurrences.

Kater 1981 reports that “at least five major parallel reefs” “were uncovered and worked along line by three mining companies – The Mount Poole Gold Mining Company, Mount Poole Marvel Gold Mining Company and Mount Poole New Era Gold Mining Company”. This suggests that the reefs trend in a WNW direction, in line with the three prospects, and are probably steeply dipping.

Recorded production (from Kater 1981) totals over 1,000 tonnes for all 3 prospects and not all recorded work has tonnage and grade estimates. Of this, a total of 671 tonnes have recorded grades, averaging 40 g/t Au producing 858 ounces of gold.

The reefs here appear thicker than many others in the area, with a number exceeding 1.0m and averaging around 0.9m. Six reefs are recorded and four occur within 136m of each other, with two “close together”. Multiple reefs make a more attractive target because of their open pit potential, particularly if the reefs have a halo of low grade mineralisation (although this remains to be demonstrated).

In assessing the exploration potential of Mt Poole and Mt Poole Marvel, the following assumptions have been made:

- 3 reefs
- Strike length between 300 and 600m
- Thickness 0.9m
- Depth 100m

Based on these assumptions, the exploration potential at Mt Poole and Mt Poole Marvel is assessed to be between 200 and 400 Kt with a grade range of 10 to 20 g/t Au.

Alice Cornwall

Kater, 1981 reports “Reef about 300 metres long bearing north-east, situated about 7 kilometres south of Dalmorton. Operated between 1890 and 1894 but no reports available.”

Lewis 2006 states “A quartz vein stockwork was discovered in the vicinity of the Alice Cornwell mine and is open at depth. An estimate of 12,000t at 3g/t Au is given by Wallner (1984). The stockwork needs further investigation.”

Wallner 1984 says that “the mineralised quartz reef lies within a broad auriferous quartz stockwork zone”. In 1983, 20 holes (RC and conventional percussion) totalling 1151m were drilled and “traced the main mineralised zone over a length of 70 metres and to a maximum depth of 80 metres” (Wallner, 1984).

It is significant that the mineralisation here is described as a stockwork, rather than as a narrow vein, because it suggests a potentially higher tonnage deposit. These stockworks vary in width from ‘less than one metre to more than 5 metres’, “contain considerable arsenopyrite” and assayed up to 1.8 g/t Au over 1m intersections.

There appears to be significant potential to increase the estimated mineralisation at Alice Cornwall because the cross-sections in Wallner 1984 show that little mineralisation has been projected beyond drill holes. If the mineralisation can be shown to be geologically continuous, then it seems possible that the estimate could be doubled based on existing data.

The exploration target at Alice Cornwall is assessed to be between 2 and 4 times the existing estimate; the lower limit allows for a reasonable projection of mineralisation beyond drill holes, while the upper limit allows for modest extensions to the existing estimate. Therefore, the exploration target is assessed to be between 24 and 48 Kt with a grade range of 2 to 4 g/t Au.

Further Considerations

In assessing the narrow epithermal vein deposits, it should be noted that it is not uncommon for mineralisation close to surface to be enriched, with significantly lower grades at depth. Therefore the grades cited in historical records may not be representative of the deeper of mineralisation.

Walker 1986 concluded and recommended the following regarding quartz reef targets in the Dalmorton area:

- 1) *"The reef prospects are considerably smaller in average width and strike length than has been suggested to be the case using historical reports.*
- 2) *A large majority of the past production came from quartz carrying free gold. It is therefore suggested that the high-grades obtained from samples and mines in the oxidised zone show supergene enrichment effects.*
- 3) *2 types of reef are recognisable:-*
 - i) *quartz-filled tension gash veins*
 - ii) *quartz vein filled fault zones or breccia crush zones*
- 4) *The strike and depth-potential of arenite hosted tension gash reefs is constrained by the average 30m-60m thickness of the arenite units.*

Taking account of the factors above, it is concluded that exploration potential for a deposit of target size and grade is negligible at the know reef prospects."

"A realistic target was considered to be 0.5-5 million tonnes at 3-8g/t, either in a single orebody or as several smaller deposits, the ore from which could be milled at a central facility."

It should be noted that the tenements referred to by Walker 1986 do not include the current Revolution exploration licenses, so do not refer specifically to the Revolution exploration targets.

The distribution of gold grades in these types of veins can be extremely erratic, and this type of mineralisation tends to be nuggetty, making it notoriously difficult to define by drilling – it is possible to intersect the vein structure but find little or no grade. There may also be higher grade shoots within much lower grade material, or the individual veins could be discontinuous, forming en-echelon arrays or pinching and swelling dramatically.

Narrow vein deposits are at the risky end of the spectrum of gold mineralisation. Dominy and Edgar 2012 caution: *"High nugget effect gold veins are generally considered to be one of the most challenging of deposit types to evaluate and exploit. To potential investors and mining companies, they are viewed as high risk because of the associated uncertainties in the grade estimate and general paucity of reserves at production start-up. Despite the well-known risks, these deposits are often high grade and have a grade upside which makes them potentially attractive."*

Conclusions

The Pine Creek ironstone hosted gold deposit has been assessed to have an Inferred Mineral Resource of 430 Kt at 1.9 g/t Au, containing 26 Koz of gold. There is considered to be a further exploration target along the Pine Creek lode of between 400 and 1,200 Kt with a grade range of 1 to 3 g/t Au.

A number of narrow epithermal quartz vein targets have been assessed:

- At Mt Remarkable, the exploration target is assessed to be between 65 and 260 Kt with a grade range of 15 to 25 g/t Au.
- The exploration target at Mt Poole and Mt Poole Marvel is assessed to be between 200 and 400 Kt with a grade range of 10 to 20 g/t Au.
- The exploration target at Alice Cornwall is assessed to be between 24 and 48 Kt with a grade range of 2 to 4 g/t Au.

Under the 2012 JORC, the following clarification statement is required: The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

References:

Kater, 1981

Arnold van der Heyden

Director and Consultant