

AUSTRALIAN

# RESEARCH

INDEPENDENT INVESTMENT RESEARCH

## White Cliff Minerals Limited (ASX: WCN)

May 2017

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**Note:** This report is based on information provided by the company as at May 2017

Investment Profile	
Share Price as at 5 May 2017	\$0.006
Issued Capital:	
Ordinary Shares	1,867m
Listed Options	23.5m
Options	232.5m
Performance Rights	23.5m
Fully Diluted	2,275m
Market Capitalisation	\$11.2m
12 month L/H	\$0.005/\$0.011

Board and Management	
Mr Michael Langoulant: Executive Chairman	
Mr Todd Hibberd: Managing Director	
Mr Rodd Boland: Non-Executive Director	

Major Shareholders	
Mr Andy Igo	13.30%
Board and Management	3.76%
Top 20	43.92%



Senior Analyst – Mark Gordon

The investment opinion in this report is current as at the date of publication. Investors and advisers should be aware that over time the circumstances of the issuer and/or product may change which may affect our investment opinion.

## HIGH GRADE GOLD

With their 302,000oz, 5.18g/t Aucu Gold Project in the Kyrgyz Republic, White Cliff Minerals (“White Cliff” or “the Company”) has a quality gold asset with extremely good upside to host a large, high grade resource. The Company has only drill tested some 5% of potentially mineralised structures to achieve the current resource, and there is also good potential to add to the current 44,870t of contained copper mineralisation through the discovery of new porphyry mineralisation. The Company also has nickel and gold prospective projects in the Yilgarn of Western Australia, with these returning positive exploration results to date.

## KEY POINTS

**High grade gold:** With a current resource of 1.813Mt @ 5.18g/t gold, Aucu is a high grade gold discovery by White Cliff, which given that it outcrops, is potentially amenable to relatively low cost open cut mining, and also by virtue of grade raises the possibility of future underground operations.

**Resource expansion potential:** Work to date has only tested around 5% of the potentially mineralised structures that host the porphyry-related gold bearing sulphide-quartz veins – this gives Aucu the prospectivity to host a multi-million ounce gold deposit – this is reinforced by all mineralisation defined to date being open along strike and at depth.

**Resource confidence upgrade:** The Competent Person responsible for the recent resource estimate will be visiting site in the next few months - the Company is of the view that this may increase the confidence in some of the Aucu resource from Inferred to Indicated.

**Copper potential:** Early work by White Cliff concentrated on the adjacent Chanach porphyry copper prospect, which hosts Inferred Resources of 10Mt @ 0.41% Cu from surface; however more recent interpretations indicate that this may be peripheral to a main porphyry copper centre that is as yet untested – this raises the potential for the discovery of significant additional porphyry copper mineralisation.

**Infrastructure rich and cheap costs:** Aucu has ready access to infrastructure, including cheap power, water and roads – this should have positive economic effects on any future operation – in addition the Kyrgyz Republic is a relatively cheap country to operate in.

**Viable and developing mining destination:** Recent times have seen strong Government support for mining in the Kyrgyz Republic, with three new mines, all within 100kms of Aucu, opening in 2014/2015, with the country also having an attractive taxation regime and a now well developed mining law. Recent years have seen significant increases in political stability.

**Australian projects:** Very positive results have been gained from White Cliff’s exploration in Western Australia, with this work on prospective but relatively under explored properties – in addition Western Australia is a well understood and highly ranked mining destination.

**Experienced and committed personnel:** Company personnel have significant experience in the Kyrgyz Republic, with the MD, Mr Todd Hibberd having been actively involved in all aspects of Chanach/Aucu since the acquisition in 2010 – in addition insiders hold some 3.75% of the Company, thus aligning their interests with those of the other shareholders.

**Steady news flow:** Ongoing activities should provide steady news flow through 2017 - planned work includes drilling on all properties (including 5,000m at Aucu) and, by the end of 2017 a resource upgrade for Aucu.

## VALUATION SUMMARY

We have completed a valuation for White Cliff, with this resulting in a base case Company valuation of \$32 million, or \$0.017/share, a 180% premium to the current price. We see considerable upside in this, particularly with ongoing activities including resource expansions and upgrades at Aucu.

## SWOT ANALYSIS

### Strengths

- ◆ **High grade mineralisation** – Having high grade mineralisation is always a major positive, in that it increases the options for planned operations and also makes such operations robust.
- ◆ **Prospective geology** – Aucu is highly prospective for both additional gold and copper mineralisation, with a number of targets yet to be tested.
- ◆ **Potential short term start-up** - Given the resources defined to date, Aucu presents a possible short term, relatively small scale gold start-up opportunity which may require only modest capital, and which would generate cash to fund expansions of the operation as resources are potentially increased.
- ◆ **Kyrgyz Republic infrastructure and location** – The ready access to infrastructure (including cheap power) along with the high grade should give any operation attractive economics; also, although within 25km of a village, there are no residents in the immediate vicinity of Aucu, which decreases any potential permitting issues.
- ◆ **Western Australia** – Results in the Western Australian projects have also been positive, providing viable second-string projects.
- ◆ **Experienced people with skin in the game:** Company personnel have significant experience in the resources game as well as share holdings in White Cliff.

### Weaknesses

- ◆ **Narrow vein** – An issue with Aucu is the relatively narrow vein nature of the mineralisation, which, unless care is taken with mining can result in excessive dilution – this however is offset by the grade which does forgive many things in mining.
- ◆ **Topography** - The steep topography at Aucu may lead to higher than average strip ratios for some of the planned pits, thus affecting economics.
- ◆ **Cash position** - With only \$1 million in the bank as of March 31, 2017 the Company will need to raise cash to fund activities for the rest of 2017 – the current annual burn rate is in the order of \$4 million.

### Opportunities

- ◆ **Resource Expansion** - This is the key opportunity at Aucu, with all gold drilling to date expanding resources; we expect the same for the 2017 drilling programme, with the Company aiming for this to result in an increase to at least 500,000oz of gold in resources.
- ◆ **Exploration success** – There is, in addition to resource expansions at Aucu, the potential for discoveries of additional gold and copper systems, in addition results of work at Merolia in Western Australia highlight the prospectivity of the tenements.

### Threats

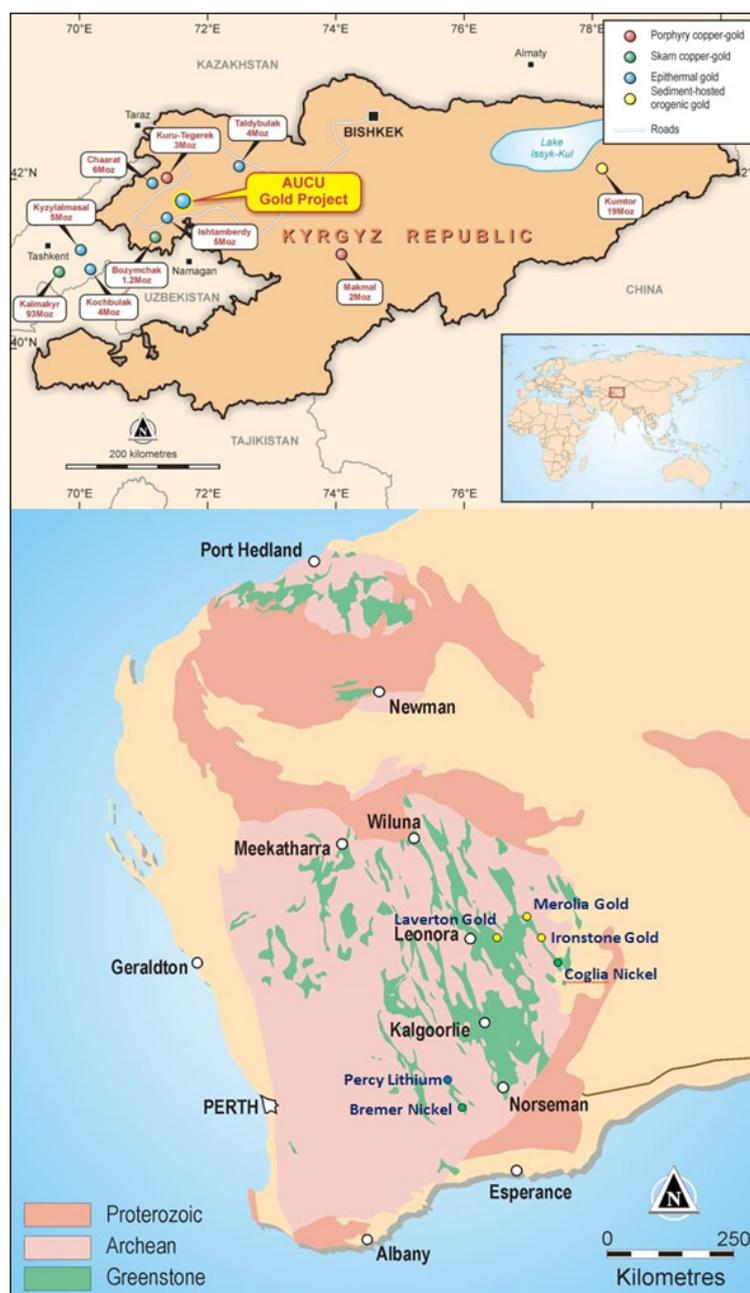
- ◆ **Lack of exploration success** – This is self-explanatory, and a threat to any exploration company.
- ◆ **Prices and markets** – Given that White Cliff needs to raise capital they are exposed to any adverse changes in the markets – these however remain reasonably buoyant, particularly with the gold price at its current levels.

## OVERVIEW

### STRATEGY AND PROJECT OVERVIEW

- ◆ White Cliff's activities are largely concentrated on the Aucu Gold Project, located in the north-west of the Kyrgyz Republic (Figure 1).
- ◆ Aucu is a discovery by White Cliff, following on from earlier work on the tenement on the Chanach copper deposit – the Company's plans are to continue drilling in 2017 with an aim of increasing resources to at least 500,000oz to demonstrate size potential, and then to look at development.
- ◆ In parallel White Cliff is also operating at a number of early stage projects in Western Australia; these include Merolia, located near Laverton (and which includes the Ironstone gold and Cogleia nickel prospects shown in Figure 1), which is discussed briefly, and others, including Lake Percy lithium which will not be discussed.

Figure 1: Project location map



Source: White Cliff

## FINANCIAL POSITION

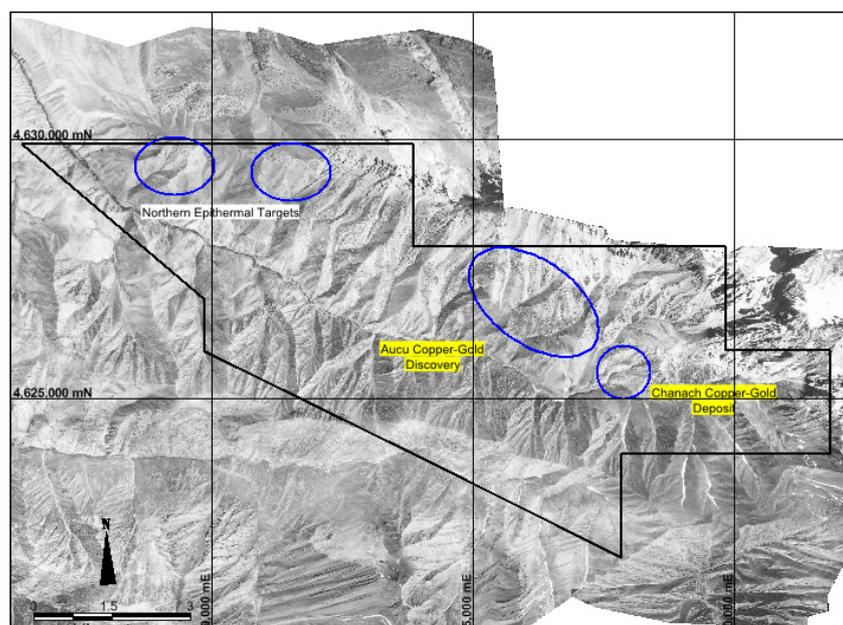
- ◆ As of March 31, 2017 the Company had \$0.993 million in cash and no debt.
- ◆ During the last twelve months the Company raised \$5.19 million (before costs) – the latest raising included an oversubscribed placement (\$1.5 million) and share purchase plan (\$1.05 million) at \$0.0075/share, with a 1:3 free attaching option exercisable at \$0.013 on or before December 31, 2018 – the raising was underwritten to \$2 million.
- ◆ During the same period the Company spent \$4.001 million on exploration activities and \$0.894 million on administration and wages.

## AUCU GOLD PROJECT - WCN 90%

### Location and Tenure

- ◆ Aucu comprises one granted exploration licence for 57.25km<sup>2</sup> located in the north-west of the Kyrgyz Republic, some 350km WSW from the capital, Bishkek (Figures 1 and 2).
- ◆ The tenement is valid to December 2020, having been most recently renewed in December 2015 for a five year term.
- ◆ The Project is close to infrastructure, including grid power, water and 25km from the nearest village via an elevated road and covers an elevation range from 2,200m to 3,600m.

**Figure 2: Aucu permit AP590 on satellite image showing key target zones.**



Source: White Cliff

- ◆ The tenement, then of 93km<sup>2</sup> was originally acquired in mid-2010 in conjunction with JV partner T2 Gold Pty Ltd ("T2") through acquiring an 80% interest in Chanach LLC, the owners of the tenement.
- ◆ The JV partners originally paid a US\$40,000 option fee and agreed to fund the first years' exploration expenditure, then estimated at US\$250,000.
- ◆ Following this, the JV partners could exercise the option and move to 80% ownership through:
  - Paying the vendors US\$125,000 cash plus US\$125,000 in scrip;
  - Sole funding the next US\$3,000,000 in project expenditure; and,
  - Paying a bonus consideration, in shares and/or cash, of US\$500,000 upon verification of a 1 million ounce JORC compliant Measured gold equivalent resource plus a second bonus payment of US\$500,000, in shares and/or cash, upon verification of the second million ounces of JORC Measured gold equivalent resource.
- ◆ The JV partners also had the right to increase ownership to 90% through diluting the vendors.

- ◆ Subsequent events have included White Cliff diluting, and then acquiring T2's stake outright – the acquisition included payment of cash totalling \$50,000 and a share payment of 73,841,667 shares – this took White Cliff's ownership to 88.7%.
- ◆ White Cliff has subsequently moved to 90% ownership through the issue of 12 million shares to an external shareholder.
- ◆ The remaining 10% is held by associates of the local Kyrgyz management team who are free carried through to the completion of a bankable feasibility study ("BFS").

### Work by White Cliff

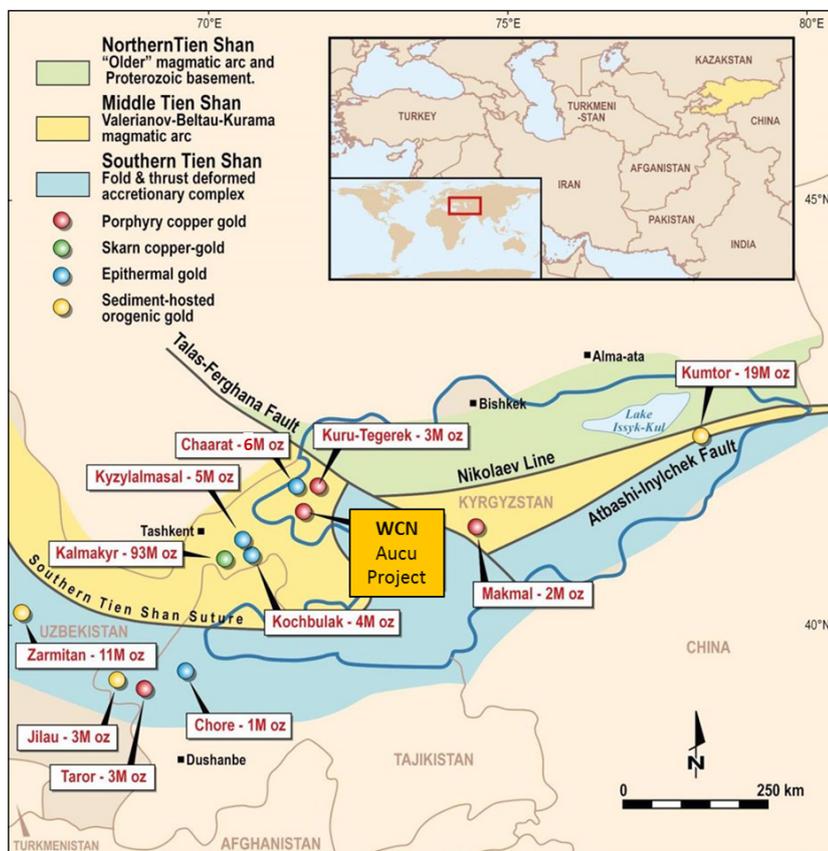
- ◆ Initial work in 2010 included rock chip sampling and bulldozer trenching over the Chanach copper prospect, which recognised copper mineralisation associated with diorite/monzonite intrusives and north-south trending shears, which are possibly structures linking the main WNW trending structures.
- ◆ This also recognised alteration zones up to 75m wide.
- ◆ Initial reverse circulation ("RC") drilling (7 holes for 924m) was completed at the end of the 2010 field season, and was largely orientated to the north-west – this returned up to 100m @ 0.38% Cu.
- ◆ Work in 2011 included additional trenching, electro-magnetic ("EM") surveying and drilling, with the recognition of east-west trending chargeable zones (due to the sulphide content) necessitating a change in the drilling programme, with holes being changed to a northerly orientation.
- ◆ Again this resulted in broad intervals of moderate grade copper mineralisation - similar activities were completed in 2012, with drilling over these two years totalling 17 holes for 3,853m - this included four RC and 13 diamond holes.
- ◆ Importantly, the Company commissioned an analysis and interpretation of Aster satellite data, which can be a powerful tool in recognising different styles of alteration – this work resulted in the delineation of a number of targets as shown in Figure 2.
- ◆ Little work was carried out in 2013 – the Company was looking for a JV partner to progress the Project – however some trenching, targeting Aster anomalies, was completed at the end of the field season which led to the discovery of Aucu, some 2km to the NW of Chanach.
- ◆ Work in 2014 included further trenching and then the initial drilling programme at Aucu (24 holes for 3,037m) – this targeted what are now termed the Upper Gold Zone ("UGZ") and Lower Gold Zone ("LGZ") as shown in Figure 4 – this drilling was used for the early 2015 initial inferred Mineral Resource Estimate ("MRE") of 1.2Mt @ 4.2g/t Au for 156,000oz of contained gold.
- ◆ RC and diamond drilling in 2015 concentrated largely on what is now known as the Sandstone Gold Zone ("SGZ"), with some additional holes also drilled at the west of the UGZ – this included 18 holes for 1,994m.
- ◆ Intersections of 4m @ 59.9g/t in hole UGZ15-33 and 8m @ 55g/t Au in hole UGZ15-35 at the eastern end of the interpreted SGZ provided the impetus to drill further to the east in 2016.
- ◆ Drilling in 2016 concentrated on what is now referred to as the Quartz Zone ("QZ"), with some additional drilling in the SGZ – this included 33 holes for 4,045m, and discovered and delineated this high grade zone.
- ◆ Other ongoing work has included soil sampling, trenching and rock chip sampling; in addition a detailed ground magnetics survey has been completed over Aucu, with this being used in the geological interpretation as used in the recent MRE, completed in early 2017.
- ◆ Metallurgical test work was completed on a number of samples in late 2015/early 2016.
- ◆ Further details of the results of activities are discussed in the sections below.

### Geology and Mineralisation

- ◆ Aucu is located over units of the Tien Shan Belt, a major Palaeozoic orogenic belt that extends for some 2,500km in Central Asia from Uzbekistan in the west to western China in the east.
- ◆ The Tien Shan is host to a number of world class gold deposits, with individual deposits hosting up to 93Moz gold – those in the eastern half of the belt are shown in Figure 3.

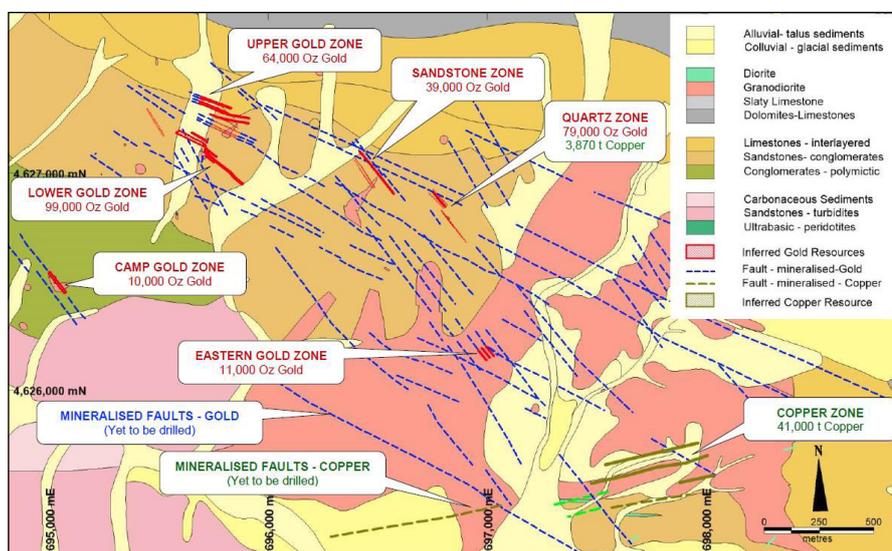
- ◆ The regional geology includes metamorphosed and deformed sedimentary and volcanic rocks that have been intruded by Carboniferous diorite/granodiorite batholiths and younger Permian granitoid dykes and sills - the latter are associated with the mineralisation.
- ◆ Mineralisation in the belt includes both magmatic arc related porphyry, epithermal and skarn gold/copper and structurally controlled orogenic gold deposits.
- ◆ The geology at Aucu includes a sequence of largely marine sediments, intruded by Carboniferous to Permian porphyritic intrusives – sandstones in the sedimentary package dip at ~20° to the NNE, with the porphyry intrusives being sub-vertical in a number of orientations (Figure 4).
- ◆ The dominant structural trend is WNW, with a well-developed set of NW trending structures also being present (Figure 4)

**Figure 3: Map of the eastern Tien Shan, showing major gold and copper deposits**



Source: White Cliff

**Figure 4: Aucu gold and Chanach copper area geology**



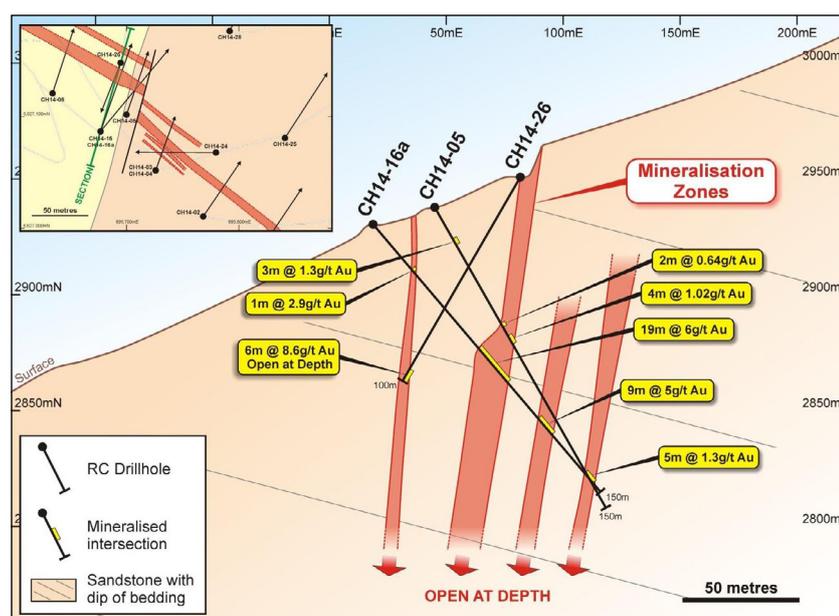
Source: White Cliff

- ◆ Two types of mineralisation have thus far been defined – copper mineralisation associated with monzonite porphyry dykes and structurally controlled gold +/- copper mineralisation.
- ◆ The trend from copper to copper-gold to gold mineralisation with both increasing lateral distance and elevation from the interpreted porphyry centre is typical for these systems.
- ◆ The monzonite porphyry hosted mineralisation comprises the original Chanach discovery, with this hosted in three interpreted parallel WSW trending zones, with strike lengths of up to 600m.
- ◆ Only the northern of the three interpreted zones has had appreciable drilling, with this indicating true widths of up to 100m at surface and narrowing at depth.
- ◆ Both disseminated supergene (chalcocite) and primary (chalcopyrite) mineralisation has been intersected, with moderate grades of around 0.3% to 0.5% copper – alteration includes phyllic (quartz/pyrite/sericite) and propylitic (epidote/chlorite/carbonate) – both of these are typically associated with porphyry-style mineralisation.
- ◆ The gold mineralisation at Auca is hosted in narrow (generally around 1m to 6m true width) sub-vertical quartz sulphide veins, which trend from WNW to NW as shown in Figure 4, with a number of deposits thus far being identified.
- ◆ In addition bonanza grade mineralisation is interpreted as being controlled by shoots plunging at ~25° to the NW.
- ◆ The NW structures may reflect dilational zones related to dextral (right handed) movement along the major WNW trend – if this is the case you may expect the strongest mineralisation at the junctions of the two structural trends due to higher mineralising fluid flux.
- ◆ The mineralisation is associated with phyllic and k-feldspar (k-feldspar/quartz/pyrite) alteration – again these are typical alteration styles associated with what may be interpreted as quartz-sulphide gold+-copper mineralisation as described by various authors, including Corbett and Leach in a number of publications.

### Upper and Lower Gold Zones

- ◆ These were the first of the Auca zones discovered by White Cliff, with these originally targeted by the Aster interpretation; mineralisation is hosted in a number of WNW trending veins, with true widths generally ranging from 8m to 10m at the LGZ and 2m to 4m at the UGZ.
- ◆ Both zones are open along strike and at depth, with 400m of strike recognised at the LGZ and 300m at the UGZ.

Figure 5: Cross section, LGZ



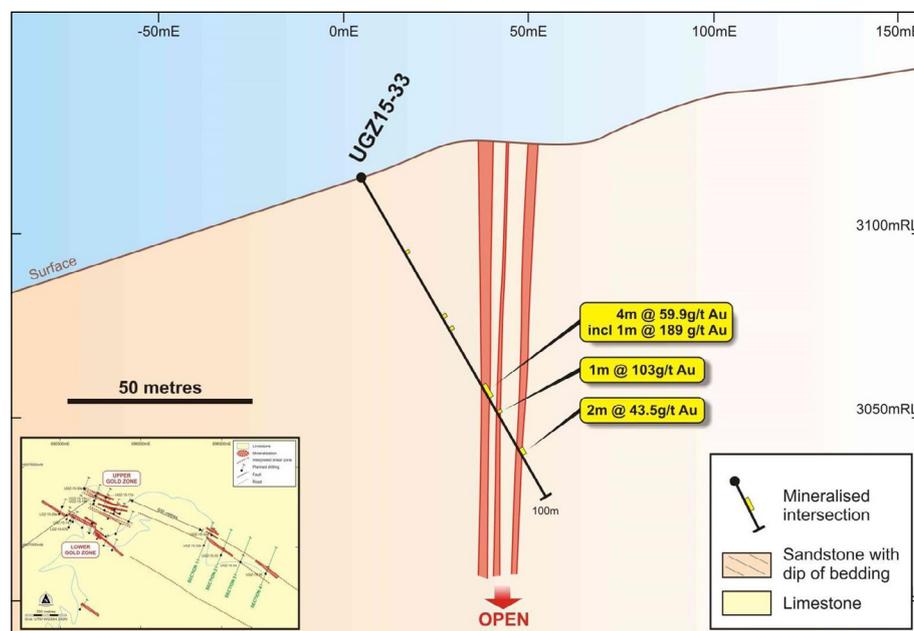
Source: White Cliff

- ◆ In addition to the intersections shown on Figure 5, drilling has intersected up to 4m @ 23g/t Au at the UGZ – this is downhole length and approximately double the true vein width.

## Sandstone Gold Zone

- Originally included as part of the UGZ, the SGZ comprises a series of narrow, sub-vertical NW trending parallel lodes, with a strike length of 400m tested to date – the veins are still open along strike (possibly just to the south) and down dip.
- As mentioned earlier it was the intersections of 4m @ 59.9g/t Au in hole UGZ15-33 and 8m @ 55g/t Au in hole UGZ15-35 that led to the discovery of the high grade Quartz Zone to the east.

Figure 6: Cross section, SGZ

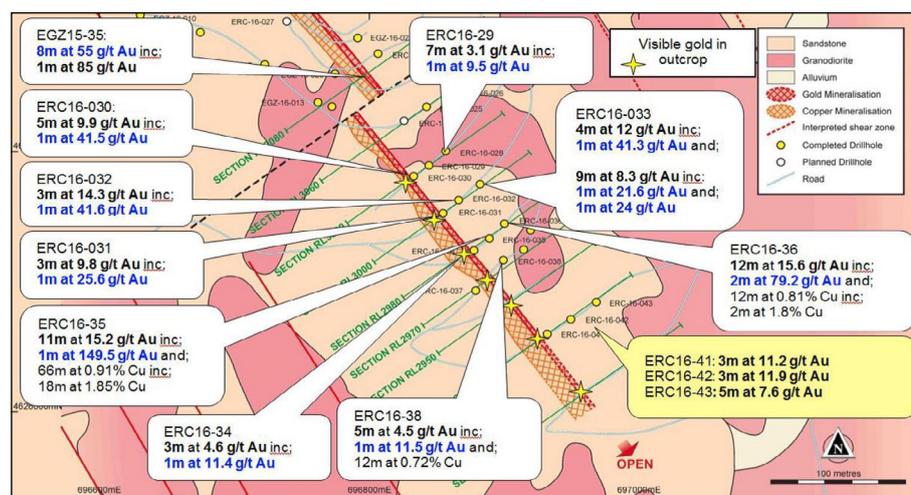


Source: White Cliff

## Quartz Zone

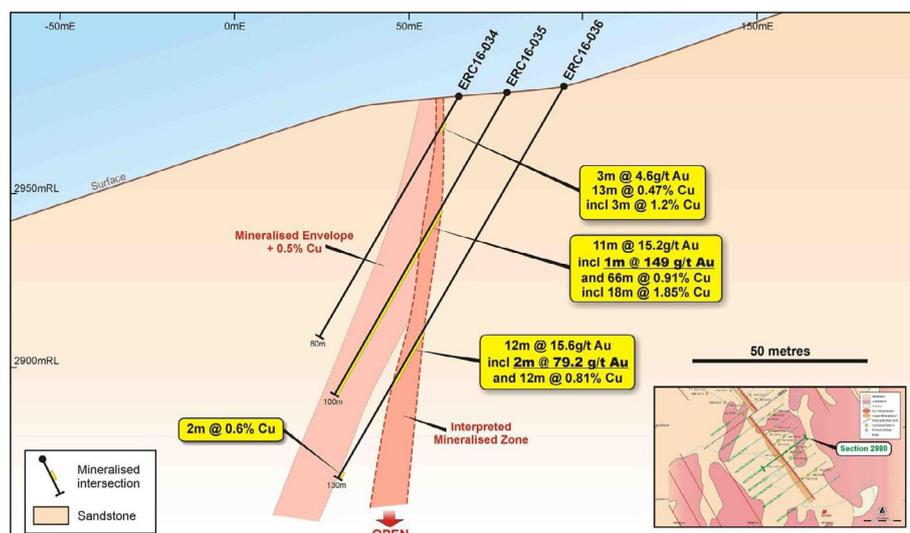
- The QZ is the highest grade of the zones defined to date, and as for the SGZ has an interpreted vertical dip and NW strike, and comprises a single gold vein with a true width varying between 2m and 6m that is open along strike to the south and down dip.
- The QZ also hosts copper mineralisation in a separate sub-parallel structure, which possibly predates the gold mineralisation.

Figure 7: Plan, QZ showing drill intersections – note intersections are down hole widths



Source: White Cliff

Figure 8: Cross section, SGZ



Source: White Cliff

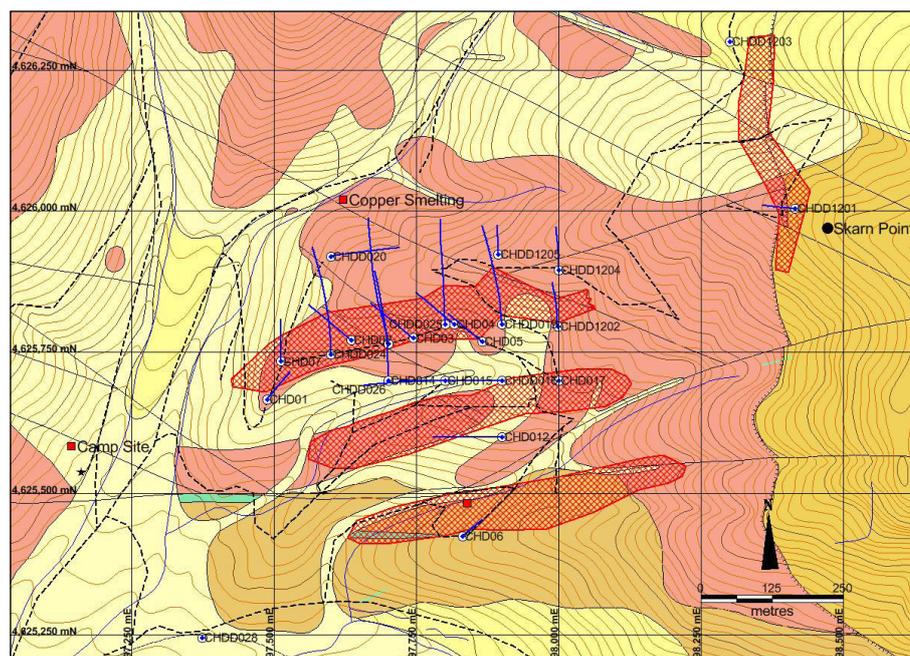
### Other AuCu Gold Prospects

- ◆ Two other prospects have been defined, the Camp Gold Zone (“CGZ”) and Eastern Gold Zone (“EGZ”), both of which are on interpreted NW trending structures.
- ◆ These have had only limited drilling – three holes at the EGZ and one hole at the CGZ, however these have all intersected mineralisation with the prospects being open along strike and at depth.
- ◆ In the case of the CGZ, the single hole, which tested a trench that returned 3m @ 23.8g/t Au, intersected 8m @ 6.83g/t Au, and thus requires further work.

### Chanach Copper Prospect

- ◆ As mentioned earlier this was the original prospect targeted by White Cliff, with work carried out from 2010 to 2012.
- ◆ This defined three interpreted parallel zones of mineralisation (Figure 9), with further work planned dependent upon surplus cash being available above that to be used at AuCu (which has priority).

Figure 9: Chanach geology and drilling



Source: White Cliff

## Metallurgy

- ◆ As presented in the March 2016 Quarterly Report, the Company carried out metallurgical test work on all mineralised intervals intersected in the 2014 and 2015 drilling at Auca – this included 69 tests.
- ◆ The work included grinding the samples to 75µm, and then producing a gravity concentrate and completing cyanide leaching of the concentrate and the gravity tails.
- ◆ This work resulted in excellent recoveries – leaching of the gravity concentrate recovered an average 88.6% of the gold, with combined concentrate and tails leaching recovering 98.9% of the gold.

## Mineral Resource Estimates

- ◆ An updated MRE was completed in early 2017, with this including both copper and gold resources as presented in Table 1.
- ◆ At Auca this has been based on drilling largely on 50m spaced lines and 25m spacing along lines, with this increased to 100m spaced lines and 50m spaced holes at Chanach.
- ◆ Most intersections are shallower than 100m below surface.
- ◆ The resources are based on wireframes using 0.3g/t Au and 0.25% Cu cuts, with the resources reported above 1g/t Au and 0.25% block grades.
- ◆ Although categorised as Inferred at the moment, the Company has stated that some areas may possibly be upgraded to Indicated following a site visit by the Competent Person - this is due within a few months.

**Table 1: Auca Mineral Resource Estimate - 2017**

Table 1: Auca Mineral Resource Estimate - 2017				
Area - Gold	Category	Tonnes	Gold (g/t)	Gold (Ounces)
Lower Gold Zone	Inferred	693,000	4.44	99,000
Upper Gold Zone	Inferred	495,000	4.02	64,000
Sandstone Zone	Inferred	179,000	6.84	39,000
Quartz Zone	Inferred	244,000	9.49	75,000
Quartz Zone Halo	Inferred	89,000	1.55	4,000
Camp Gold Zone	Inferred	48,000	6.83	10,000
Eastern Gold Zone	Inferred	66,000	4.95	11,000
<b>Total</b>	<b>Inferred</b>	<b>1,813,000</b>	<b>5.18</b>	<b>302,000</b>
Area - Copper	Category	Tonnes	Copper %	Copper (tonnes)
Quartz Zone	Inferred	608,000	0.64	3,870
Chanach Porphyry	Inferred	10,000,000	0.41	41,000
<b>Total</b>	<b>Inferred</b>	<b>10,608,000</b>	<b>0.42</b>	<b>44,870</b>

Source: White Cliff

## Exploration Potential

- ◆ Work to date has identified a number of high grade gold veins as well as the porphyry copper mineralisation, with this reportedly testing only some 5% of the strike length of prospective structures.
- ◆ The geological and structural interpretation has highlighted a large number of sites prospective for further vein hosted Au+-Cu mineralisation, with in our view, the NW trending structures being highly prospective, particularly near the intersection with the WNW trending major shears.
- ◆ There is also the potential for additional porphyry mineralisation – a number of additional porphyries have been mapped to the SE and south of Auca.
- ◆ With only around 10,000m of drilling being completed to date and the extent of potentially mineralised structures, it can be considered that the Project has been barely tested, and thus there is the potential for the discovery of significant further mineralisation.

### Upcoming Work

- ◆ Activities at AuCu, as presented in Figure 10, are targeted for ongoing further drilling (5,000m) in 2017, leading to an updated resource estimation in late 2017 - as stated earlier the Company is hoping for an increase to at least 500,000oz of contained gold.
- ◆ In parallel the Company will work on development activities, including mining studies and environmental/permitting activities, in view to commencing construction of a starter operation possibly by 2019 dependent upon the results of the technical work.

Figure 10: Planned work programme, AuCu

Mine Development		Apr 2017	May 2017	June 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
Resource Estimate	Exploration								
Metallurgy	Development								
Pit Optimisation	Development								
Mining Application	Development								
Baseline Studies	Development								
<b>Exploration</b>									
Roads and Tracks	Exploration								
Drilling	Exploration								
Resource Estimate	Exploration								

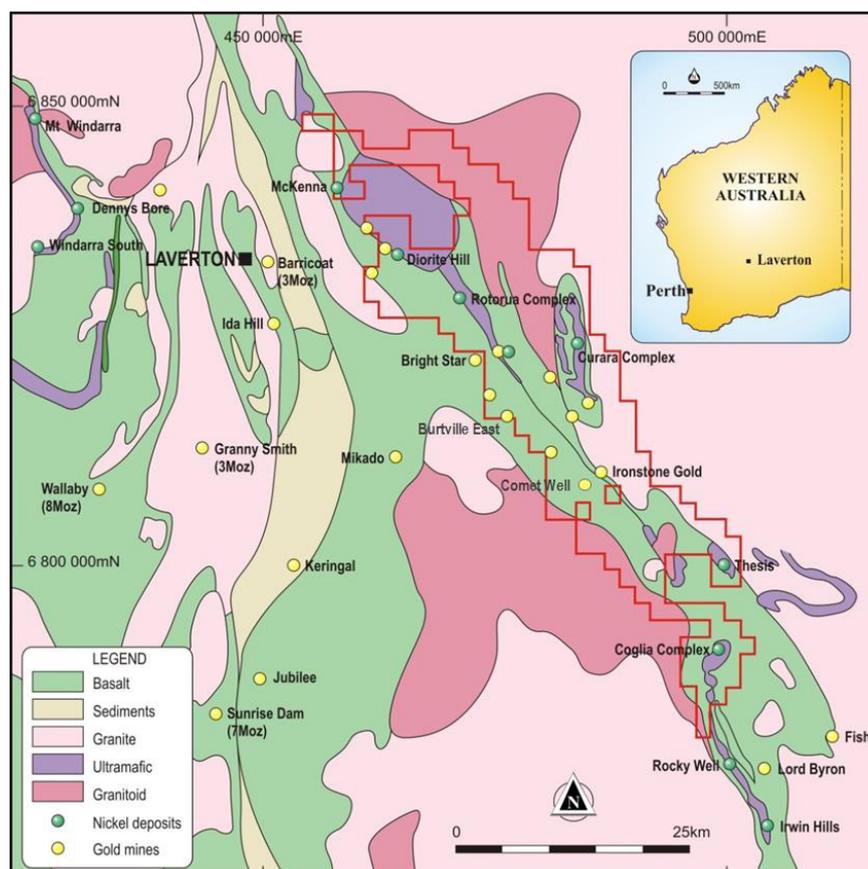
Source: White Cliff

### MEROLIA GOLD AND NICKEL PROJECT – WCN 100%

#### Location and Tenure

- ◆ Merolia comprises seven ELs for a total area of ~690km<sup>2</sup>, with the northern end located some 20km east of Laverton in the Eastern Goldfields of Western Australia (Figure 11).
- ◆ All tenements are in good standing, and are readily accessible by roads and station tracks.

Figure 11: Merolia Gold and Nickel Project



Source: White Cliff

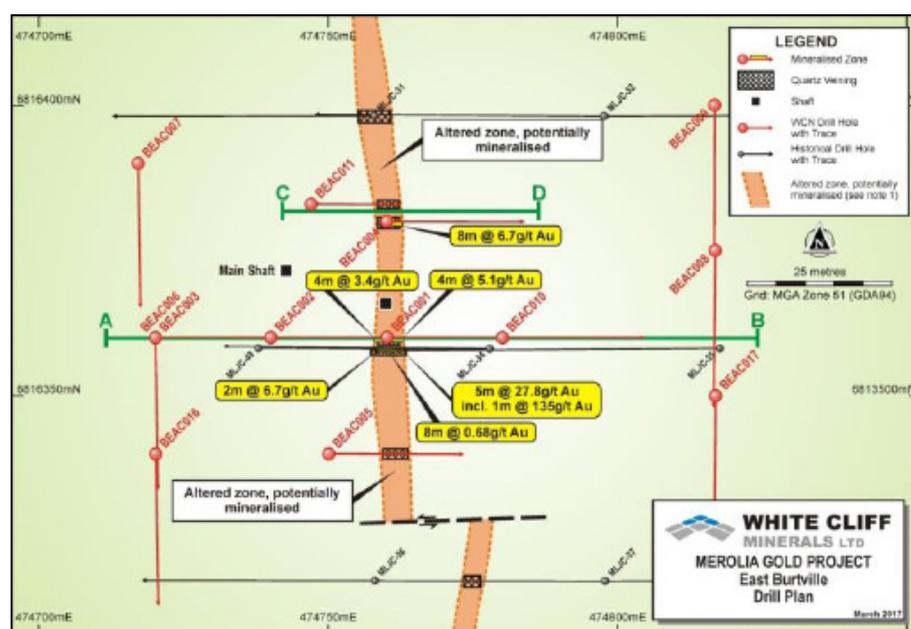
## Geology and Mineralisation

- ◆ The Project covers some 70km strike length of greenstones within the western part of the Burtville Terrane, a part of the world class gold producing Archaean Yilgarn Craton.
- ◆ Greenstone lithologies are dominated by mafic to ultramafic intrusives and volcanic units, with these including layered intrusives – felsic volcanics are also present, with the greenstone units being intruded by later granitoids.
- ◆ The area is considered prospective for intrusive shear hosted gold and komatiite volcanic/layered intrusive hosted nickel sulphide mineralisation, with work to date highlighting this prospectivity.
- ◆ Metal detecting by prospectors operating under a tribute arrangement with White Cliff has discovered significant amounts of gold nuggets at Ironstone and at the 3km long Comet Well gold trend that coincides with a regional structure.

## Work by White Cliffs

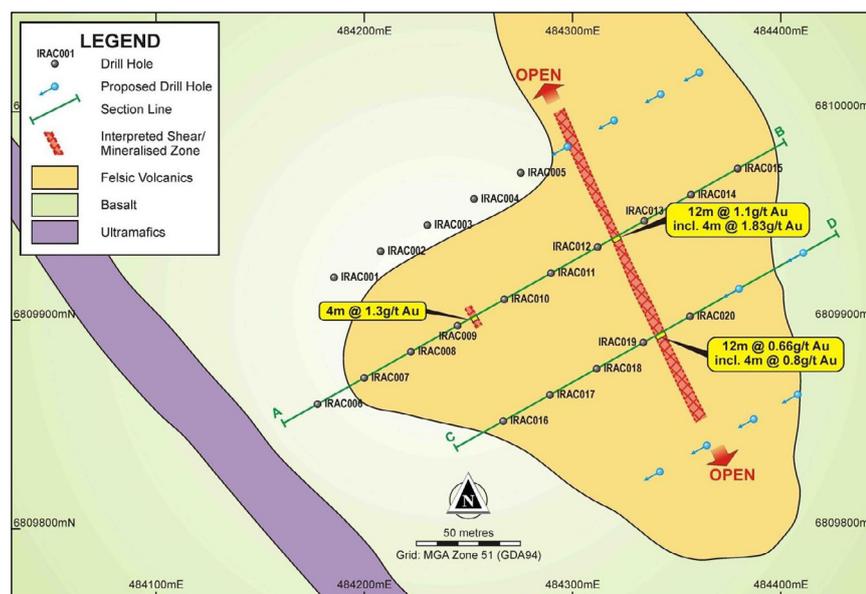
- ◆ The most recent work by White Cliffs has included RC drilling at the East Burtville prospect, reconnaissance aircore drilling at Ironstone and soil sampling in the central part of the tenements (Figures 12 to 14).
- ◆ The drilling at East Burtville (Figure 12) tested a north-south trending 1m to 5m wide sub-vertical quartz vein in metamorphosed basalts identified by historical exploration and mine workings - historical drilling intersected up to 5m @ 27.8g/t Au.
- ◆ Five holes intersected the vein, returning up to 8m @ 6.7g/t Au (Figure 12) - drilling was carried out in various orientations as the strike of the vein was unknown prior to the programme - the vein, which has been drill tested for a strike length of 100m and to a depth of 70m below surface (and still in the oxide/transitional zone) is open along strike and at depth
- ◆ Mineralisation is interpreted as being nuggetty and possibly controlled by discrete shoots, and as such grades can be very variable between adjacent drillholes, although this does not detract from the potential of the prospect.
- ◆ The aircore drilling at Ironstone (Figure 13) followed on from an RC programme in early 2016 that intersected up to 4.5m @ 5.5g/t Au in quartz veined and sheared basalts - the aircore drilling intersected up to 12m @ 1.1g/t Au, including 4m @ 1.83g/t Au - the drilling identified a number of shallow, interpreted sub-vertical mineralised zones that remain open along strike and at depth.
- ◆ The soil sampling has identified a number of anomalous trends as shown in Figure 14 that now require follow up.

Figure 12: East Burtville RC drilling results



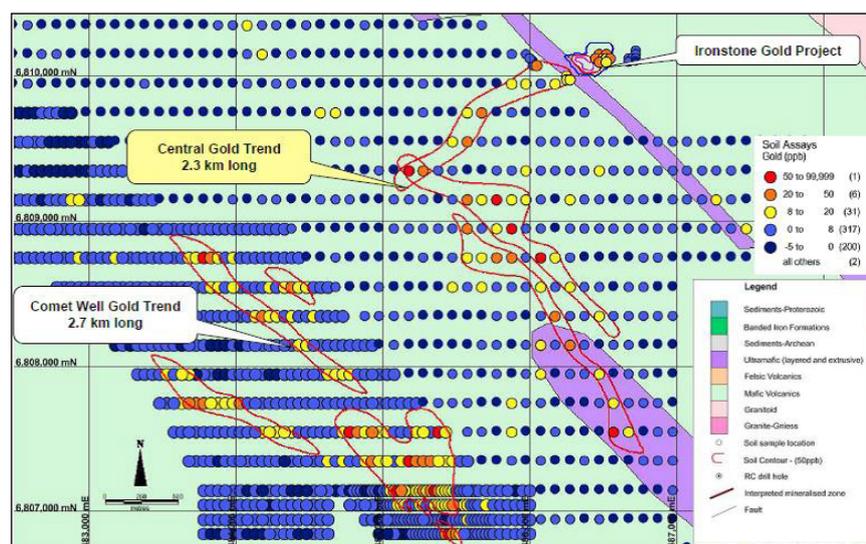
Source: White Cliff

Figure 13: Ironstone aircore drilling



Source: White Cliff

Figure 14: Merolia soil sampling results



Source: White Cliff

- ◆ Previous work included drilling at the Coglia Complex, an interpreted layered ultramafic intrusive considered prospective for basal sulphide nickel-copper-PGE mineralisation – this targeted EM anomalies.
- ◆ The drilling intersected lateritic mineralisation, with intercepts of up to 12m @ 2.18% Ni, however no sulphide mineralisation was intersected.
- ◆ However the Company is of the view that Coglia is still prospective for sulphide nickel-copper-PGE mineralisation given the intersection of highly anomalous zones of platinum (Pt) and palladium (Pd), including 30m @ 240ppb Pd + Pt in fresh ultramafic intrusives.

### Upcoming Work

- ◆ Upcoming work will include aircore and RC drilling to test the soil anomalies and Ironstone amongst other prospects.

## PEER GROUP ANALYSIS

- ◆ Table 2 presents a group of ASX-listed gold developers and miners, with a number having resources hosted in narrow veins.
- ◆ The closest analogy to deposit geometry and grade would be Pantoro, which is currently producing from both underground and open cuts at its Nicolson's Project in the Northern Territory.
- ◆ As a comparison metric we have used EV/equity resource ounce – this however should be considered an indicative comparison only, with this being affected by any number of factors.
- ◆ In the group below the resource weighted average EV is \$54/ounce.
- ◆ This does not take into consideration the value of any other projects the companies may have – this is particularly pertinent in the case of White Cliff, in that no value has been ascribed to the Western Australia projects.

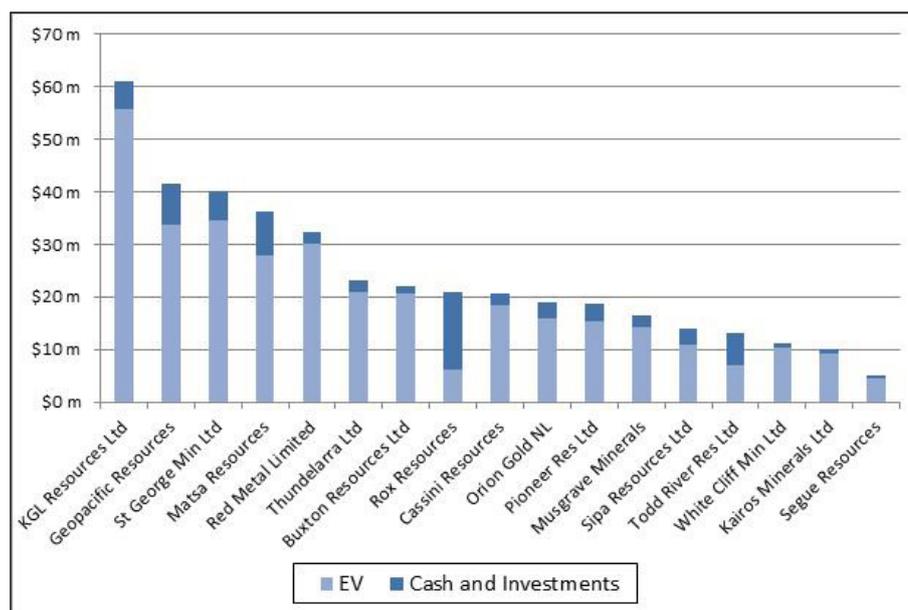
**Table 2: White Cliff peers - gold**

Table 2: White Cliff peers - gold								
Company	Location	EV Undiluted (A\$m)	Global Resource (Mt)	Global Au Grade (g/t)	Company Equity Share	Contained Au Moz Coy Share	EV oz Au equity share	Project Stage
Pantoro Limited	Australia	\$139.7	1.0	6.52	100%	0.22	\$641.76	Producing
Sumatra Copper Gold	Indonesia	\$79.4	7.2	2.08	100%	0.48	\$164.88	Producing
Explaurum	Australia	\$29.1	4.7	2.00	100%	0.30	\$96.14	Exploration
Matsa	Australia	\$26.1	5.6	1.99	100%	0.36	\$72.95	Development
Kin Mining	Australia	\$48.0	12	1.88	100%	0.71	\$67.22	PFS Completed
Gascoyne Resources	Australia	\$122.5	47	1.42	100%	2.14	\$57.29	Development
Medusa Mining	Philippines	\$74.3	11	4.13	100%	1.41	\$52.70	Producing
Anova Metals	USA	\$41.9	16	2.00	100%	1.03	\$40.70	Development
White Cliff Minerals	Kyrgyzstan	\$10.3	1.8	5.20	90%	0.27	\$37.67	Drilling
Primary Gold	Australia	\$25.9	31	1.42	100%	1.40	\$18.46	Scoping
Stonewall Mining	South Africa	\$59.0	27	4.34	100%	3.72	\$15.87	Evaluation

Source: IRESS, Company Reports, IIR analysis

- ◆ White Cliff could also be considered in our peer group of diversified explorers, as shown in Figure 15.
- ◆ This includes companies exploring for a wide range of commodities in varying jurisdictions; the average EV of these companies is \$20 million, and excluding KGL Resources is ~\$17 million

Figure 15: Diversified explorers



Source: IRESS, Company Reports, IIR analysis

## VALUATION

- ◆ We have undertaken a valuation of White Cliffs, using a “sum of the parts” method – this includes AuCu, the Western Australian projects and cash, as shown in Table 3.
- ◆ Unless noted otherwise, all figures in this section are in Australian dollars.

Table 3: White Cliff valuation

White Cliff valuation			
Project	Valuation	Per Share	Notes
AuCu	\$21 million	\$0.011	DCF, 5% DR
Western Australia	\$10 million	\$0.005	Based on diversified peer group
Cash	\$1 million	\$0.001	As at 31 March, 2017
<b>Total</b>	<b>\$32 million</b>	<b>\$0.017</b>	

Source: IIR analysis

- ◆ We have used the DCF valuation as our primary method for AuCu, however have included peer comparison and in-ground multiple (“IGV”) value multiple methods as comparisons to the DCF.
- ◆ Values range from \$12.10 million (IGV multiple) to \$21.31 million (DCF valuation).
- ◆ The peer value reflects the market sentiment on a certain stock, with the DCF valuation representing a purely technical view of the value without sentiment hence the differences.
- ◆ The IGV method uses “rule of thumb” multiples, which is a first pass check and which takes no account of sentiment and limited account of deposit characteristics.

Table 4: AuCu valuations

AuCu valuations				
Method	Unrisked	Ownership	Risk Factor	Risked
NPV <sub>5</sub>	\$118 million	90%	20%	\$21.31 million
Peer value @ A\$50/oz	\$15 million	90%	100%	\$13.50 million
IGV Multiple	\$841 million			\$12.10 million
IGV Multiple @ A\$1,600/ounce	\$504 million	90%	2%	\$9.07 million
IGV Cu Multiple @ A\$7500/t	\$337 million	90%	1%	\$3.03 million

Source: IIR analysis

- ◆ In the AuCu peer value valuation, we have used an EV/ounce of A\$50, which is close to the average EV/ounce of gold for the peers as shown in Table 2, and multiplied it by 270,000oz, being White Cliff’s equity share.

- ◆ The second method we have used is a multiple of the in-ground value (“IGV”) of the gold and copper mineralisation at Aucu and Chanach.
- ◆ We have used current prices, expressed in Australian dollars, using an AUD/USD exchange rate of 0.75.
- ◆ In this method, we use standard multipliers for resource confidence, with these being applied to the assumed NPV of a project:
  - As a rule of thumb we assume that the typical NPV of a project will be 10% of the in-ground value of the resource - in the case of Aucu, given the grade, this is conservative.
  - For inferred resources, the multiplier of the assumed NPV is between 5% and 20%, giving overall multipliers of between 0.5% and 2%.
  - Here we have used 2% (the upper limit) for the gold resources, and, as we consider the potential to mine the Chanach resource more risky than the gold potential, we have used a multiple of 1% for the copper resources.
  - This valuation will rise with increases in resource size, grade and confidence.
- ◆ In this case using the assumption that the NPV will be 10% of the IGV here understates the value - as our DCF valuation shows this value is ~15% when all the value of the copper is taken into account, and closer to 25% when gold only is accounted for.
- ◆ As a final method we have carried out a high level DCF valuation for Aucu – we have used our own inputs and assumptions with these and the outcomes presented in Table 5.
- ◆ As is our practice with gold projects, we have used a discount rate of 5%, however have applied a risk factor of 20% to reflect the inferred status of the MRE.
- ◆ Note that we have not included any value for the copper in this valuation – depending on the process route used the Company may produce copper from the Aucu operations, however this would involve extra operating and capital costs but could potentially provide significant additional cash flow, particularly since copper mineralisation forms part of the “waste” to the gold mineralisation and will have to be dug up anyway, so the mining cost is effectively nil.
- ◆ We have also assumed that just the gravity concentrate, and not the tails will be treated, and as such we have used processing recoveries of 90% - there is upside in this with recoveries being ~99% with treatment of the tails.
- ◆ There will also be possible upside from scheduling - it would be probable that the higher grade QZ will be mined first, thus providing higher early cash flow and significantly lower costs/ounce.
- ◆ This is to be considered as an indicative valuation only, however we have used what we consider are reasonable inputs bench marked against current operations and development studies, and using widely used industry cost curves.

**Table 5: Aucu modelling parameters**

Aucu modelling parameters			
Production Parameter	Value	Financial Parameter (A\$ unless noted otherwise)	Value
Resource to Reserve Conversion	80%	Gold Price US	\$1,260
Mining Inventory Tonnage	1,450 kt	Gold Price AUD (@0.75)	\$1,680
Mining Inventory Grade	5.20 g/t	Mining Cost/tonne moved	\$3.00/t
Mining Dilution	20%	Mining Cost/ROM Tonne	\$63/t
Diluted Tonnage	1,740 kt	Milling Cost/ROM Tonne	\$35/t
Diluted Grade	4.33 g/t	G & A Cost/ROM Tonne	\$7/t
Processing Recoveries	90%	Cash Cost/ROM Tonne	\$105/t
Recovered Gold	218,260 oz	Cash Cost/Ounce	\$837/oz
Mine Life	4 years	Royalty @ 3%	\$50/oz
Average Annual Gold Production	54,565 ozpa	Capex	\$35 million
Annual Ore Mining Rate	435 ktpa	Capex/Ounce	\$160/oz
Strip Ratio	20 :1	Discount Rate	5%
Overall Pit Wall Angle	45 degrees	NPV	\$118 million
Annual tonnes moved	9,138 ktpa	IRR	118%

Source: IIR analysis

## CAPITAL STRUCTURE

- ◆ White Cliff currently has 1,867 million shares, 151.3 million listed options, 232.9 million unlisted options and 23.5 million performance rights on issue.
- ◆ The top shareholder is Andy Igo (ADE Super Fund Pty Ltd), with a 13.3% holding.
- ◆ The top 20 hold 43.92%, with directors holding 3.76%.
- ◆ The Company has over 2,000 shareholders.

## RISKS

- ◆ **Exploration and resource expansion** - This is the key risk for any exploration company, with survival largely based on the results of exploration. This is somewhat mitigated in the case of White Cliff given the prospectivity of its exploration projects and the results of work to date.
- ◆ **Funding** - This is a perennial issue for junior explorers (especially given that in the case of White Cliff funds need to be raised), however the Company, having found gold is in a relatively "sweet" spot in the market at the moment.
- ◆ **Markets** – Although relatively buoyant at the moment, markets can turn on a dime and funding for juniors can dry up very quickly.
- ◆ **Sovereign** – Although there have been some well publicised disputes between the Kyrgyz Government and miners, the country has seen a number of mines open in the recent past, and reportedly White Cliff has had no issues – the tenement has been renewed twice under White Cliff's period of ownership. The country still does carry sovereign risk, however recent years, particularly since the adoption of a new constitution in 2010 have seen increasing political stability.

## BOARD AND MANAGEMENT

- ◆ **Mr Michael Langoulant – Executive Chairman and Company Secretary:** Mr Langoulant is a Chartered Accountant with over 20 years' experience in public company corporate administration and fund raising. He has acted as finance director, CFO, company secretary and non-executive director with a number of publicly listed resource companies.

He is currently Company Secretary of ASX listed Viking Mines Limited. Mr. Langoulant initial experience was gained through 10 years with large international accounting firms. Since 1994 he has operated his own corporate consultancy firm.

- ◆ **Mr Todd Hibberd – Managing Director:** Mr Hibberd is a geologist with an extensive background in exploration and mining including 20 years in exploration, resource estimation, mine development and production management. Recent experience includes two years as Managing Director of ASX listed Stonehenge Metals Limited and ten years working for Newmont Mining Corporation in various senior exploration and production roles.

Mr Hibberd holds a Bachelor of Science (Hons) in Geology from the University of Canterbury and a Master of Science in Mineral Economics from Curtin University. Mr Hibberd is member of the Australian Institute of Company Directors, the Society of Economic Geologists, and the Australasian Institute of Mining and Metallurgy and has sufficient experience to be considered a "Competent Person" when reporting resources and reserves according to the Joint Ore Reserve Committee (JORC) guidelines.

- ◆ **Mr Rodd Boland – Non-Executive Director:** Mr Boland is a corporate advisor with over 20 years of corporate and financial industry experience in investment banking, executive management and the capital markets including advising to and raising equity for corporations in the form of venture capital, private equity, seed offering and initial public offerings.

Mr Boland holds a Bachelor of Commerce from the University of NSW, Sydney and an MBA from the University of Notre Dame, South Bend Indiana, USA.

## BACKGROUND – KYRGYZ REPUBLIC

### Government

- ◆ The Kyrgyz Republic is democratic republic, having until independence in August 1991 been one of the Central Asian republics of the USSR.
- ◆ Since 2010 when a new constitution was adopted (following riots that ousted the President) it has had a unicameral parliament (the Supreme Council) with 120 seats, however individual parties are limited to 65 seats – prior to this it had two houses, with elections being held every five years.
- ◆ The new constitution also restricts the power of the President, and has led to a significant increase in political stability.
- ◆ Presidents are elected for six year terms using a two round system, with re-appointed not allowed – the next Presidential election is in November 2017.
- ◆ Prime Ministers are appointed by the President; however this has to be confirmed by the Supreme Council for the appointment to move from acting to full.
- ◆ Since independence the country has developed both criminal and civil legal codes which are administered by the judiciary.

### Population

- ◆ The estimated population in 2014 was 5.8 million, with ~73% being ethnic Kyrgyz with the majority of the rest being Uzbek and Russian.
- ◆ The main religion is Islam (75%), with Russian Orthodox at 20%.
- ◆ The largest city is Bishkek, the capital, with some 900,000 people; however the country is overwhelmingly rural with only ~36% living in urban areas.

### Economy

- ◆ The Kyrgyz Republic is one of the poorest countries in Central Asia, with an estimated 2016 GDP of US\$21 billion (using purchasing power parity) – the country rates 145 in the world.
- ◆ This equates to a GDP per capita of US\$3,600, with a 2016 world ranking of 182, with real GDP growth being estimated at 2.2%.
- ◆ Key contributors to GDP, as estimated in 2013, include agriculture (20.8%), Industry (34.4%) and services (44.8%).
- ◆ Given the impoverished nature of the country the Government is keen to drive economic growth and increase exports.
- ◆ Mineral exports include gold, mercury, oil and uranium, with others including textiles, meat, garments and electricity – key trading partners include Switzerland, Uzbekistan and Kazakhstan – total exports in 2016 were estimated at US\$1.452 billion, with precious metals reportedly making up 34% of export income.

### Mining Law and Current Operations

- ◆ Given its contribution to exports, mining is a vital part of the Kyrgyz Republic's economy.
- ◆ The country has a well-developed mining law, with similarities in tenure, including exploration and mining licences to many other jurisdictions.
- ◆ In an effort to attract mining investment into the country, in 2012 amendments were made to the Tax Code reducing taxes for mineral projects – taxes include:
  - A 3% ad-valorum royalty on production.
  - Sales tax of 2%.
  - Region tax of 2%
  - Income tax is variable between 0% and 20% - this depends on the price of gold, and is 0% when gold is below US\$1,300/oz.
  - VAT of 12%.
- ◆ The amendments also abolished the previous requirement to enter into a profit sharing agreement ("PSA") with the Government.
- ◆ The country is host to a number of gold and gold-copper deposits, as shown in Table 6 - a number of these can be considered Tier 1 assets, and total gold inventory is over 41Moz.

- ◆ Recent start-ups include Ishtamberdy and Taldy Bulack, both of which commenced operations in 2015, and Bozymchak which commenced operations in 2014.

**Table 6: Kyrgyz Republic gold-copper deposits**

Kyrgyz Republic gold-copper deposits				
Company (Exchange)	Deposit	Contained Gold (Oz)	Contained Copper (kt)	Status
Centerra (TSX)	Kumtor	13.5 Million		Production
Charaat (AIM)	Charaat	6.1 Million		Feasibility
Linbao Gold (HK)	Ishtamberdy	5.0 Million		Production
KAZ Minerals (LSE)	Bozymchak	1.0 Million	170	Production
Zinjin Mining (HK)	Taldy Bulack-Lev	4.1 Million	561	Production
Highland Gold (LSE)	Unkurtash	3.5 Million		Scoping
Socagest SA	Taldy Bulak-Talas	3.3 Million	223	Feasibility
China Gold (HK)	Kuru Tegarek	3.1 Million	1000	Development
Socagest SA	Andash-Talas	679,000	77	Feasibility
Guizhou (SOE)	Shambesai - Obdilla	697,000		Feasibility
White Cliff (ASX)	Aucu	302,000	44	Scoping

Source: White Cliff

### Challenges

- ◆ Reported challenges facing the The Kyrgyz Republic include corruption and organised crime.
- ◆ It needs to be said however that these are not problems faced by the Kyrgyz Republic alone – a number of other jurisdictions that Australian miners successfully operate in face the same challenges.
- ◆ On the positive side and as mentioned earlier the last seven years has seen a significant increase in political stability and a Government keen to drive economic growth, including through attracting investment in the mining sector.

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