

6 November 2018

BLK AU Mining & Metals


Source: ASX

Market data

ASX symbol	BLK
Price (A\$)	0.04
12m High (A\$)	0.11
12m Low (A\$)	0.04
Shares (m)	1,341
Mkt Cap (A\$m)	58

Company summary

ASX-quoted Blackham Resources is an established junior gold producer, its Matilda-Wiluna operation in Western Australia targeting 77-89koz in FY2019, at AISC of A\$1,250-1,450/oz. The company is progressing studies on the potential to expand annual output to >200koz given its vast (6.7Moz) resource base.

Management

Executive Chairman	Milan Jerkovic
Managing Director	Bryan Dixon
COO	Richard Boffey
CFO	Anthony Rechichi
NED	Geoff Jones
NED	Greg Fitzgerald
NED	Tony James

Key forecasts

Yr-end 30 June	2018	2019e	2020e
Sales (A\$m)	118.3	136.7	147.4
EBITDA (A\$m)	1.4	27.6	42.4
EPS (A\$)	(3.0)	1.3	1.1
EV/EBITDA (x)	na	2.6	1.7
P/E (x)	na	3.2	3.9
Net Debt (A\$m)	11.6	5.8	40.0

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Blackham Resources*

Production and growth: unlocking Wiluna's riches

Having successfully consolidated and re-established production on one of Australia's most prolific goldfields, Blackham is now well set to progress the next phase of growth from its 6.7Moz Wiluna portfolio. A 2017 PFS demonstrated the merits of expanding into the higher-grade sulphides (70% of resources) and developing refractory processing capacity to increase overall gold production from the current 80-90koz pa rate (all free-milling) to over 200koz pa. Potentially deliverable for a modest capital outlay of just A\$114m, this could see AISC lowered to cUS\$800/oz and margins widened to 35-40%. Moreover, with oxide reserve additions, current free-milling operations could be extended, pushing combined post-expansion production closer to 250koz pa. Yet Blackham's shares are trading at a heavy discount to peers (2.4x forecast FY2019 cash margin and US\$34/oz reserve, vs sector averages of 5.5x and US\$339/oz), a hangover from production and financing challenges in 2017. With operations now stabilised and near-term balance sheet pressures alleviated, we feel this mispricing offers a compelling entry point. Our A\$0.18/share diluted sum-of-parts valuation points to 4x upside. And with scope for further optimisation and mine-life extension beyond that considered in our model, upside may be greater still. Achieving operational targets, growing the free-milling inventory and completing expansion study work should kick-start an upwards re-rating, in our view, paving the way for funding and development of the expansion to more fully unlock Wiluna's undoubted potential.

- ▶ **Operational turnaround achieved:** Blackham stabilised its free-milling operations over H1 CY2018, achieving annualised rates of 80koz pa at an AISC of A\$1,294/oz. FY2019 guidance is 77-89koz at an AISC of A\$1,250-1,450/oz. Assuming gold holds around current levels, we estimate this could see Blackham generate EBITDA of approximately A\$28m, sufficient to meet debt obligations, complete a feasibility study of the refractory expansion plan, and to invest in resource-reserve conversion and resource expansion drilling.
- ▶ **Free-milling extension potential:** We think drilling is very likely to add oxide and free-milling sulphide reserves, extending the life of the current operation beyond the three remaining years under the reserve mine plan. Given the brownfield potential of drilling results to date, we believe management's target of developing a 'rolling' five-year free-milling mine plan is eminently achievable.
- ▶ **Refractory expansion plan progressing:** Operational stability coupled with balance sheet restructuring initiatives have allowed Blackham to now refocus on plans to expand into the vast refractory sulphide resources. This could drive a step-change in production to 200-250koz pa and a lowering of unit costs to cUS\$800/oz. Moreover, the abundant existing above and below-ground infrastructure that Blackham has inherited (its properties have seen several hundred million dollars of investment by previous owners) could see the expansion delivered at a capital-efficient outlay of just A\$114m (per 2017 PFS).
- ▶ **Undemanding valuation:** Our funding-diluted sum-of-parts valuation of A\$0.18/share equates to 4x Blackham's current share price, with market peer comparable analysis pointing to even greater potential valuation upside. We believe the current heavy market discount to our valuation should narrow over the coming months as Blackham delivers against its near-term operational targets, grows its free-milling mining inventory, and de-risks its refractory expansion plan through delivery of a definitive feasibility study in H1 CY2019.

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Investment summary

Blackham has consolidated ground that has yielded >4.4Moz of past production and has current resources of 6.7Moz

Over the past seven years Blackham has successfully consolidated the Wiluna goldfield to the point that it now controls some 1,440km² of ground that can lay claim to over 4.4Moz of historic gold production and which now boasts an enviable array of existing infrastructure. The group's strategy of acquisition and brownfield drilling has resulted in attributable resources growing from just over 0.5Moz in 2012 to 6.7Moz today, dwarfing that of many junior gold-producer peers globally. Around 20% of this resource base is classified as free-milling and is the focus of Blackham's current 80-90koz pa operation, which commenced in 2016 utilising the refurbished Wiluna processing facility. This free-milling stage is a pre-cursor to the company's longer-term aim of unlocking the deeper value of its substantial resource endowment by reinstating refractory processing capability to treat higher-grade sulphide ore, thereby expanding overall production rates to over 200koz pa and lowering unit costs. Blackham is currently optimising its expansion plan, building on the positive results of a 2017 prefeasibility study (PFS), with a view to making an investment decision on the project by the end of FY2019 (year ending 30 June).

Production set to stabilise at 77-89koz in FY2019, at AISC of A\$1,250-1,450/oz...

Free-milling operations stabilised – margins set to widen in FY2019

Blackham has successfully turned around the free-milling Matilda-Wiluna operation over H1 CY2018, overcoming geotechnical and mine scheduling issues (exacerbated by severe weather conditions) at the Matilda open-pits which adversely impacted profitability in H2 CY2017 (H1 FY2018). Production in H1 CY2018 (H2 FY2018) reached an annualised rate of 80koz pa at an all-in sustaining cash cost (AISC) of A\$1,294/oz (US\$998/oz), and the group believes output could increase further to up to 89koz in FY2019 (the top-end of guidance range of 77-89koz), with the AISC level improving to A\$1,250-1,450/oz (US\$910-1,060/oz).

...which we estimate could see generate EBITDA of A\$28m

Assuming gold holds at its FY2019 year-to-date level of around US\$1,200/oz, we estimate this could see Blackham generate EBITDA of A\$28m in FY2019. Such cash generation should adequately cover the company's debt repayment obligations this year, which are now just A\$4m (before interest, and assuming no early cash repayment of convertible debt) following the recent convertible note issue (the proceeds from which extinguished the most pressing of two debt lines). Moreover, it should also allow Blackham to continue investing in drilling to extend free-milling operations, and to complete a definitive feasibility study (DFS) of the expansion plan.

Resource conversion and exploration to extend free-milling mine life

The company's free-milling reserves were 0.3Moz at end FY2018, sufficient for a further three years' mining at current production rates. However, management believes there is ample opportunity to extend reserves through conversion of additional resources on in-fill drilling (current free-milling in-ground resources stand at 1.3Moz) and through delineation of additional free-milling mineralisation with brownfield drilling. It is consequently targeting the development and maintenance of a 'rolling' five-year free-milling mine plan, which we believe is eminently deliverable based on the resource upside potential we saw on a recent visit to site.

Substantial free-milling reserve upside potential – 'rolling' five-year mine plan targeted

Mineralisation is considered open along strike at both Wiluna (where open-pit mining is just getting underway) and Matilda (where reserves are almost depleted), while drilling has identified further potential below and above the current underground operations at Golden Age. Lake Way, meanwhile, hosts several potential large-tonnage, low-to-moderate grade targets, which with further drilling could add significantly to the existing free-milling resource of 0.3Moz at the historic Williamson open pit (where mining is scheduled to recommence next year).

Capital efficient expansion into sulphides offers potential for step change in production scale and reduction in unit operating costs

Expanding in to the higher-grade sulphides could increase production to >200koz and lower costs

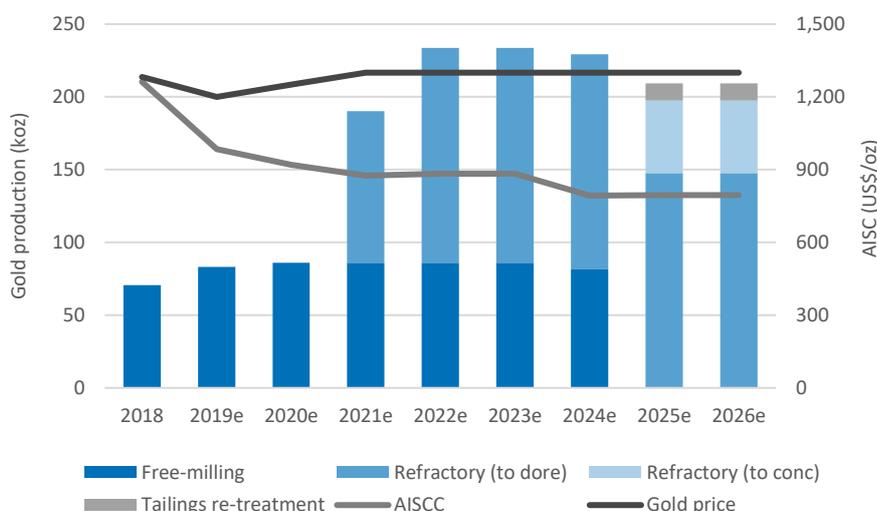
With operational stability now established, Blackham is refocusing on plans to expand production through exploitation of the substantial refractory sulphide resource inventory (70% of current resources). A 2017 PFS demonstrated the economic merits of a multiple ore source, open-pit/underground, medium-grade mining plan (in contrast to the solely underground strategy that saw the previous owner’s undoing). Assuming a new 1.5Mt pa bio-oxidation (BIOX) based refractory circuit is developed to run in parallel with the current 1.8Mt pa free-milling processing facility, the PFS estimated gold production could increase to over 200koz pa at reduced AISC of A\$1,058/oz (<US\$800/oz).

Extensive existing infrastructure should limit capex requirements

Reflecting the extensive array of already installed above and below-ground infrastructure, the capital cost of delivering the expansion, as estimated by the PFS, could be just A\$114m (or less than US\$700/oz of additional annualised production). This compares very favourably against the capital intensity levels typically associated with greenfield gold developments. And there may be potential to defer a significant portion of capex by taking a staged development approach, such as delaying installation of a BIOX circuit and instead going to an intermediate sulphide concentrate product for a period (potentially enabling a subsequent BIOX development to be funded through internal cash generation, reducing the upfront capex requirement by A\$30-40m).

All options are being evaluated under a DFS work programme, which is now well advanced. Notwithstanding the potential for a staged development approach, management believes there is significant scope to improve upon the PFS outcomes. Ongoing resource-to-reserve conversion and exploration drilling could materially extend the existing free-milling operation (the PFS assumed free-milling operations end on depletion of the then reserve base); mine design and scheduling optimisation could bring forward the high-grade underground component of the sulphide mine plan; and the current process plant could be used to retreat the recently announced Wiluna historic tailings resource on cessation of free-milling operations.

Figure 1: Forecast gold production by source and cost profile (next eight years)



Source: ARC estimates

Blackham Resources*

We estimate the expansion could see annual EBITDA rise to cA\$150m

We believe optimisation of the expansion plan could see eventual production rates closer to 250koz pa. Our own conservative cash flow model assumes an average rate of around 220koz pa (peaking at 234koz pa), at which level we estimate AISC should average US\$800-850/oz. On this basis, and assuming a long-term gold price of US\$1,300/oz, we believe this could see annual EBITDA rise to around A\$150m by FY2022 (assuming the expansion project is financed and executed in FY2020), compared with under A\$2m in FY2018.

Heavy market discount to peers offers compelling entry point

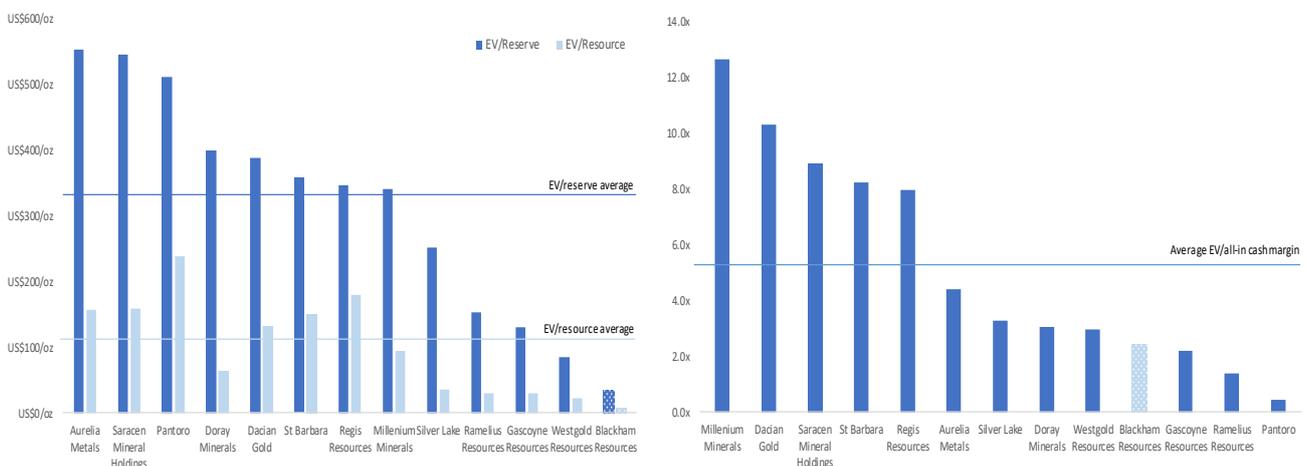
Significant market discount to peers

Despite this impressive production and earnings growth potential, Blackham is trading at a heavy market discount to junior and mid-tier gold producing peers in Australia. We believe this discount is reflective of a hangover from the production difficulties encountered last year, the negative impact of which was compounded by a subsequent emergency, and dilutive, equity funding at the beginning of this year. We believe that those issues have now been successfully remedied. Moreover, near-term balance sheet pressures have been alleviated following the recent convertible note issue (which extinguished the line of debt repayable this year).

Our diluted NPV analysis points to 4x upside potential

Our NPV analysis (diluted for future funding) points to potential value at **A\$0.18 per share**, four times Blackham's current share price. We believe the current heavy market discount to NPV should erode as Blackham further demonstrates that last year's production challenges are firmly behind it through future operational results delivering against targets. Moreover, de-risking the planned expansion through completion of feasibility study, financing and ultimately construction should be a catalyst for potentially significant re-rating of the shares, in our view.

Figure 2: Australian junior/mid-tier producer EV per resource/reserve (LHS) and EV per all-in sustaining cash margin (RHS)



Source: Bloomberg, company websites

Management and operational team in place to deliver

Blackham has over the past 18 months implemented several personnel changes at both board and operational management level that, in our opinion, have significantly enhanced its collective experience and skills set as it embarks on the next stage of its evolution. Vastly experienced mining executive Milan Jerkovic moved from non-executive to executive chairman, and, together with managing director Bryan Dixon, has successfully navigated the company through the past year's operational and financial challenges. The board has been further strengthened through recent non-executive additions, and under COO Richard Boffey we believe the operational management team now has the requisite expertise and experience in place to deliver the production expansion plan at Wiluna.

Upcoming catalysts

- ▶ Ongoing exploration and drilling updates – throughout CY2018/19
- ▶ Q2 FY2019 operational results – January 2019
- ▶ Updated resource – early CY2019
- ▶ Expansion plan optimisation/DFS – March/April 2019

Valuation

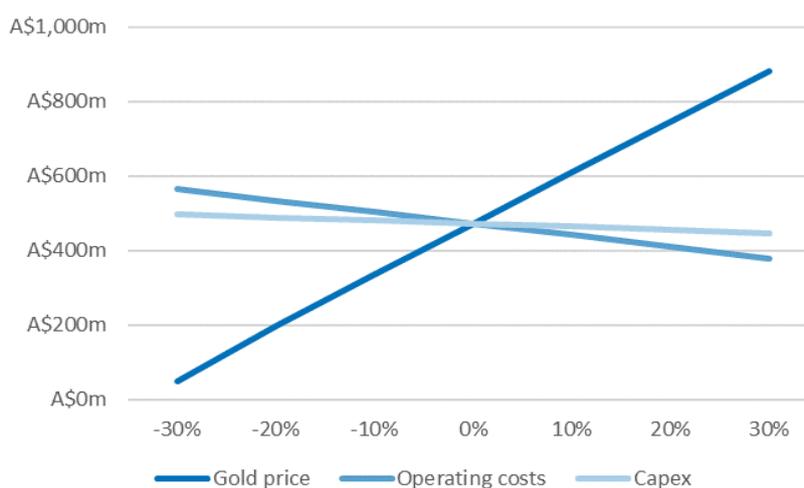
DCF analysis

Our financial model of Blackham's Matilda-Wiluna operation is based on the company's market guidance for the current free-milling operation and the PFS operational and cost parameters for the planned sulphides expansion thereafter, assuming an investment decision is made on the expansion by end FY2019 (with refractory operations commencing midway through FY2021 following an 18-month construction period).

As detailed on pp28-29, we have incorporated some of our own assumptions to the expanded production profile proposed in the PFS to reflect: an anticipated extension of free-milling operations beyond the current reserve life; slightly more front-loaded exploitation of higher-grade underground refractory ore relative to the PFS scenario; and anticipated processing of the recently announced historic tailings resource at Wiluna on cessation of free-milling operations. We believe there may be further potential for both free-milling and refractory operations to be extended beyond the nine to ten-year mine life (before tailings reprocessing) assumed in our model.

Assuming a long-term gold price of US\$1,300/oz from FY2021 (see pp35-36 for further discussion) and an 8% discount rate, we arrive at an NPV estimate for an expanded Matilda-Wiluna operation of A\$473m on an unfunded basis (after working capital adjustments). Figure 3 below illustrates the sensitivity of our NPV to gold price, opex and capex movements. Our NPV estimate is most sensitive to revenue, highlighting the leverage to gold price.

Figure 3: Matilda-Wiluna NPV_{8%} sensitivity analysis



Source: ARC estimates

In our sum-of-the-parts we incorporate financing assumptions for the A\$120m funding requirement that we estimate may be required to deliver the production expansion. For simplicity, we assume this is funded 50:50 debt/equity, with debt secured at rates in line with the company's current cost of debt and equity issued at the company's current share price (rounded). We consider both assumptions conservative – project debt may be available at more attractive rates, while progress on the company's current operations and reserve additions could drive positive share-price movement ahead of a financing decision.

Our NPV analysis points to fair value at A\$0.18/share on a fully-funded, fully-diluted basis

Our resulting fully-funded, fully-diluted NPV estimate for Matilda-Wiluna (incorporating debt and equity funding cash inflow and debt repayment cash outflows) is A\$519m. After also incorporating our NPV estimate of future corporate-level costs (A\$34m) and our estimate the company's current net debt position (A\$15m), we arrive at a company sum-of-parts valuation of A\$471m. This equates to **A\$0.18/share** after diluting for our assumed equity funding (at A\$0.045/share), four times Blackham's current share price. This equates to just under 0.6x what would be our unfunded, undiluted NAV estimate of A\$0.32/share.

We would expect the current heavy market discount to NAV to erode as Blackham delivers on its near-term operational guidance and as it successively de-risks the expansion plan through resource-reserve conversion, final feasibility study, funding and construction. We note that, were we to exclude the sulphide expansion and tailings retreatment components from our model (and associated funding dilution), our sum-of-parts would be A\$0.10/share, still more than double Blackham's current share price. Moreover, given the substantial resources over and above the inventory considered in our model, we believe there is scope for upside to our NPV estimate.

Figure 4: Sum-of-the-parts valuation

		A\$m
Matilda-Wiluna (fully funded*)	NPV _{8%}	519
Corporate G&A	NPV _{8%}	(34)
Current net debt	estimate	(15)
NAV		471
Diluted shares out*		2,674m
NAV per share		A\$0.18

*Assumes A\$120m expansion financed 50% debt, 50% equity (at A\$0.045/sh) Source: ARC estimates

Figure 5 below illustrates the sensitivity of our fully-funded, fully-diluted NAV estimate to long-term (from FY2021) gold price and discount rate assumption.

Figure 5: NAV (A\$/share) sensitivity to gold price* and discount rate

		Gold price (US\$/oz)						
		1,000	1,100	1,200	1,300	1,400	1,500	1,600
Disc rate	12%	0.05	0.08	0.11	0.14	0.17	0.20	0.23
	10%	0.06	0.09	0.12	0.16	0.19	0.22	0.25
	8%	0.07	0.10	0.14	0.18	0.21	0.25	0.28
	5%	0.08	0.13	0.17	0.21	0.25	0.30	0.34

*Long-term price deck from FY2021

Source: ARC estimates

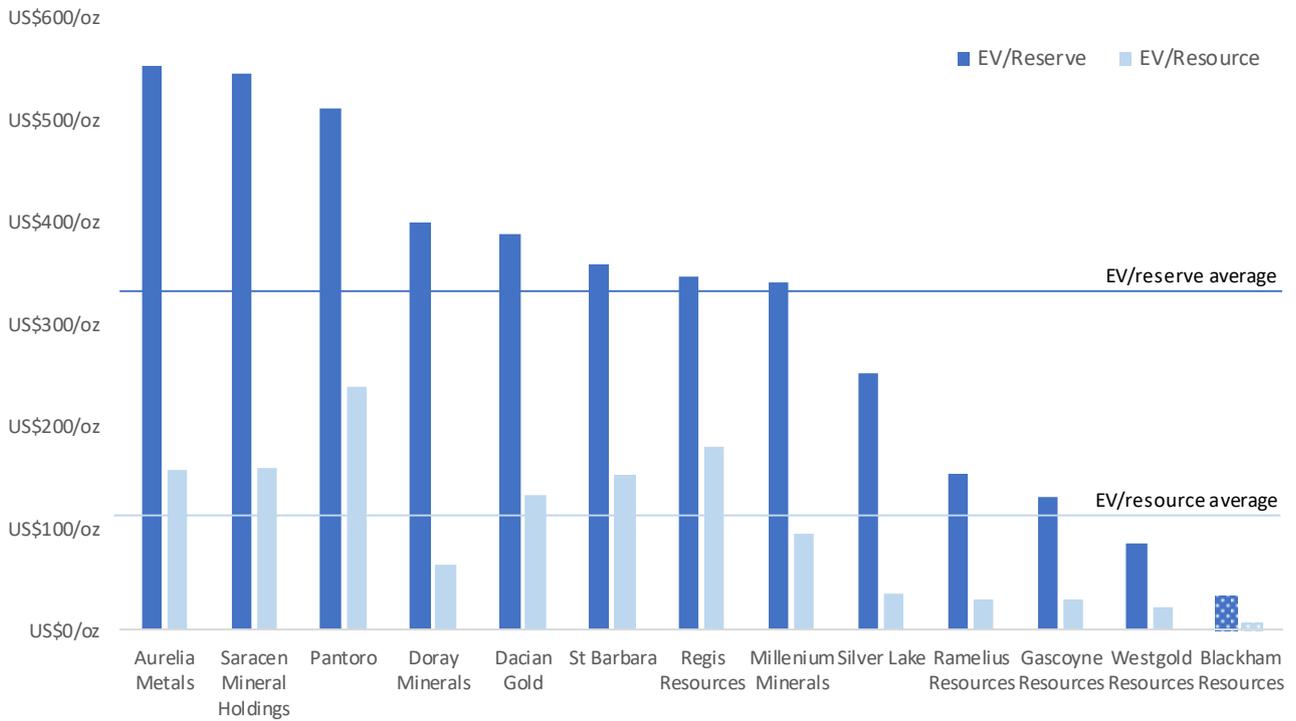
Market comparable valuation metrics

Significantly undervalued relative to Australian junior producer peers

Comparing Blackham against other junior and mid-tier (sub 1Moz pa output) Australian producers further underlines the compelling value opportunity relative to market peers. On simple EV/reserve and resources metrics, Blackham is trading at just US\$34/oz reserve and US\$8/oz resource, multiples below the peer-group averages of US\$339/oz and US\$108/oz respectively. And on an EV/cash margin basis (based on mid-range FY2019 production and cost market guidance for all companies) it is trading at a lowly 2.4x, versus the peer-group 5.5x. This despite our expectation that Blackham's margin could widen markedly over coming years on delivery of an expanded operation at Matilda-Wiluna.

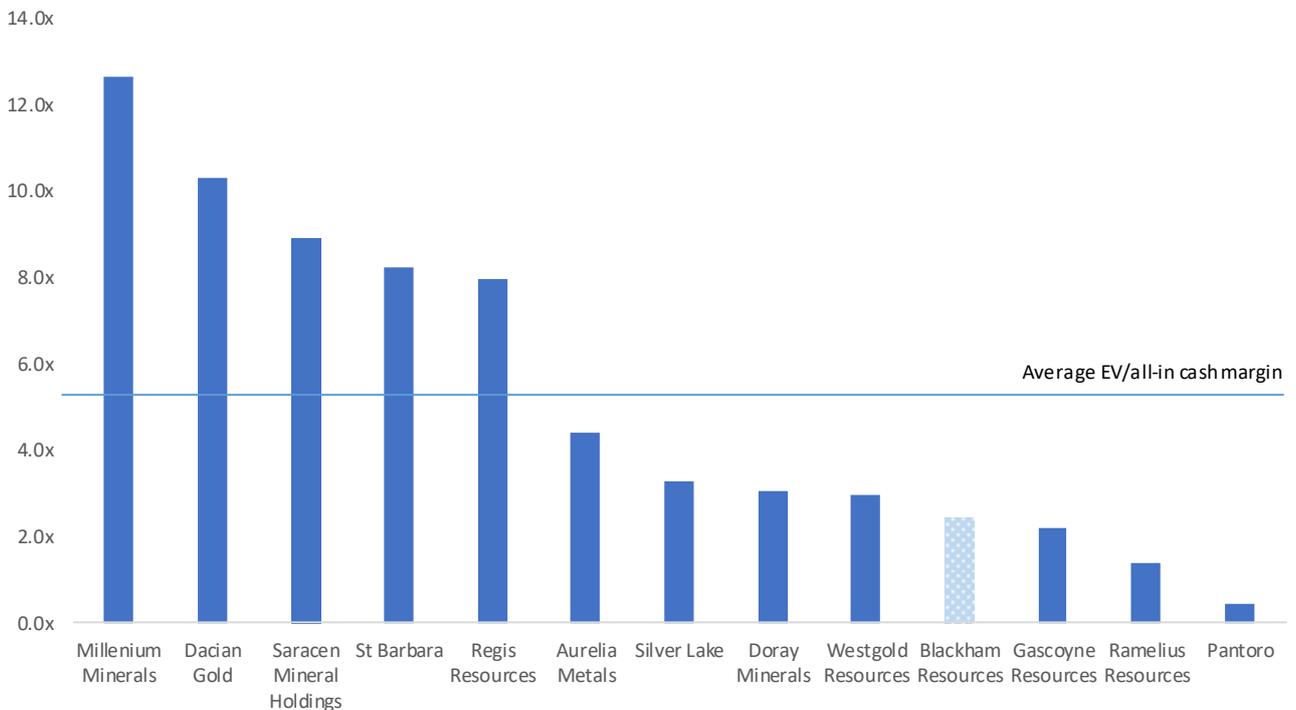
Applying the peer-group average of these three metrics to Blackham would point to potential market peer-based valuations of A\$0.74, A\$0.53 and A\$0.11 per share respectively. Our sum-of-parts valuation sits towards the lower end of this range.

Figure 6: Australian junior/mid-tier producer EV per resources and reserves



Source: Bloomberg, company websites

Figure 7: Australian junior/mid-tier producer EV per forecast FY2019 all-in sustaining cash margin



Source: Bloomberg, company websites

Forecasts

Figures 8-12 below and over page summarise our key operational and financial estimates. Note that our forecasts assume a positive investment decision is taken on the sulphides expansion by the end of the current financial year (year ending 30 June 2019), with a A\$120m construction fundraising (50% equity, 50% debt) undertaken at the beginning of FY2020 and expanded production rates taking effect from mid-FY2021.

Figure 8: Summary operational data

FY ending 30 June		2018	2019e	2020e	2021e	2022e
Gold production	koz	71	83	86	190	234
Average realised gold price	US\$/oz	1,282	1,200	1,250	1,300	1,300
Cash operating costs	A\$/oz	1,398	1,141	1,051	982	994
	US\$/oz	1,083	833	767	717	725
Total cash costs (incl royalties)	A\$/oz	1,500	1,241	1,155	1,091	1,102
	US\$/oz	1,162	906	843	796	805
All-in sustaining costs	A\$/oz	1,629	1,350	1,260	1,199	1,210
	US\$/oz	1,262	985	920	876	883
Australian Dollar	USD:AUD	0.78	0.73	0.73	0.73	0.73

Source: ARC estimates

Figure 9: Summary profit & loss

FY ending 30 June		2018	2019e	2020e	2021e	2022e
Gross revenue	A\$m	118.3	136.7	147.4	338.9	416.1
Cost of sales	A\$m	(130.9)	(110.7)	(113.4)	(240.5)	(301.5)
G&A costs	A\$m	(4.1)	(4.0)	(4.0)	(4.0)	(4.0)
Share-based payments	A\$m	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Other gains/(costs)	A\$m	1.3	(1.3)	(1.1)	(0.9)	(0.9)
EBIT	A\$m	(16.0)	20.2	28.4	93.0	109.2
Net finance costs	A\$m	(3.5)	(2.2)	(4.3)	(5.4)	(3.8)
Pre-tax profit/(loss)	A\$m	(19.5)	18.0	24.1	87.5	105.5
Tax	A\$m	-	-	(2.2)	(28.9)	(34.4)
Net profit/(loss)	A\$m	(19.5)	18.0	21.9	58.6	71.1

Source: ARC estimates

Figure 10: Summary cash flow

FY ending 30 June		2018	2019e	2020e	2021e	2022e
Operational CF before WC changes	A\$m	0.7	25.7	40.4	120.6	150.8
Working capital changes	A\$m	5.5	(3.0)	2.7	(17.0)	(0.8)
Tax paid	A\$m	-	-	(2.2)	(28.9)	(34.4)
Cash flow from operations	A\$m	6.2	22.7	40.9	74.7	115.6
Capex	A\$m	(14.4)	(12.0)	(127.0)	(18.7)	(23.2)
Other	A\$m	(6.3)	(6.5)	(5.5)	(4.5)	(4.5)
Cash flow from investing activities	A\$m	(20.7)	(18.5)	(132.5)	(23.2)	(27.7)
Equity issue (net of costs)	A\$m	36.0	-	58.2	-	-
Net borrowings	A\$m	(19.5)	(12.1)	49.6	(22.6)	(15.1)
Other	A\$m	0.2	-	-	-	-
Cash flow from financing activities	A\$m	16.7	(12.1)	107.8	(22.6)	(15.1)
Increase/(decrease) in cash	A\$m	2.3	(7.9)	16.2	28.9	72.8

Source: ARC estimates

Figure 11: Summary balance sheet

FY ending 30 June		2018	2019e	2020e	2021e	2022e
Cash	A\$m	20.7	12.9	29.1	57.9	130.8
P,P&E	A\$m	136.1	141.6	255.8	244.5	227.9
Intangible assets	A\$m	15.7	20.0	23.3	23.9	23.4
Other assets	A\$m	19.2	16.2	16.2	33.2	40.7
Total assets	A\$m	191.8	190.7	324.3	359.5	422.7
Payables	A\$m	30.2	25.3	27.9	27.9	34.6
Debt	A\$m	32.3	18.7	69.0	45.1	30.0
Other liabilities	A\$m	26.1	26.1	26.1	26.1	26.1
Total liabilities	A\$m	88.7	70.0	123.1	99.1	90.7
Shareholders' equity	A\$m	103.1	120.7	201.3	260.4	332.0
Liabilities & equity	A\$m	191.8	190.7	324.3	359.5	422.7

Source: ARC estimates

Figure 12: Summary financial measurements and ratios

FY ending 30 June		2018	2019e	2020e	2021e	2022e
EBITDA	A\$m	1.4	27.6	42.4	125.9	153.1
<i>Margin</i>	%	1.2	20.2	28.7	37.2	36.8
EBIT	A\$m	(16.0)	20.2	28.4	93.0	109.2
<i>Margin</i>	%	na	14.8	19.3	27.4	26.2
EPS	A\$/sh	(3.0)	1.3	1.1	2.2	2.7
<i>Margin</i>	%	na	13.2	14.9	17.3	17.1
Free cash flow	A\$m	(14.5)	4.2	(91.6)	51.5	87.9
Net cash/(debt)	A\$m	(11.6)	(5.8)	(40.0)	12.8	100.8
EV/EBITDA	x	na	2.6	1.7	0.6	0.5
PE	x	na	3.2	3.9	2.0	1.6
Net debt/EBITDA	x	8.0	0.2	0.9	na	na

Source: ARC estimates

Risks

- ▶ **Macroeconomic:** Macroeconomic factors, most notably the gold price and Australian dollar market rate, may in the future materially diverge from our assumptions, impacting our financial forecasts and valuation.
- ▶ **Single-asset exposure:** As its sole cash-generating asset, Blackham is highly exposed to the operational and financial performance of Matilda-Wiluna. As is the case with all mining businesses, future operating and cost performance may differ materially from company budgets and forecasts owing to unforeseen technical and economic factors.
- ▶ **Expansion assumptions:** Our financial forecasts and valuation assume a material future expansion of the Matilda-Wiluna operation. There can be no guarantee that this will be delivered on the same time scale and at the same budget as we model. Moreover, the operating and cost structure of the expansion remain subject to full feasibility study, the results of which are not yet known.
- ▶ **Funding and dilution:** Our financial forecasts and valuation assume the Matilda-Wiluna expansion is funded 50% by debt and 50% by equity at Blackham's current share price. There can be no guarantee that such funding will be available, or at the terms we assume.

Company overview

ASX-quoted Blackham Resources is focused on unlocking value from its substantial resource base and infrastructure endowment on the Wiluna gold belt, historically one of Western Australia's most prolific gold producing regions.

Corporate history

Blackham began its consolidation of the northern Wiluna goldfield in 2011 with the acquisition of the past-producing Matilda property, close to the Wiluna operation then owned by Apex Minerals. It subsequently acquired additional ground in the Lake Way area to the south (including Williamson) and initiated resource drilling at both. In 2014 Blackham acquired Apex Mineral's assets from liquidators, giving it a fast-track route to production from its now consolidated gold field. It commenced production in late CY2016 after a six-month refurbishment of the Wiluna plant.

Figure 13: Blackham potted history

- 2011-12** ▶ Acquires the Matilda, Williamson, Regent and Galaxy gold projects surrounding Apex Mineral's producing Wiluna operation
- 2012-13** ▶ Grows project resources from 0.3Moz to 1.5Moz (free-milling component 1.2Moz)
- Mar-14** ▶ Acquires Wiluna gold plant from Apex Minerals (then in liquidation) for A\$4.6m (A\$2m upfront, A\$2.6m on future production milestones)
- Dec-14** ▶ Scoping study published, mineral inventory 5.0Mt at 2.8g/t for 0.5Moz
- Feb-16** ▶ Free-milling production re-start DFS published
- Mar-16** ▶ Commences refurbishment of the Wiluna plant, camp, administration buildings and infrastructure. A\$20m equity placing (at A\$0.45/sh)
- Jun-16** ▶ Draws down on project debt facility, secured as part of a A\$38.5m financing package with Orion Mine Finance
- Jul-16** ▶ Production commences at Matilda open pits and Golden Age underground mine. Commissions new 6MW diesel power station.
- Aug-16** ▶ A\$25m placing (at A\$1.00/sh) to fast-track expansion/resource growth
- Oct-16** ▶ Commissions refurbished gold processing plant – first gold poured
- Feb-17** ▶ A\$35m equity placing (at A\$0.68/sh) to strengthen balance sheet, expedite resource-reserve conversion and fast-track expansion study
- Apr-17** ▶ Revises down production guidance for FY2017 owing to the impact of heavy rainfall and lower-than-expected mill grades
- Aug-17** ▶ Publishes refractory expansion PFS
- Nov-17** ▶ Announces planned A\$60m long-term funding package with Pacific Road Capital to refinance debt and strengthen working capital
- Dec-17** ▶ Pacific Road Capital financing deal falls through – shares suspended
- Jan-18** ▶ Refinances Orion term loan with new A\$14.3m loan with mining contractor MACA, undertakes A\$36m rights issue (at A\$0.04/sh)
- Jul-18** ▶ Announces significant improvement in half-on-half production rates and costs on resolution of the CY2017 mine sequencing issues
- Sep-18** ▶ Resources increased to 96Mt at 2.2g/t for 6.7Moz, remaining Orion debt repaid following convertible note issue

Source: Blackham Resources

The recent convertible note issue has left Blackham with just one secured debt obligation

Finances

As at the end of September 2018 (end Q1 of the company's financial year to 30 June 2019), Blackham's net debt position was A\$11.0m. This comprised A\$8.9m in cash and A\$20m of debt. We estimate the latter was the total of some A\$5.4m outstanding under a project financing facility with Orion, A\$14.2m (including accrued interest and fees) outstanding under a secured loan facility with mining contractor MACA Mining Ltd, and A\$0.4m of finance lease obligations. In early October, just after the quarter end, Blackham settled the outstanding balance of the Orion facility, drawing upon the A\$7.5m proceeds from a A\$9m (face value) convertible note issue to US-based investment fund Lind Partners. The company now has no more scheduled debt repayments until March 2019 (when monthly repayments of A\$1m commence under the MACA facility).

Our resulting estimated adjusted (post repayment of the Orion facility and issue of Lind note) net debt structure for Blackham is detailed in Figure 14 below.

Figure 14: Net debt (at end FY18, adjusted for subsequent debt repayments/issues)

MACA secured loan facility at 30/09/18 (estimate)	A\$14.2m
Finance lease liabilities at 30/09/18 (estimate)	A\$0.4m
Lind secured convertible note (face value), issued Sep 2018	A\$9.0m
Cash and equivalents at 30/09/18 (reported)	A\$8.9m
Adjusted net debt estimate	A\$14.7

Source: Blackham Resources, ARC estimates

The convertible note forms part of a wider agreement under which Lind Partners may invest up to an eventual A\$23m in Blackham (inclusive of the September 2018 note). The secured note (security of 50m collateral shares issued that will be credited at the end of the funding agreement) has a face value of A\$9m (inclusive of rolled up interest and charges) and a 24-month term. A lock-up provision restricts conversion until 14 February 2019 (post the expiry date of Blackham's quoted options – see p15), after which Blackham will make monthly repayments of 1/12th of the face value in cash or shares at the company's discretion. If in shares, the conversion price will be the lower of A\$0.08/share or 90% of five daily VWAPs over a specified period. Blackham retains the option to redeem in cash the entire amount outstanding at any time with no penalty, subject to Lind having the right to elect to convert 30% of the face value at the conversion price. As part of the agreement, Blackham issued Lind with 72m five-year options with an exercise price A\$0.08/share.

The secured loan with MACA carries an interest rate of 10% per annum and is repayable through monthly instalments of A\$1m from February 2019.

In addition to the loan with MACA, as at end FY2018 Blackham owed to the contractor A\$9.2m in accrued costs (included within its year-end trade payables figure of A\$30m). These payables to MACA are also secured against Blackham's assets (though subordinate to the loan), and have a prescribed repayment schedule.

Capital structure

Blackham currently has 1,341m shares in issue, of which the free float is approximately 90% (according to Bloomberg). The company's last public share issue was a five-for-two underwritten rights issue in January 2018, when 898m shares were issued at A\$0.04/share for gross proceeds of A\$36m. The rights issue followed the breakdown of a previously negotiated and announced A\$60m funding package with private equity group Pacific Road Capital.

The rights issue also included 448m options (one for each new share issued) with a strike price of A\$0.08/share. The options are quoted on the ASX (BLKOA AU) and have an expiry date of 31 January 2019.

Figure 15: Capital structure

Security	No.	Price
Shares outstanding at 30/09/18	1,341m	A\$0.04
Quoted options (expire 31/01/19)	534m	A\$0.08
Unquoted options (expire Jun 2019 to Sep 2023)	127m	A\$0.08-1.00
Diluted shares on 100% option exercise	2,002m	
Cash position at 30/09/18	A\$8.9	
Potential future cash inflow from exercise of options	A\$54.4m	
Convertible notes (face value)	A\$9m	A\$0.08*
Shares issued if converted	113*	
Diluted shares on 100% option exercise and note conversion	2,115m	

*Convertible at lower of A\$0.08 or 90% of 5 daily VWAPs Source: Blackham Resources, ARC estimates

Figure 16: Top five shareholders

Shareholder	%
Earth Resource Investment	1.8%
Somercourt Investments	1.2%
Polo Investments	1.2%
Mr Helmut Pelzer	1.1%
Interactive Investors (retail)	1.1%

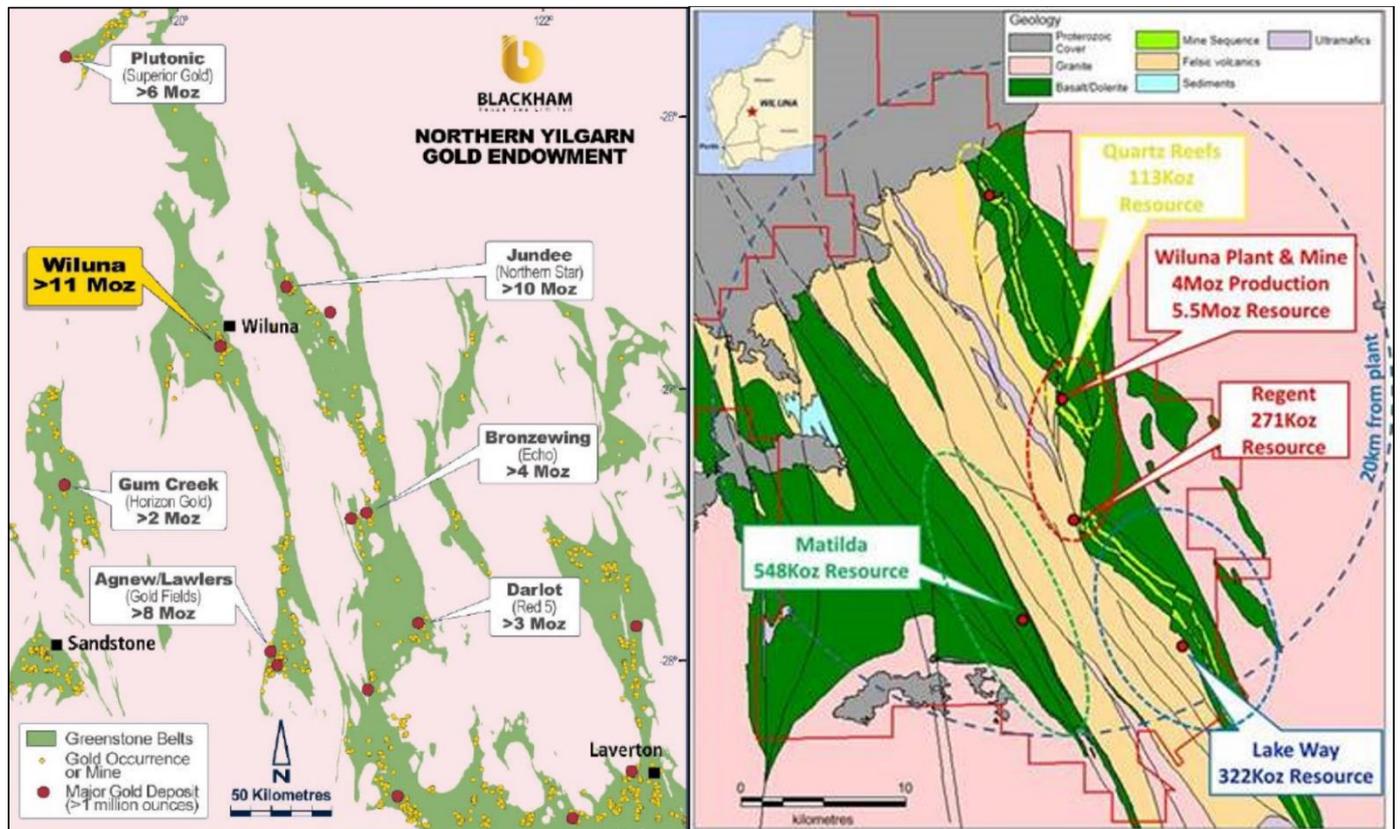
Source: Blackham Resources

Matilda-Wiluna gold operation

Blackham's properties have seen >4.4Moz of historic gold production

Blackham's Matilda-Wiluna gold project is situated close to the town of Wiluna some 750km northeast of Perth. It lies on the prolific Norseman-Kalgoorlie-Wiluna gold belt, Western Australia's largest gold belt on the Yilgarn craton. Over the past seven years Blackham has consolidated 1,440km² of ground covering around 55km of strike along the Wiluna goldfields sequence and 10km of strike along the Coles Find shear at Matilda. Combined, these structures have yielded more than 4.4Moz of historical gold production over the past 120 years since their discovery in the late 1800s.

Figure 17: Blackham has consolidated 1,100km² of ground in one of the most prolific gold belts in Western Australia



Source: Blackham Resources

Geology and historic production

The Wiluna gold belt hosts a variety of styles of gold mineralisation

The Wiluna gold belt differs from others in Western Australia's Yilgarn craton in that it hosts several different styles of gold deposits that can exhibit both oxide and free-milling and refractory sulphide mineralisation. Past production has been sourced from both underground and open-pit mines, exploiting oxide and quartz ores (1897-1924), standard cyanide leaching of oxide ore and tailings (1984-1993) and, more recently, BIOX processing of refractory sulphide ores (1993-2013).

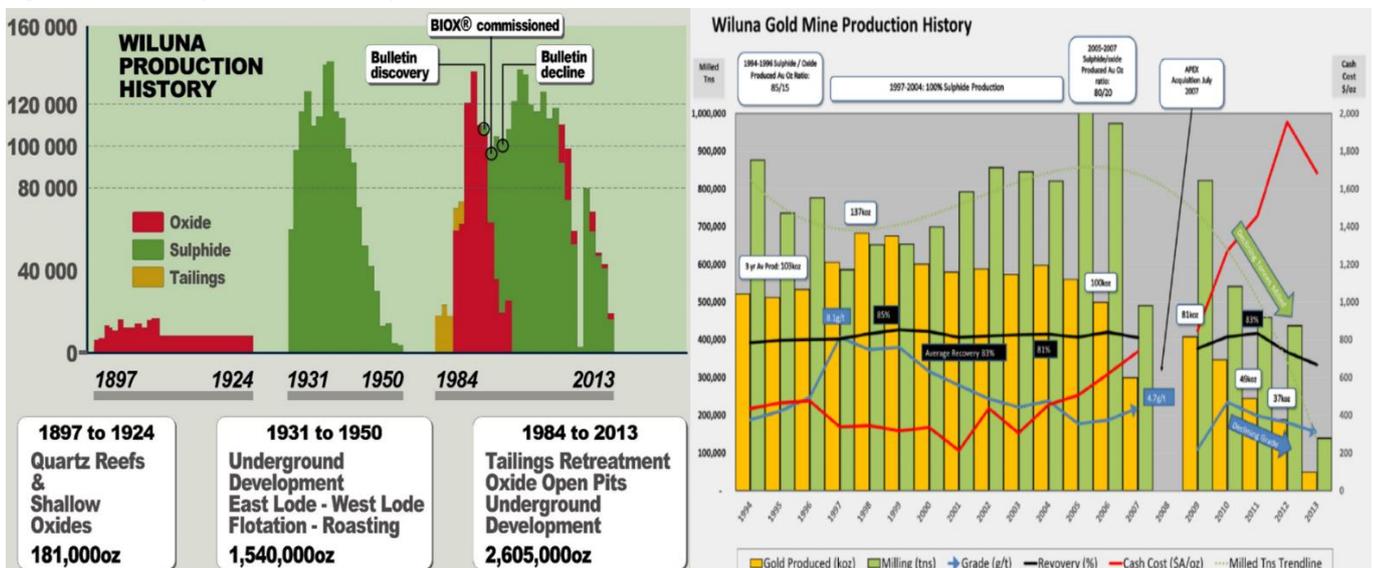
Blackham's project area can be divided into three main mining areas of note: Matilda, Wiluna and Lake Way/Williamson.

- ▶ **Matilda:** Matilda encompasses 10km of strike along the Coles Shear. Historical workings comprise a series of shallow open pits to an average depth of 50m over a strike length of approximately 3.5km. Gold mineralisation is associated with mafic-hosted shear zones with supergene gold occurring within the zone of

oxidation. Mineralisation remains open both along strike and at depth. Several different operators mined at Matilda until the early 1990s, when production ceased owing to low prevailing gold prices. Prior to Blackham recommencing operations at Matilda in 2016, historic production from the area totalled 2.7Mt at an average grade of 2.3g/t for 163koz of gold.

- ▶ **Wiluna:** Wiluna has yielded over 4Moz of historic gold production (averaging >100koz pa over the last 27 years of production - Figure 18) from some 20 open pits and three underground mines (including Golden Age, a current underground source of high-grade free-milling ore). All historic mines are within 4km of the Wiluna processing facility. Mineralisation at Wiluna is hosted within near-vertical shear zones that range in thickness from 5m to 70m, and generally strike north-south or northeast-southwest. The shear zones flex along strike and down dip, and these flexures, in conjunction with favourable host rocks, yield the richest ore zones. Wiluna mineralisation can be either oxide, refractory sulphide, or quartz-reef free-milling ore, but gold is most commonly associated with fine-grained sulphides (refractory sulphide ore constitutes most of existing resources at Wiluna). Both oxide and sulphide ore types have been treated historically (with refractory sulphide ore the dominant feed material between 1993 and 2013, prior to acquisition by Blackham), though only the free-milling CIL section of the plant is currently operating.
- ▶ **Lake Way/Williamson:** Located 26km southeast of the Wiluna plant, Lake Way covers 6km of strike along the Wiluna sequence and comprises multiple mineralised structures. The area is covered by shallow sediments contained in a largely dry salt-lake, which explains its historical under-exploration relative to the Matilda and Wiluna areas. The Williamson open pit produced around 42koz (at an average grade of 2.0 g/t) prior to cessation of operations in 2006 owing to low prevailing gold prices. Mineralisation at Williamson is free-milling, occurring as weakly disseminated sulphides within a broad anomalous envelope around a north striking/east dipping monzogranite. Higher-grade sulphide material and visible gold is associated with shearing on the contacts of the monzogranite, but also within a west-dipping shear that intersects it. Mineralisation within the monzogranite body varies from broad low-grade disseminated sulphides high-grade veins formed within fractures.

Figure 18: Wiluna production history (LHS – overall, RHS – modern)

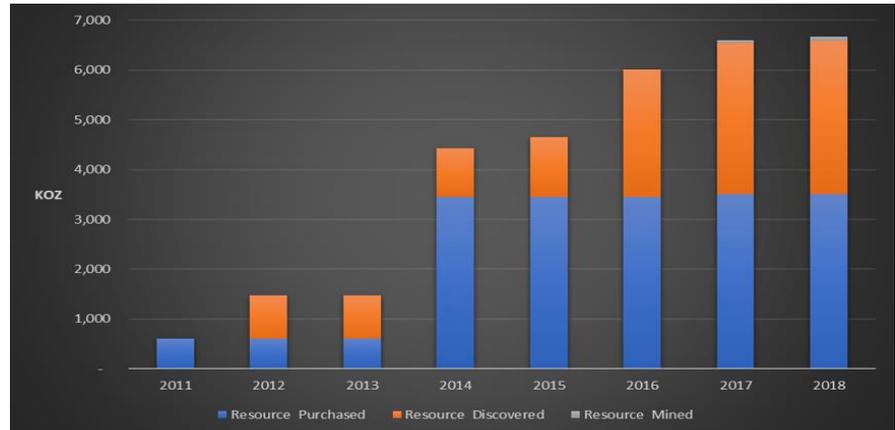


Source: Blackham Resources

Resources and reserves

Over the past seven years Blackham has grown its resource base from a little over 0.5Moz to the current level of 6.7Moz through a combination of acquisitions (most notably Wiluna) and its own targeted brownfield drilling programmes.

Figure 19: Year-on-year resource growth through acquisition and drilling



Source: Blackham Resources

Resources increased 3% year-on-year in FY2018, to 6.7moz

In-situ estimated gold resources increased by 3% year-on-year across FY2018, as mining depletions at Matilda were more than offset by the addition of a maiden resource estimate for the historic Wiluna tailings (680koz of in-situ gold at 0.6g/t). Some 1.3Moz (20% of the total) of the FY2018 year-end resource inventory is considered free-milling and suitable for processing through the existing Wiluna plant. 4.7Moz balance (70%) is refractory sulphide material that will require additional processing steps (either to doré or concentrate) if mined.

Some 1.5Moz of the resource base (23% of the total) had been brought in to reserve as at end FY2018. This represents a 27% increase on reserves relative to end FY2017, demonstrating the group's ability to more than replenish ore reserves depleted through mining during the year, notwithstanding the maiden contribution from the historic Wiluna tailings (which account for 0.2Moz, or 15% of total reserves).

Figure 20: Matilda-Wiluna gold project resources* and reserves*

	Surface**			Underground			Total		
	Mt	g/t Au	Moz Au	Mt	g/t Au	Moz Au	Mt	g/t Au	Moz Au
Measured	0	1.1	0	0	6.2	0.0	0	1.9	0.0
Indicated	62	1.2	2	8	5.3	1.4	70	1.7	3.9
Sub-total M&I	62	1.2	2.5	8	5.3	1.4	70	1.7	3.9
Inferred	11	2.1	1	15	4.3	2.0	26	3.3	2.8
Total resources	73	1.4	3.2	23	4.6	3.5	96	2.2	6.7
Free-milling	23	1.5	1.1	2	3.6	0.2	25	1.6	1.3
Refractory	16	2.9	1.5	21	4.7	3.3	37	3.9	4.7
Tailings	34	0.6	0.7				34	0.6	0.7
Proven	1	0.9	0.0	0	0.0	0.0	1	0.9	0.0
Probable	24	1.6	1.2	2	4.8	0.3	26	1.8	1.5
Total reserves	25	1.6	1.2	2	4.8	0.3	26	1.8	1.5
Free-milling	6	1.0	0.3	0	6.1	0.0	6	1.7	0.3
Refractory	8	2.8	0.7	2	4.8	0.3	10	3.1	1.0
Tailings	11	0.6	0.2				11	0.6	0.2

*Estimated as at 30 June 2018 **Includes ore stockpiles and tailings resources and reserves

Source: Blackham Resources

Free-milling gold operations have been underway for two years

Free-milling operations

Following its acquisition of the Wiluna processing facility in 2014, Blackham reviewed options for recommencing production from the plant. This culminated in the publication in February 2016 of a feasibility study that demonstrated the viability of recommissioning the plant using a base-load of free-milling ore from open pits supplemented with higher-grade (but also free-milling) quartz reef ores from the Golden Age underground mine. The study called for mining and processing of some 8.3Mt at an average grade of 2.9g/t for gold production of 668koz over seven years.

Following a six-month refurbishment programme, funded predominantly through a A\$38.5m project financing facility provided by Orion Mine Finance, first gold was poured in October 2016.

Mining progressing from Matilda to Wiluna and Lake Way

Since recommencing production in 2016, Blackham has been mining oxide ore feed mainly from the Matilda project area (located 26km south of the Wiluna processing facility, to which it is connected by pre-existing haul roads), supplemented with higher-grade ore from the Golden Age underground mine at Wiluna. Beginning in FY2019, open-pit mining of higher-grade oxide ore will be increasingly sourced from the Wiluna mining area adjacent to the existing process plant, but also from the historic Williamson pit in the Lake Way area to the south.

- ▶ **Matilda:** In 2016, Blackham commenced mining several new pits and pushing back old pits at Matilda to provide feed ore to the refurbished processing plant at Wiluna. Mining of free-milling material is scheduled to be completed over the course of FY2019, but high-grade sulphide mineralisation has been identified under the existing pits that provides potential for future surface or underground mining once the sulphide ore treatment circuit at Wiluna is operational.

Figure 21: Open-pit operations to date have focused largely on Matilda

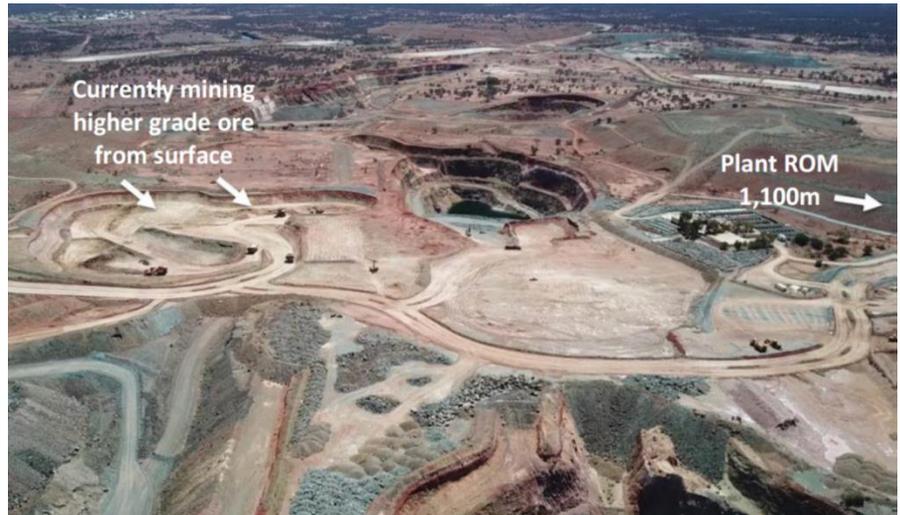


Source: ARC

- ▶ **Wiluna:** At 4.9Moz, the Wiluna area accounts for almost three-quarters of Blackham's defined resources to date. Though most is refractory sulphide material that will be mined only once an expanded sulphide processing facility is developed, it does include over 0.2Moz of open-pittable oxide and transitional ore within the upper 60-80m of the historic pits. Mining of the latter

commenced in October 2019 and will gradually ramp-up to eventually replace Matilda as the dominant source of free-milling ore to the Wiluna plant over the next year. This should improve opex given the proximal location to the plant relative to Matilda (lowering haulage costs), but also because of the generally higher grades and harder nature of the ore (which should provide better mining conditions) compared with Matilda. The Wiluna property also hosts the Golden Age underground mine, which has a current resource of 91koz and which contributes c3,000oz per quarter from its high-grade (5-8g/t Au) quartz reef ore.

Figure 22: Mining has begun at the Wiluna East-West starter pit, close to the plant



Source: Blackham Resources

- ▶ **Lake Way:** Current resources at the historic Williamson pit are 0.3Moz at an average grade of 1.7g/t, all of which is free-milling. Open-pit mining is scheduled to take place at Williamson from FY2020, but, together with the wider Lake Way project area, the property is considered by Blackham to have significant exploration potential and could therefore be a source for free-milling ore for many more years to come (see pp25-27).

Current gold recovery based on standard CIP processing technology

All ore is treated at Blackham's Wiluna gold plant. Under previous owners, the plant has operated under several different configurations over the past three decades, including carbon-in-pulp (CIP) and carbon-in-leach (CIL) free-milling technology and, more recently, bio-oxidation (BIOX) technology allowing it to also process refractory sulphide ore.

Processing free-milling ore offered a lower-risk re-start at Wiluna

Following its acquisition of the plant in 2014, Blackham undertook a refurbishment programme to optimise and upgrade the free-milling CIP circuit to facilitate a low-risk restart of the operation fed by its various free-milling ore sources (not all of which were available to the previous owners).

The free-milling circuit now has a throughput capacity of 2.2Mt pa, depending on hardness of feed material (the milling circuit being the constraint – the current reserve mine plan envisages average ore throughput rates of c1.7-1.8Mt pa generally). Targeted recovery rates for the oxide material are around 90%.

Figure 23: The Wiluna processing plant has been refurbished by Blackham



Source: ARC

Performance to date: operations stabilised after difficult 2017

Following a successful start in late CY2016, operations endured a difficult CY2017 as a series of geotechnical issues at Matilda (exacerbated by unusually high rainfall) delayed ore deliveries to the plant. A significant proportion of the mill feed during that period thus had to be drawn from low-grade stockpiles, resulting in lower-than-planned gold production in H2 CY2017/H1 FY2018 (30,541oz) and higher costs (AISC of A\$2,063/oz).

Operational performance has improved markedly in CY2018 to date

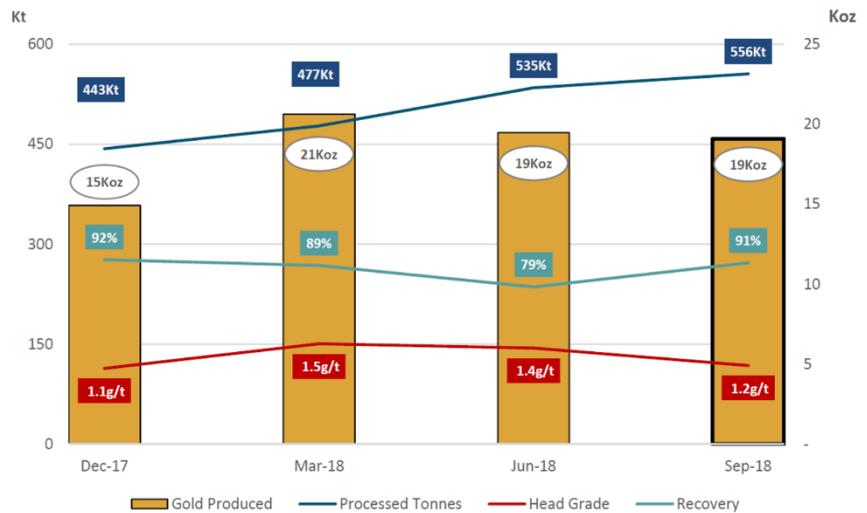
Operations improved markedly in H1 CY2018/H2 FY2018, with higher grades, lower waste-stripping and increased ore throughput resulting in gold output recovering to 40,024oz at a much lower AISC of A\$1,294/oz (taking full-year FY2018 production to 70,565oz at AISC of A\$1,629/oz). Indeed, plant throughput increased across each successive quarter of FY2018.

FY2019 guidance set at 77-89koz at AISC of A\$1,250-1,450/oz

Operational stability has been maintained through FY2019 to date, with the reported Q1 gold production (19,049oz) and ASIC (A\$1,588/oz) figures broadly flat versus those reported for Q4 FY2018 (though plant throughput rates continued to rise). The company has set production and cost guidance for the full year at 77-89koz at an AISC of A\$1,250-\$1,450/oz, with the benefits of higher-grade ore feed expected to come through from Q2 onwards (indeed, operational parameters for the final month of Q1 were stronger than the rest of the quarter). Costs in FY2019 are expected to be higher than the anticipated LOM average (and were particularly so in Q1), owing to higher rates of waste-stripping (to open new mining areas) and to efforts to replenish stockpiles (which had to be lowered owing to the H1 FY2018 issues).

Blackham has implemented measures to reduce geotechnical risks at the Matilda mine going forward, and with mill feed set to be increasingly sourced from the harder-ore (and higher-grade) Wiluna mining area as the year progresses, geotechnical and mine sequencing risks to production are expected to be reduced further still. Moreover, open-pit mining contractor MACA has brought two further large excavators and additional trucks to increase material movements and build up higher-grade stockpiles with a target of sustaining free-milling production at an annual rate of 80-100koz.

Figure 24: Ore throughput increased across FY2018, with grades recovering in H2



Source: Blackham Resources

A refractory-processing based expansion is being targeted to unlock the potential of the vast sulphide resource base

Refractory expansion project

The majority (70%) of Blackham’s total 6.7Moz resource base is refractory sulphide material, most which is located at the Wiluna project area. With a view to unlocking the inherent potential of this substantial resource, Blackham is evaluating options to modify and expand its existing processing capabilities to facilitate treatment of both free-milling and refractory sulphide ore types, increasing overall gold output.

A 2017 PFS demonstrated the viability of increasing gold production to over 200koz pa through the construction of a new 1.5Mt pa refractory plant (utilising BIOX technology) which could operate in parallel to the existing free-milling circuit (thereby expanding the operation’s overall capacity to c3.3Mt pa) in order to treat the substantial sulphide resource inventory at Wiluna (which would be mined through an expansion of the historic open pits and underground workings).

PFS demonstrated capital-efficient expansion to >200koz pa is viable

The PFS estimated upfront capex at A\$114m and AISC at A\$1,058/oz. Assuming a gold price of A\$1,600/oz (cUS\$1,200/oz at FY2019 average-to-date exchange rates), this resulted in a project pre-tax IRR of 123% and NPV_{8%} of US\$360m (Figure 24).

Figure 24: PFS headline parameters and outcomes

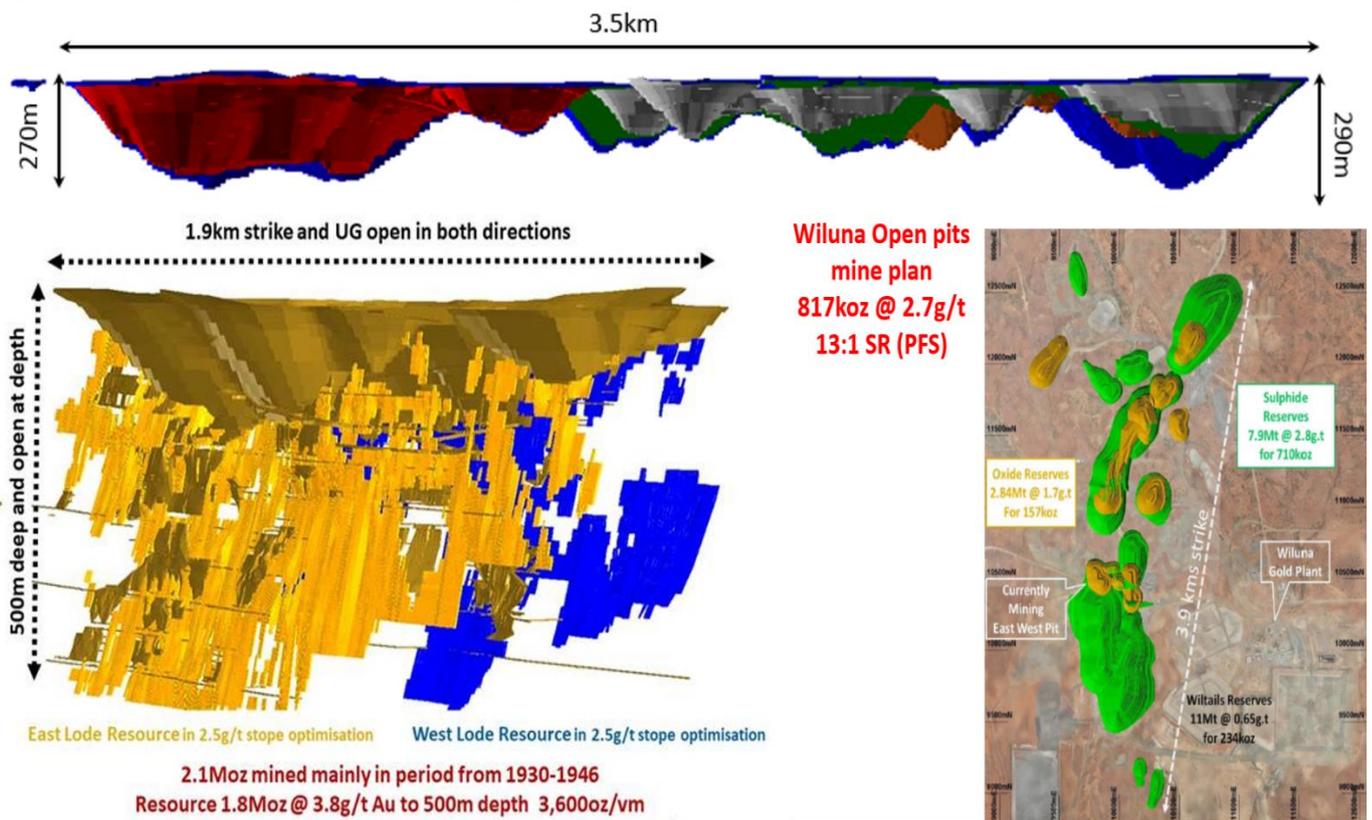
	Unit	Value
Open-pit mining inventory	Mt	15
Average open-pit grade	g/t Au	2.3
Underground mining inventory	Mt	4
Average underground grade	g/t Au	4.7
Expanded processing capacity	Mt	3.3
Average annual gold production (first 6yrs of 9yr LOM)	koz pa	207
LoM AISC	A\$/oz	1,058
Capex	A\$m	114
Pre-tax IRR (at A\$1,600/oz)	%	123
Pre-tax NPV _{8%} (at A\$1,600/oz)	A\$m	360

Source: Blackham Resources

The company has since progressed definitive feasibility study (DFS) work, which is now well advanced with much of the expenditure already incurred. Current work streams include optimising the refractory process route, with potential to improve upon the PFS assumed recoveries from sulphide floatation ahead of BIOX. Indeed, there may be potential to defer some capex (ca\$30-40m per company estimates) by commencing sulphide processing on the basis of selling a gold concentrate from floatation, ahead of phasing-in a BIOX circuit later in order to produce gold doré from the sulphide feed.

Mining of oxide and transitional ore has recently commenced at Wiluna to feed the existing free-milling processing circuit. This will further enhance Blackham’s understanding of the Wiluna resources ahead of making an investment decision on the expansion post completion of the DFS in CY2019, given the expansion focuses on pushing down deeper into the underlying fresh sulphide ores.

Figure 25: Expanded Wiluna open-pit and underground mining plan



Upside potential

Free-milling operations likely to be extended

Ample potential to increase free-milling reserves...

Upon exhaustion of free-milling ore feed sources, the expansion PFS envisages the existing 1.8Mt pa plant being modified to allow processing of refractory low-grade sulphide ore into a gold-rich sulphide concentrate for direct sale (supplementing doré produced from higher-grade sulphide ore processed through the planned 1.5Mt pa refractory circuit). We believe there may be potential to materially extend the life of the current free-milling operation beyond the current three year mine plan on successful resource conversion and exploration drilling, pushing out the conversion to a sulphide concentrate plant. The company’s long-term aim is to develop and maintain a ‘rolling’ five-year free-milling mine plan.

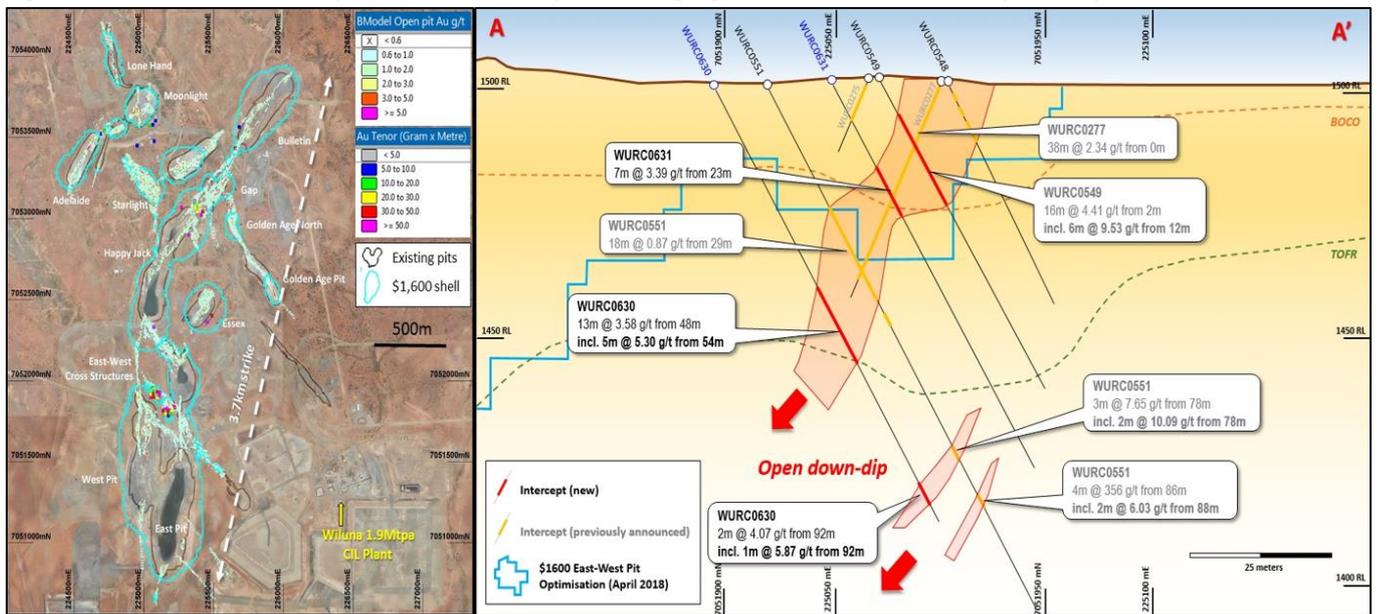
Drilling over the past year has successfully replenished free-milling resources mined over the first eight months of CY2018, with results from the most recent drill programme (20,700m drilled between March and July) not yet incorporated in to the company’s resource estimates.

Free-milling exploration efforts remain focused on delineating further open-pittable ore over the 4km strike at the Wiluna mine, upgrading and extending resources in the Lake Way area (which management believes could be a major shallow-lying source of free-milling material going forward, beyond the scheduled restart of the Williamson pit in CY2019), and extending the life of the Golden Age underground operation by further drilling known areas of free-milling mineralisation beneath and above the existing workings.

Ample potential to increase free-milling reserves

At **Wiluna**, mining of higher-grade oxide ore from the East-West starter pit commenced in October 2019, just six months after Blackham began an in-fill drilling programme. Current open-pit free-milling resources and reserves of 236koz and 157koz respectively at Wiluna do not incorporate all of the results of this successful programme, and ongoing drilling will target shallow, free-milling targets close to the plant. Metallurgical testing has confirmed that oxide-sulphide transitional material at Wiluna is also amenable to CIL processing (84% leach recovery after 24 hours, versus 91% for Wiluna oxides), and thus is a suitable additional feed stock for the current free-milling operation.

Figure 26: Close to the Wiluna plan, the East-West pit hosts high-grade oxide mineralisation from surface



Source: Blackham Resources

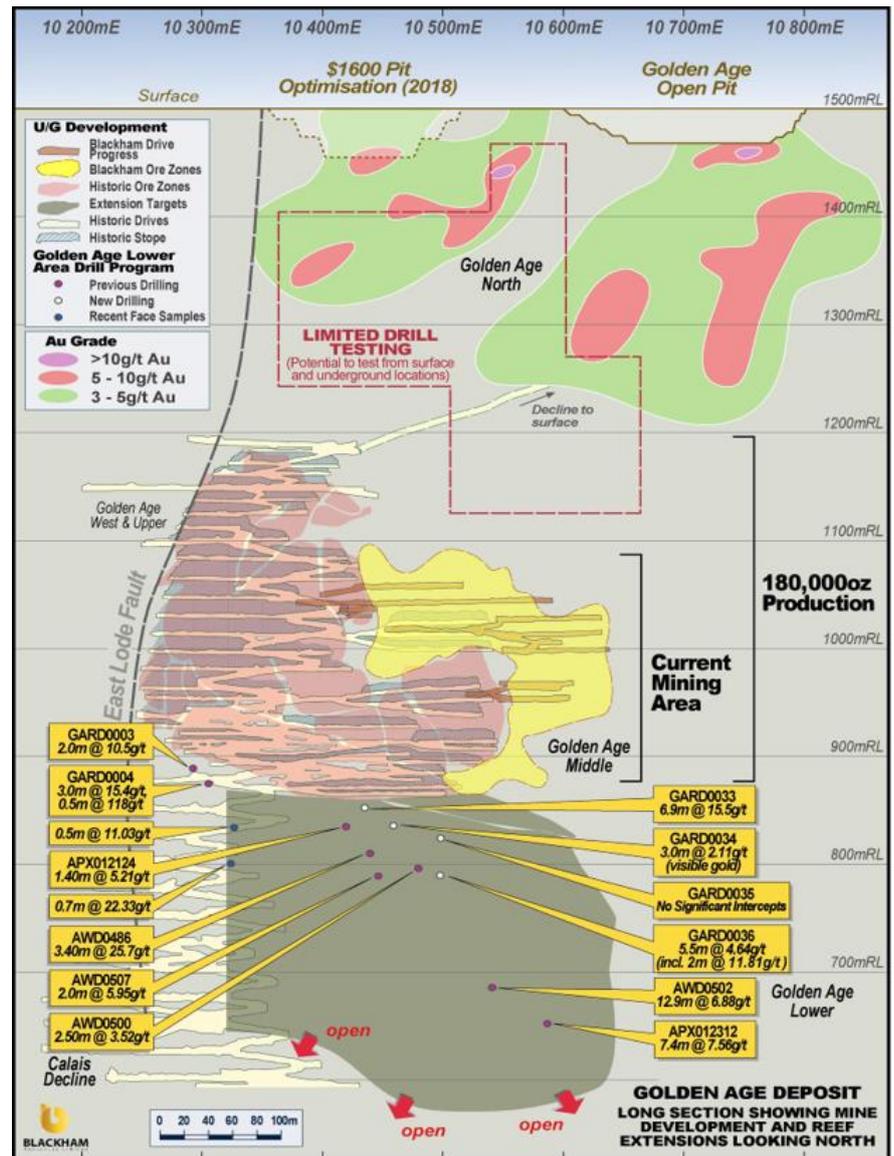
At **Golden Age**, surface RC drilling and underground diamond drilling has identified extensions to free-milling mineralisation above and below the current mining area, which has current free-milling resources of 91koz.

Surface RC drilling above the underground workings confirmed the continuity of the mineralised structure over a 600m strike extent and to a depth of 370m, and mineralisation considered open along strike and down dip. Metallurgical testing indicates that this is mineralogically consistent with ore being mined currently, and that is thus suitable feedstock for the free-milling plant. Open-pit mining of this material (the Golden Age North pit) is scheduled to commence in late CY2018. There

may also be potential to exploit deeper-lying mineralisation at Golden Age North from underground, with existing access infrastructure located just 200m away.

The underground diamond drilling programme meanwhile identified high-grade extensions down plunge from the current workings. Future mining is planned to increasingly target these areas, with a view to extending the life of the underground operation and maintaining a ‘rolling’ six to twelve-month underground mine plan (the current 7koz reserve takes operations out to April 2019).

Figure 27: Resource upside below and above current Golden Age workings

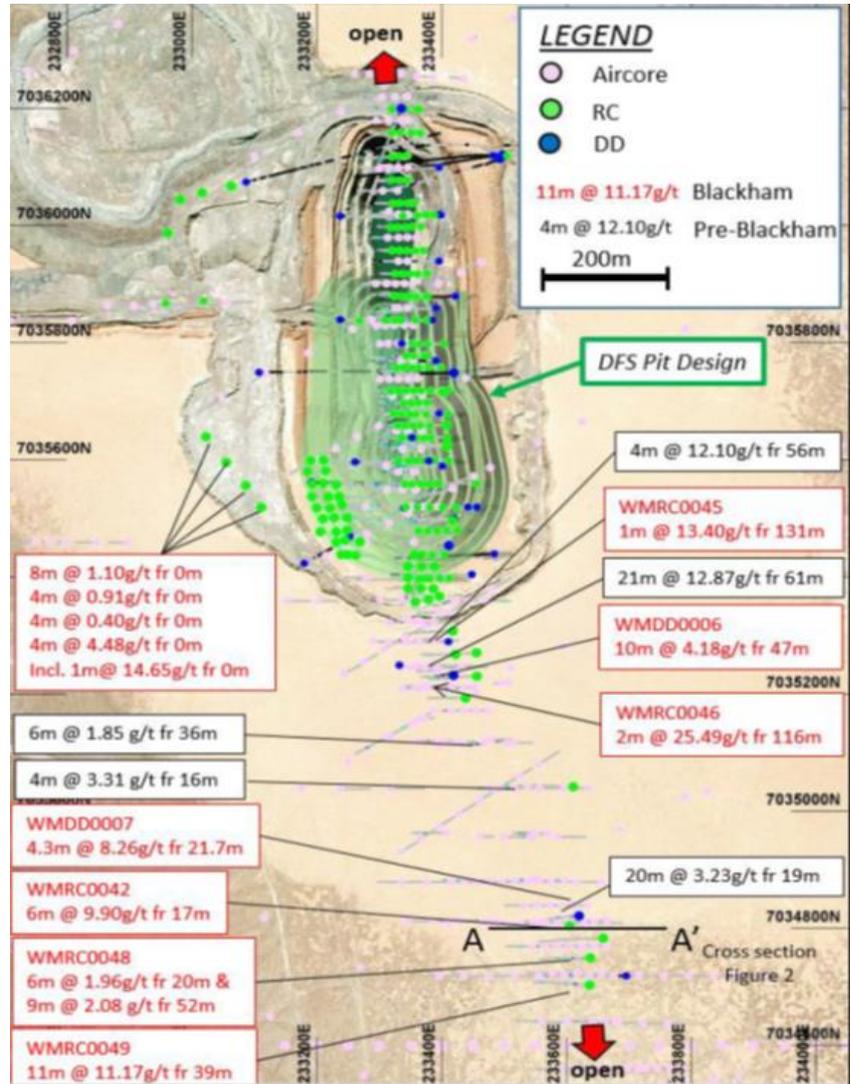


At **Lake Way**, an RC and diamond drill programme completed in Q2 CY2018 confirmed extensions to shallow mineralisation up to 600m south of the planned Williamson open-pit cutback.

Under previous owners, Williamson produced 42koz (at an average grade of 2g/t) during 2005-06. Current resources stand at c320koz at an average grade of 1.7g/t, including a probable reserve of 67koz at 1.5g/t which is scheduled to be mined via a pit cutback commencing around mid-CY2019.

High-grade intercepts from drill holes outside the currently planned shell highlight the potential for satellite pits to be developed alongside the main pit cutback. Further reserve definition in-fill drilling of these satellite targets will be undertaken ahead of finalising mine designs for the Williamson pit cutback.

Figure 28: High-grade mineralisation has been intersected south of Williamson



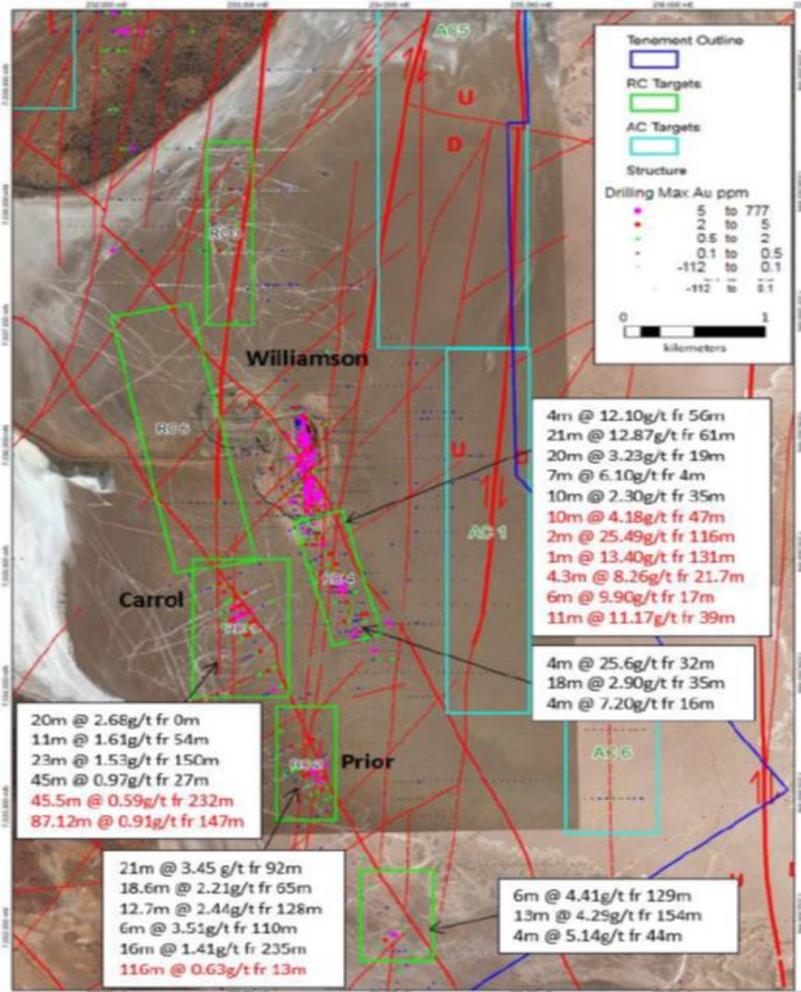
Source: Blackham Resources

The wider Lake Way area is generally under-explored owing to it having 3-9m of salt-lake sediment cover (which masks the underlying lithology and geochemical signatures). But given it hosts 6km of the proven Wiluna mine sequence, Blackham considers it to be a key area to target for future resource growth.

This potential is underlined by encouraging maiden drilling results along the Carroll-Prior trend, with mineralisation (above a 0.6g/t Au lower cut-off) intersected across multiple discrete zones within a broader lower-grade (0.3g/t cut-off applied) mineralised envelope.

Blackham believes Carroll and Prior form part of a larger mineral system that has potential for bulk-scale open-pit mining, and plans follow-up drilling during the current financial year (part funded by a A\$0.15m grant recently awarded under the State Government’s Exploration Incentive Scheme).

Figure 29: Drilling has confirmed gold mineralisation at Carrol and Prior prospects



Source: Blackham Resources

Wiluna tailings retreatment potential

Wiluna tailings resource stands at 34Mt grading 0.6g/t

In July 2018 Blackham announced a maiden indicated resource estimate of 34Mt grading 0.62g/t (for 680koz of contained gold) on the extensive tailings from historical production at Wiluna.

Metallurgical test work to date indicates that, despite being tailings from largely sulphide historic production, potentially economic recovery rates of 45-55% may be achievable from conventional CIL treatment (suggesting that some natural oxidation has occurred since the tailings were stacked). As such, Blackham is assessing the viability of re-treating the tailings to extend the life of free-milling operations, and has converted 234koz (at 0.65g/t) of the resource to reserve status.

Potential to retreat at low cost

As no re-grinding or pre-concentration of the tailings will be required, Blackham believes processing costs could be in the region of just A\$5.50/t of material treated. Further studies will be progressed to determine the optimal flowsheet configuration and how best to integrate it with the existing gold operation and planned sulphide expansion (including scheduling of tailings re-processing, which could either supplement current free-milling ore operations if the plant becomes mill constrained, or replace them upon eventual exhaustion of oxide ore resources). The base-case plan currently envisages the tailings being processed at a rate of 2.2Mt pa on a post cessation of free-milling operations basis.

Potential for further resource growth

Resource upside and open-pit/underground scheduling optimisation

The expansion PFS assumed a total mining inventory of 1.7Moz at an average grade of 2.8g/t (comprising 1.1Moz of open-pittable resources at 2.3g/t and 0.6Moz of underground resources at 4.7g/t). There are a further 4.3Moz (excluding the 0.7Moz Wiluna Tailings) in Blackham's currently defined in-ground resource base that is not included in the expanded mine plan. With further in-fill drilling, we think additional ounces will come in to the plan (both free-milling, as discussed above, and sulphide), and that there is particularly strong potential to increase the underground mining inventory. Moreover, and as discussed above, the company's extensive landholdings still hold significant exploration potential which could see overall resources grow.

Higher-grade underground resources could be exploited earlier

In addition to the potential for the higher-grade underground mining inventory to be expanded, there may be potential to further optimise mine scheduling to enable earlier underground exploitation of high-grade sulphide material than is envisaged in the PFS (which assumed that most sulphide ore feed in the initial years of the expansion would come from the Wiluna open pits). Open-pit/underground mine scheduling and trade-off exercises are being undertaken as part of the ongoing feasibility study work. Indeed, the recently updated reserve statement is based on the revised assumption that East-West underground mine is accessed via the existing Happy Jack decline rather than via a new portal from the East-West pit, negating open-pit scheduling constraints and thereby allowing earlier access to the higher-grade underground ore.

ARC modelling assumptions

We have built a cash flow model of Matilda-Wiluna using operational and cost guidance for the current free-milling operation and the PFS parameters for the sulphide expansion.

However, we have also incorporated some of the areas of potential upside discussed above, most notably an assumption that an additional 250koz (at 1.8g/t) is added to the free-milling mining inventory (prolonging free-milling operations for five years from present). We further assume that just under 350koz (at 0.65g/t) of the Wiluna Tailings resource is fed through the free-milling circuit thereafter.

Figure 30: ARC modelling assumptions and key outcomes

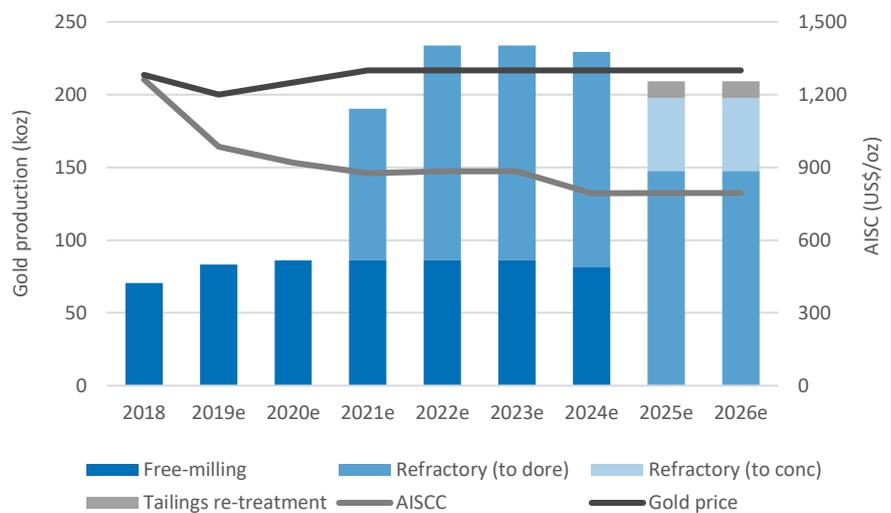
	Unit	Value
Open-pit mining inventory	Mt	18
Average grade	g/t Au	2.3
Underground mining inventory	Mt	4
Average grade	g/t Au	4.7
Tailings inventory	Mt	17
Average grade	g/t Au	0.65
Expanded processing capacity	Mt	3.3
LoM process recovery rate (oxide/sulphide/tailings average)	%	81
Annual gold production (5-year average post ramp-up)	koz pa	221
LoM AISC	A\$/oz	1,100
(at A\$1 = US\$0.73)	US\$/oz	805
Expansion capex	A\$m	120
NPV _{8%} (at US\$1,300/oz long-term gold from FY2021)	A\$m	473

Source: ARC estimates

Assuming a positive investment decision on the expansion by end FY2019/early FY2020, and an 18-month construction period thereafter for the refractory plant and mining expansion, our model assumes average gold production could increase to a six-year average of just over 220koz pa by FY2022, with a nine to ten-year mine life from today. We assume that reprocessing of the Wiluna tailings continues for a further five years thereafter, yielding 23koz of gold annually through the tail period.

On this basis, we estimate LoM average AISC at US\$805/oz (assuming the FY2019 year-to-date USD:AUD rate of 0.73). At our long-term gold price assumption of US\$1,300/oz from FY2021, this implies an all-in cash margin of 38%.

Figure 31: Forecast gold production by source and cost profile (next eight years)



Source: ARC estimates

Other assets

Wilconi cobalt-nickel JV

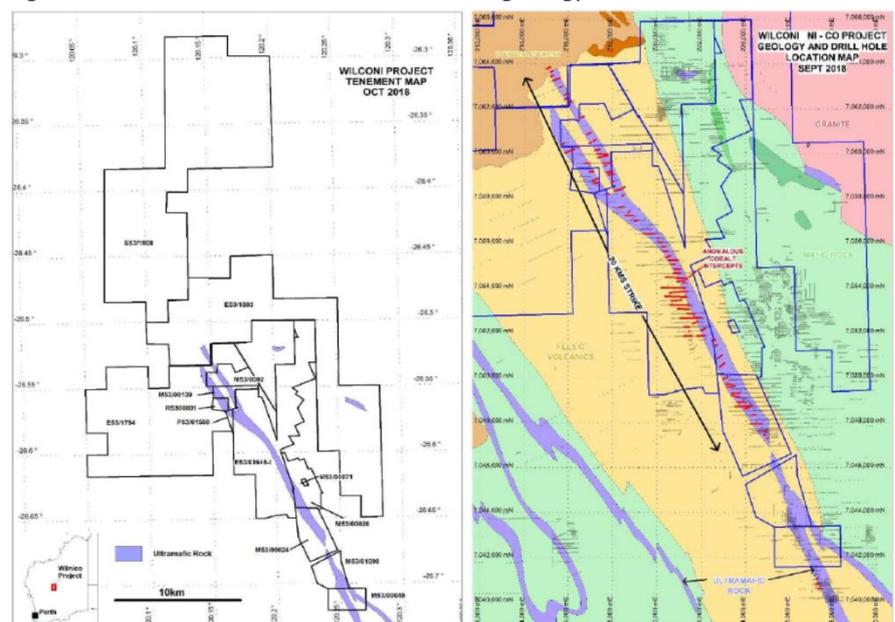
Cobalt-Nickel interests being farmed out to A-Cap Resources

Blackham recently entered a binding term sheet with fellow ASX-quoted company A-Cap Resources Ltd (ACB AU) under which the latter can farm-in to an eventual 75% interest in Blackham's Wilconi cobalt-nickel project. The project comprises 490km² of ground adjacent to Blackham's Wiluna gold operations, through which runs 30km of the Perseverance ultramafic sequence (known for hosting several high-grade nickel sulphide prospects elsewhere in the region, including Norilsk Nickel's Honeymoon Well project). The NNW-SSE striking sequence is 200-300m wide in the project area, and is the source of overlying cobalt and nickel-enriched laterites on which past drilling has shown can extend to a depth of 90m.

Previous owners commissioned a maiden resource study in 2005, which returned an inferred category resource of 81Mt grading 0.77% Ni and 0.058% Co (using a 0.5% Ni cut-off grade assumption). As part of its earn-in work programme, A-Cap plans to infill drill this historic resource, focusing on the cobalt zones, to bring it compliant with current JORC standards. It also plans step-out drilling, following cobalt anomalies outside the currently defined historic resource zones.

Under the terms of the earn-in agreement, A-Cap will acquire an initial 20% in the joint venture by paying Blackham a cash sum of A\$2.8m and acquiring the third-party exploration data on the project for A\$0.1m. Thereafter, A-Cap can earn an additional 35% interest (taking its total stake in the JV to 55%) by making a further cash payment to Blackham of A\$0.5m within two years and by spending at least A\$5m on exploration and feasibility study work within three years. It may acquire an additional 20% (for an ultimate interest in the JV of 75%) by completing a project feasibility study within 36 months and making further payments to Blackham of A\$1m in cash and A\$1.5m in A-Cap shares.

Figure 32: Wilconi JV tenement locations and geology



Source: A-Cap Resources

Lake Way potash agreement

Land-share agreement in place to monetise potash potential at Lake Way

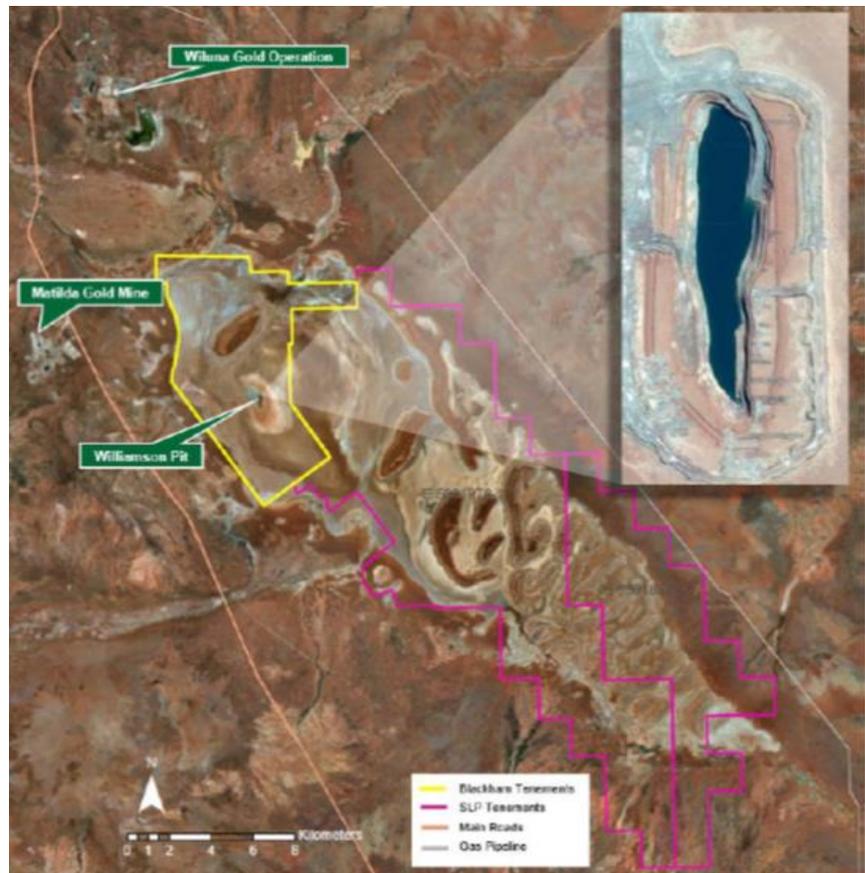
In March 2018 Blackham signed a Memorandum of Understanding to explore a mutually beneficial development and land-share deal with Salt Lake Potash (SLP AU) to unlock the potash potential of its Lake Way properties to the south east of the Wiluna operation.

Salt Lake Potash's Goldfields Salt Lakes project (GSLP) comprises 290km² of ground over the Lake Way paleochannel, a large-scale brine system which it is evaluating for development of a commercial sulphate-of-potash (SOP) operation. Blackham's adjacent Lake Way properties cover 64km² of the northern end of the system and encompass the previously mined Williamson open pit. Since gold mining ceased at Williamson in 2006, the pit has filled with brine that, according to Salt Lake Potash, now runs at an exceptionally high SOP grade of 25kg/m³.

Under the MoU, Salt Lake Potash will acquire Blackham's brine rights (including brine within the flooded Williamson pit) in exchange for Blackham getting the gold rights to Salt Lake Potash's properties, with each company retaining a royalty on their respective holdings. The companies have agreed to co-operate over data exchange and to facilitate activities on each's properties, potentially sharing overheads and infrastructure at the Wiluna mine (which could result in cost savings for Blackham).

Moreover, Salt Lake Potash will pay Blackham a 4% royalty on any future SOP production from Blackham's properties.

Figure 33: Blackham's Williamson pit lies adjacent to the GSLP project area



Source: Salt Lake Potash

Salt Lake Potash will be responsible for funding all evaluation and development costs of any SOP operation on Blackham's ground, including its plans to develop an initial 50,000tpa demonstration plant on the property (which benefits from already having a Native Title agreement in place, as well as an array of installed infrastructure relating to the past and present gold operations).

Blackham also stands to benefit from Salt Lake Potash's plans to de-water the Williamson pit ahead of the scheduled resumption of Blackham's gold mining activities there in CY2019. Salt Lake Potash is eyeing the 1.2GJ of brine contained in the pit as a starter feed for the evaporation ponds at its planned demonstration plant, the brine having already evaporated from the normal Lake Way brine grade (which according to Salt Lake Potash averages around 14kg/m³).

A scoping study of the demonstration plant project completed by Salt Lake Potash in July 2018 indicated the potential for development to be fast-tracked by utilising the Williamson pit brines. The company plans to construct an initial pond system to de-water the pit, with these Williamson ponds making up approximately one-third of the total planned demonstration plant pond area.

Salt Lake Potash expects to begin construction of the Williamson ponds by the end of CY2018, in parallel with completing a full feasibility study of the demonstration plant project, with initial salt harvesting following in the second half of CY2019. The scoping study estimated total project capital costs at A\$49m. Approval for development of a pond system to dewater the Williamson pit was received from the Department of Mines, Industry Regulation and Safety in October 2018.

Figure 34: SLP plans to begin de-watering Blackham's Williamson pit by end CY18



Source: ARC

Board and Senior Management

Milan Jerkovic – Executive Chairman

Milan Jerkovic is a qualified geologist with postgraduate qualifications in mining & mineral economics and over 30 years' experience in the mining industry involving resource evaluation, operations, financing, acquisition, project development and general management. Mr Jerkovic was previously CEO of Straits Resources Ltd, and has also held positions with WMC, BHP, Nord Pacific, Hargraves, Tritton and Straits Asia Resources (as founding Chairman). He is a Fellow of the AIMM and a member of the Australasian Institute of Company Directors.

Bryan Dixon – Managing Director

Bryan Dixon has over 20 years' experience in the mining sector, focused mainly in the gold industry, and was joint-winner of the Asia-Pacific Mining Executive of the Year award in 2017. Mr Dixon is a Chartered Accountant and has extensive experience in the management of publicly-quoted companies. Previously he has been employed by an international accounting firm, Resolute Ltd and Archipelago Resources Plc. Mr Dixon has held numerous director and management roles with emerging resource companies, specialising in project feasibility, development, acquisitions and financing of mining projects.

Richard Boffey – Chief Operations Officer

Richard Boffey is an internationally experienced mining executive with over 26 years' specialising in mining project start-ups, mine management, feasibility studies and continuous improvement. Mr Boffey has a successful track record of leading and delivering mining projects through the various phases of planning, permitting, construction and full operations safely, on schedule and on budget. Previously he led the development of the Efemcukuru Gold Mine in Turkey for Eldorado Gold Corp and the Wallaby underground project for Granny Smith Mines. Mr Boffey was recently General Manager of Operations at Cupric Canyon's Khoemacau copper mines project in Botswana and previously held the role of Regional Manager, Mining for Barrick.

Anthony Rechichi – Chief Financial Officer

Anthony Rechichi is a Chartered Accountant and an accomplished senior accounting and finance professional with over 17 years' experience with public companies and professional services, predominantly in the gold mining industry. Prior to joining Blackham, Mr Rechichi spent ten years with Resolute Mining Ltd, latterly in the role of General Manager Finance, playing a key role in long-term budgeting and forecasting across three operating mines with a key focus on cost control, treasury management, financial reporting, and taxation planning and compliance. Mr Rechichi has strong experience in both debt and equity financing.

Greg Fitzgerald – Non-Executive Director

Greg Fitzgerald is a Chartered Accountant with more than 30 years' experience in the natural resources sector, particularly managing finance and administrative matters for listed companies. Mr Fitzgerald held the positions of Chief Financial Officer and Company Secretary for ASX 200 company Resolute Mining Ltd, for more than 15 years. Mr Fitzgerald is Chairman of Blackham's Audit and Risk Committee and its Remuneration and Nomination Committee.

Tony James – Non-Executive Director

Tony James is a mining engineer with considerable experience in operational and corporate management and project development, including roles as Managing Director of Carbine Resources, Atherton Resources and Mutiny Gold. Mr James has held several senior executive positions with gold producer Alacer Gold Corp, including President of its Australian Operations following the merger between Anatolia Minerals and Avoca Resources in 2011. He also played a key role in Avoca's initial growth and success, leading the feasibility, development and operations of the Higginsville gold operations.

Geoff Jones – Non-Executive Director

A civil engineer with over 30 years' experience in construction, engineering, mineral processing and project development in Australia and overseas, Geoff Jones is current Managing Director of GR Engineering Services Ltd. Mr Jones previously worked for Boulderstone Hornibrook, John Holland, Minproc Engineers and Signet Engineering, before serving over six years as Group Project Engineer for Resolute Mining Ltd, with whom he was responsible for the development of the group's mining projects in Australia, Ghana and Tanzania. Mr Jones was General Manager of Sedgman Ltd's metals engineering business and was also responsible for the strategic development of the group's metals engineering division internationally prior to joining GR Engineering as Chief Operating Officer in 2011.

Gold market

Having ended 2017 strongly, investor sentiment towards gold reversed trend from Q2 2018, pushing the spot price down through US\$1,300/oz to a nadir of US\$1,175/oz in August. This appears to have been driven by the twin headwinds of dollar strength and rising interest rates in the US, historically the dominant influences on gold price direction (gold, as a non-yielding 'alternative currency' asset class, typically has a strong inverse correlation with both).

A degree of support was subsequently found around the US\$1,200/oz level, before prices ticked up in mid-October as US Treasury real yields retreated somewhat.

Figure 35: 10-year gold versus USD (LHS) and US interest rates (RHS)



Source: Bloomberg

Gold set for upward turn in 2019?

Predicting how the macro-economic drivers for gold will play out over coming years is a thankless (and some may say futile) task. However, we would argue that near-term headwinds are already priced in, and that the fact that gold has remained at a robust level of cUS\$1,200/oz could thus be viewed as bullish for its future prospects.

Another US rate hike is widely anticipated in December, which if it transpires we believe would likely temper a gold rally in the short term. But looking ahead in to CY2019, many economists are predicting the Fed's fiscal tightening cycle could come to an end as domestic economic growth rates slow. A drop off in US Treasury yields, or even a halt to them rising, would be a significant positive for gold, in our view. That said, unless rates are lowered (which may be a possibility over the longer-term, but in our view is unlikely on a near-term outlook), we suspect the US Dollar could remain relatively stable and may be a beneficiary of safe-haven investment alongside gold (potentially limiting upside for the latter). But we believe that the US Dollar could, at very least, cease to be the headwind it has for gold over much of 2018 (particularly in emerging markets, where dollar strength has constrained demand).

We use a US\$1,300/oz long-term gold price assumption

In this context, we consider US\$1,300/oz a suitable long-term price assumption to use for equity valuation purposes. In the event of a full-scale reversal of US fiscal tightening policy, this outlook could indeed prove particularly conservative.

Gold equities look cheap relative to gold by historic levels

Perhaps unsurprisingly, gold equities have for the most part underperformed gold over the past six years as the precious metal has struggled for direction. This trend was particularly marked in Q3 CY2018, when gold equities fell dramatically as gold dropped down through US\$1,300/oz and, temporarily, through US\$1,200/oz. However, whenever gold has rallied (most notably in H1 CY2016), equities have run hard, suggesting to us that there is latent investor appetite to take advantage of undemanding valuations by historic standards. It is noteworthy that the October 2018 leg-up in gold has been accompanied by a sharp rebound in gold equities.

Figure 36: Gold equities have underperformed over recent years (LHS), but have rebounded strongly in recent weeks (RHS)



Source: Bloomberg

Australian gold price has outperformed

The gold price in Australian Dollars has materially outperformed US Dollar gold over the past six months (reflecting the US Dollar’s appreciation), and indeed is up on its year-ago level. This has helped Australian gold producers maintain robust margins, and has seen Australian gold equities outperform the wider gold sector.

Figure 37: AUD gold price has strengthened over past year (LHS), driving outperformance by Australian gold equities (RHS)



Source: Bloomberg

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