

Tungsten sector update

Wolf site visit and sector news recap

Metals & mining

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In this report we provide our feedback on the recent site visit to Wolf's Hemerdon tungsten project. We also discuss the latest sector news, with Wolf upgrading mineral reserves, Ormonde signing a funding agreement with Oaktree Capital, while Almonty has made another approach to Ormonde as well as reporting mixed Q115 financial results. At the same time, Northcliff continues to make progress on the permitting front.

We have attended a **site visit to Wolf's tungsten-tin Hemerdon project** hosted by the company's managing director Russell Clark. The project is on track for first concentrate production in mid-2015, with first shipment expected in Q315. In our view, the most important areas of discussion during the presentation concerned the project's operational upside, with the potential to extend the mine life and increase the throughput. The company has just reported a 34% increase in mineral reserves at Hemerdon to 35.7Mt at 0.18% WO₃ and an extension to operational hours.

Ormonde Mining has signed a funding agreement with Oaktree Capital aiming to bring the Barruecopardo tungsten project into production. The funding package will be split between debt and equity. In 2014, the company estimated that the overall pre-production capital requirement for the project is around €70m. Ormonde will remain the project's manager, receiving a certain fee; however, the company will lose its majority ownership in the project to Oaktree.

Almonty Industries has made another attempt to merge with Ormonde. While there are no details on the proposed combination of the companies, given the seemingly not very attractive terms of Oaktree's financing, we believe that this time Ormonde shareholders could be more susceptible to Almonty's offer. We believe the proposed merger may be beneficial for both companies, with the resultant combination of Almonty's producing tungsten assets that generate positive cash flow with Ormonde's low cost, low capital-intensive Barruecopardo project.

Almonty reported mixed Q115 financial results, which were negatively affected by the weak performance of WCM. At the same time, Almonty's flagship Los Santos project delivered robust results, with all-in cash production cost of C\$184/mtu.

Northcliff Resources announced that the New Brunswick Department of Environment and Local Government (NBDELG) completed a review of the final draft of the EIA on the Sisson project. The updated report was deemed appropriate for the public consultation. NBDELG is expected to provide an update on the duration of the public consultation process in April.

King Island Scheelite reported a maiden mineral reserve at its Dolphin tungsten project and is planning to update on the results of the optimisation studies in Q215.

The tungsten market was not immune to the overall deterioration in prices of main industrial commodities. The benchmark APT price has weakened further in the last couple of weeks and is currently trading at around US\$273/mtu, an 11% decline ytd. This move could be a combination of destocking as well as the deterioration in underlying industrial demand on the back of slowing economic growth in China and a visible reduction in investments in mining and oil and gas sectors. However, contrary to some other industrial commodities, there does not seem to be significant oversupply on the tungsten market.

Hemerdon site visit feedback; Reserves upgrade

Wolf Minerals reported a 34% increase in JORC-compliant mineral reserve to 35.7Mt at 0.18% WO₃ at the Hemerdon tungsten project. The overall mineral resource has come in at 145.2Mt at 0.15% WO₃. Despite a 50% reduction in the measured and indicated tonnage, the company reported a 21% increase in the respective in-situ grade. Similarly, while the overall mineral resource has come down by 64% compared to the 2011 estimate, the overall grade has gone up to 0.15% WO₃ versus 0.13% WO₃. The company has also received a temporary approval to increase operational hours to seven days a week, 24 hours a day. Overall, we believe that the news are positive, pointing to a likely double-digit increase in Hemerdon's annual production and mine life.

In other news, we have attended a site visit to Wolf's tungsten and tin Hemerdon project near Plymouth, UK, hosted by the company's managing director Russell Clark. On track for first concentrate production in mid-2015, the project is set to become one of the largest new tungsten mines outside China. While tungsten market conditions are likely to remain challenging in 2015/16 in light of the continuing reduction in capital expenditure across oil & gas and mining sectors as well as slowing economic growth in China, the project's attractive cost positioning coupled with the operational upside potential provide Hemerdon with some downside earnings protection against the current backdrop of weak commodity prices. This might justify Wolf's premium rating. Below are the key takeaways from the site visit.

Hemerdon: On track for first production in mid-2015

- The Hemerdon project is currently 80% complete and the company is planning to start commissioning parts of the equipment shortly. First ore is expected to be delivered to the plant in June 2015 and first concentrate shipment is scheduled for September 2015. We understand that the company does not envisage any issues with meeting this schedule.
- The company believes it will be able to meet the original capex budget of c £123m, with the project being fully funded through to positive cash flow. We understand there is very little upside risk to the announced capex number as it includes pre-stripping and similar start-up related costs. The project benefits from the available infrastructure such as roads, power and port, which keeps its capital intensity at a reasonably low level.
- At the same time, the announced cash production cost of US\$128/mtu (includes tin credits at US\$15,000/t, royalties and rehabilitation cost), which is based on the 2011 estimate, might be slightly on the low side. The actual number could be about 10-15% higher than the original estimate. Having said that, this cash cost will still compare favourably with the majority of non-Chinese tungsten producers. The low strip ratio (LoM estimate of 1.5:1.0 t:t) is the major driver behind the project's attractive cash cost positioning. We also understand that the UK salaries are relatively low compared with some of the Australian mining operations.
- The company has converted the project's mineral resources to comply with the JORC 2012 code, which has resulted in a visible reduction in tonnage, but increase in grade. However, this was more than compensated by a 34% increase in the mineable reserve to 35.7Mt at 0.18% WO₃. The project's overall JORC compliant resource now stands at 145.2Mt at 0.15% WO₃, with 58.6Mt at 0.17% WO₃ in the measured and indicated category. This compares to the previous resource estimate of 401.4Mt at 0.13% WO₃.
- The upgrade in the mineral reserve was driven by steepening the open pit walls and deepening the pit by about 65 metres. This was supported by the work undertaken in 2014, which the results suggesting that pit rock walls are competent enough and can be steepened. The larger reserve will enable the company to extend the project's mine life from the previously estimated 10 years to about 13-14 years.

- The upgraded mineral reserve is within the existing pit area, which in turn is constrained by the planning permission that expires in 2021. We understand that the company is considering extending the planning permission before 2021 to be able to cover the larger area of the deposit and further extend the project's reserves and the mine life. However, this is not a straightforward process with little visibility on the potential timing of such a grant.
- On the operational side, the company believes it will be able to achieve higher plant recovery, increasing it from the currently estimated c 66% to around 70%. Improving plant availability is also underway as the company has just received a temporary permission from Devon County Council to operate 24 hours for seven days a week instead of the previously allowed five and a half days a week operation. This could potentially lift the steady state production capacity to 420-430kmtu of WO_3 from the currently estimated nameplate capacity of 350kmtu of WO_3 .
- The company believes that tungsten supply-demand is balanced right now. However, unlike many other commodities, there is no glut of supply. The prices are down due to de-stocking rather than growing production. Commenting on the prices, Russell Clark mentioned that the pricing mechanism itself is not very transparent. The offtake pricing is set based on the index, which is essentially tracking the spot market, which in turn is significantly influenced by a limited number of transactions as the size of the spot market is relatively small. Furthermore, as we have mentioned before, we understand that conflict material, which is normally sold at a discount, also affects the benchmarks.

Exhibit 1: Hemerdon's processing plant is under construction



Source: Edison Investment Research

Exhibit 2: Hemerdon updated mineral resources and reserves

	2015 updated			2011 DFS			Changes, %		
	Tonnage	WO3 grade	Sn grade	Tonnage	WO3 grade	Sn grade	Tonnage	WO3 grade	Sn grade
Proved	27.9	0.19	0.03	23.5	0.19	0.03	18.7	0.0	0.0
Probable	7.8	0.15	0.02	3.2	0.18	0.03	143.8	-16.7	-33.3
Total reserve	35.7	0.18	0.03	26.7	0.19	0.03	33.7	-5.3	0.0
Measured	39.9	0.18	0.02	76.8	0.15	0.02	-48.0	20.0	0.0
Indicated	18.7	0.16	0.02	40.3	0.13	0.02	-53.6	23.1	0.0
Measured and Indicated	58.6	0.17	0.02	117.1	0.14	0.02	-50.0	21.4	0.0
Inferred	86.6	0.14	0.02	284.2	0.13	0.02	-69.5	7.7	0.0
Total resource	145.2	0.15	0.02	401.4	0.13	0.02	-63.8	15.4	0.0

Source: Wolf Minerals

Sector news: Busy times despite weaker sentiment

Ormonde: Barruecopardo financing and operations update

On 18 February Ormonde announced that it had finalised and signed a term sheet with funds managed by Oaktree Capital with regards to securing a funding package to advance the Barruecopardo tungsten project into production and to undertake an early-stage evaluation of the project's expansion potential. While the information available is limited, the company mentioned that the funding package will be split between debt and equity without providing any particular details. Earlier in 2014, Ormonde estimated the overall pre-production funding requirement for the project to be around €70m (US\$75m based on spot exchange rate), with c €9m in refundable capex VAT. As a result of this transaction, Ormonde will remain the project's manager, receiving a certain fee; however, the company will lose its majority ownership in the project to Oaktree. It is not clear if the transaction was agreed on an NPV or on the market value basis. Based on the latter approach, the company's ownership may be diluted to about 25% in the fully-funded project.

Oaktree has already completed the technical due diligence on the project and, according to the agreement, the companies will have to finalise funding arrangements before 10 April 2015. Oaktree has also agreed to provide the company with a US\$1.5m short-term loan, which will be secured by the shares of the project holding company.

On the technical side, the company reported that it has completed negotiations for power connection and water supply, applied for a council building permit and is finalising preparation for expropriation of the remaining land that is required to build the project within the granted Mining Concession. The company is also finalising negotiation for a construction management contract. The company is now looking to bring the project into production in the second half of 2016.

Almonty makes another attempt to merge with Ormonde...

After approximately 12 months lapsed since its first unsuccessful approach, on 10 March 2015 Almonty announced another attempt to merge with Ormonde. While there are no details on the proposed combination of the companies, given the seemingly not very attractive terms of Oaktree's financing, we believe that this time Ormonde shareholders could be more susceptible to Almonty's offer. Back in 2013, Almonty offered one share for every 12.2 Ormonde shares, valuing the company at around £24m (c C\$40m) compared to Almonty's valuation of C\$54m at that time. At the moment, the market values Almonty at C\$32m and Ormonde at £16m (C\$31m). We believe the merger may be beneficial for both companies, resulting in a combination of Almonty's producing tungsten assets that generate positive cash flow with Ormonde's low cost, low capital-intensive and relatively long-life Barruecopardo project.

...and reports mixed Q115 financial results

Almonty reported mixed Q115 financial results that were negatively affected by the weaker than expected performance of Wolfram Camp Mine (WCM). The company's flagship Los Santos project delivered relatively robust results, with revenue and implied EBITDA (Edison estimate based on the reported all-in cash operating cost) coming in at C\$6.7m and C\$2.7m respectively. Despite a reduction in the head grade, which was in line with our expectations, Los Santos saw an improved plant recovery, which reached 56% in Q115. The all-in operating cost of C\$184/mtu compares to the realised unit revenue of C\$303/mtu, which in turn implies a relatively modest 19% discount to the benchmark APT price. In Q115, the company allocated C\$1.4m in costs to the tailings inventory and capitalised C\$1.4m in waste mining costs.

WCM reported weak results, with WO₃ concentrate sales of 6.8kmtu (production of 11.1kmtu) and revenue of C\$2.0m. The project's head grade was only 0.18% WO₃ and the plant recovery was 65% in Q115. The project's total cash cost of sales came in at C\$4.9m, while the all-in unit operating cost was reported at US\$354/mtu. According to the company, production was negatively affected by the breakdown of the mining excavator, while sales were below production due to the impact of heavier rainfall and the Christmas holidays. On the cost-cutting front, the company completed the replacement of the hired mining fleet, which, as we understand, could potentially reduce costs by c A\$1.0-1.5m per annum. Exploration drilling to produce the project's first mine plan was expected to be completed in early March.

All in all, Almonty reported consolidated revenue of C\$7.9m and headline EBITDA of just C\$0.2m, with loss-making WCM significantly diluting consolidated profit margins. We estimate that EBITDA adjusted for the movements in tailings inventory at Los Santos was a negative C\$0.9m. The net operating cash outflow was C\$1.3m. As of the end of December, the company had a robust cash position of C\$9.4m, with an additional C\$1.2m in restricted cash, and net debt of C\$18.7m.

Northcliff Resources: Environmental permitting progress

On 2 March 2015, Northcliff Resources announced that the New Brunswick Department of Environment and Local Government (NBDELG) completed a review of the final draft of the Environmental Impact Assessment (EIA) on the Sisson project. The updated report was deemed appropriate for the public consultation, which could potentially result in any additional requirements and conditions being incorporated in the EIA approval before the final construction and mining permits is granted. According to the company, NBDELG is expected to provide an update on the duration of the public consultation process in April.

Depending on the length and the intensity of the public consultation process, the company may still be on track to receive the EIA approval around mid-2015. With the robust feasibility study delivered in 2013, the EIA and the related permitting is the final critical milestone for the project ahead of securing project finance and advancing Sisson to the construction stage.

King Island Scheelite: Maiden mineral reserve estimate

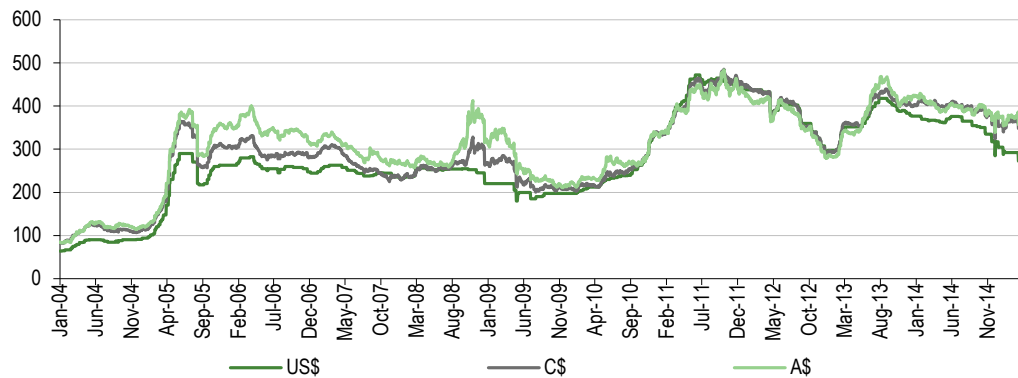
King Island Scheelite has reported a maiden mineral reserve at its Dolphin tungsten project. The project's open-cut probable reserve was estimated at 1.9Mt at 0.55% WO₃. This reserve is expected to support a mine life of about 4-5 years for the open-cut operation, which is expected to be based on a 400-500ktpa mine rate. The project's overall mineral resource remains unchanged at 10.8Mt at 0.81% WO₃ in the indicated category. The reserves and resources are compliant with the 2012 JORC code. The company is undertaking an optimisation study, which, among other things, will consider employing an ore sorter, potentially resulting in higher recoveries and lower processing costs. Various mine plans are also being considered by the company. KIS is planning to update the market on the results of the additional work in Q215.

Sector valuation update

APT price affected by weaker underlying demand

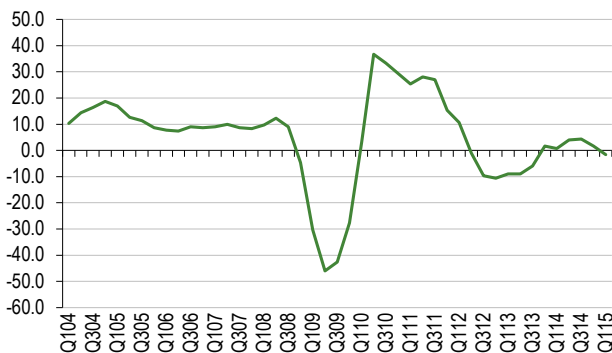
The tungsten market was not immune to the overall deterioration in prices of the main industrial commodities. The benchmark APT price has weakened further over the last couple of weeks and is currently trading at around US\$273/mtu, an 11% decline ytd. We believe that this move could be a combination of destocking as well as the deterioration in underlying industrial demand on the back of slowing economic growth in China and a visible reduction in investments in mining and oil and gas sectors. We note an 11% y-o-y reduction in new organic orders at Kennametal in February following a 7% drop in January. In turn, Sandvik reported a 6% decline in organic orders growth intake in Q414, with a 17% reduction in orders at the mining division. At the same time, unlike some other industrial commodities, we do not see the tungsten market as being oversupplied. The apparent weakness in the US dollar-denominated APT price was partly offset by the depreciation of the commodity currencies, with the Canadian dollar falling 10% and the Australian dollar depreciating 7% against the US dollar since the beginning of 2015. Exhibit 2 shows the performance of the APT price denominated in different currencies.

Exhibit 3: APT price performance in US\$, C\$ and A\$ terms (\$/mtu)



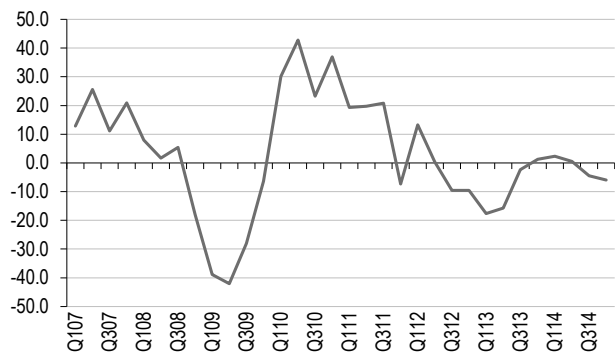
Source: Bloomberg

Exhibit 4: Kennametal new order growth rates, %



Source: Kennametal

Exhibit 5: Sandvik new order intake growth, %



Source: Sandvik

On the valuation side, the sector has seen a further de-rating on the back of the falling APT prices and investors' general scepticism towards mining equities. The only notable exception was Wolf Minerals, whose shares were supported by the expectations of the upcoming production start-up as well as the increase in the reserve base and operational hours. Based on Bloomberg consensus, the stock is currently trading at a 2017e EV/EBITDA of 5.8x. This compares to a premium EV/resource valuation of US\$17.6/mtu, which is somewhat justified by the company's near-term producer status. On an EV/resource basis, Northcliff Resources remains one of the cheapest stocks, trading at US\$0.3 per contained attributable mtu. We also note that Almonty, which is

currently the only publicly traded independent tungsten producer apart from North American Tungsten, trades at an undemanding 2015e EV/EBITDA of 2.7x (EBITDA adjusted for waste mining and inventory movements). Having said that, given the weaker than expected performance of WCM in Q115, we see the downside risks to our 2015 earnings estimates for Almonty.

Exhibit 6: Tungsten sector relative valuation

Company	Main project	Country	Stage	Total attr. JORC Resource, Mt	WO ₃ , %	Contained WO ₃ , kmtu	Mcap, US\$m	EV, US\$m	EV/resource US\$/mtu
Wolf Minerals	Hemerdon	UK	Construction	145.2	0.15	21,780	257.1	382.7	17.6
Ormonde Mining	Barruecopardo	Spain	Permitting/Funding	27.4	0.26	7,121	24.0	21.9	3.1
Carbine Tungsten	Mt Carbine	Australia	Production/Funding	59.3	0.116	6,876	29.4	29.5	4.3
Tungsten Mining	Kilba	Australia	Exploration	5.0	0.24	1,200	12.2	11.2	9.3
King Island Scheelite	Dolphin	Australia	Funding	10.8	0.81	8,764	17.4	16.4	1.9
Northcliff	Sisson	Canada	Permitting/Funding	496.5	0.07	34,739	14.7	11.8	0.3
W Resources	La Parrilla	Spain	Production/Exploration	52.4	0.11	5,764	9.3	8.7	1.5
Woulfe Mining	Sangdong	South Korea	Late-stage exploration	15.1	0.62	9,353	16.4	28.6	3.1
Vital Metals	Watershed	Australia	Funding	34.5	0.14	4,833	7.4	9.9	2.0
Thor Mining	Molyhil	Australia	Late-stage exploration	4.7	0.28	1,319	3.1	4.2	3.2

Source: Company data, Bloomberg, Edison Investment Research

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