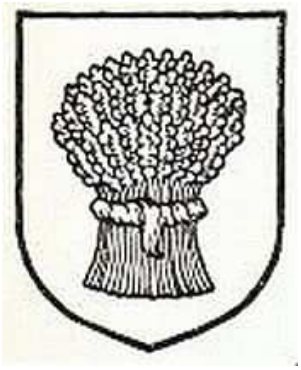
Tuesday, May 11, 2021



HALLGARTEN & COMPANY

Coverage Update

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Thor Mining

(ASX:THR, AIM:THR)

Strategy: LONG

Key Metrics	
Price (AUD)	$0.015
(GBP)	£0.008
12-Month Target Price (AUD)	$0.06
Upside to Target	300%
12mth hi-low (AUD)	$0.005 - 0.04
(GBP)	£0.0028 to 0.014
Market Cap (AUD mn)	$24.33
(GBP mn)	£13.30
Shares Outstanding (mns)	1,622
Fully diluted (mns)	2,023

Thor Mining

Pivoting Towards Copper

- + With a portfolio of properties with both Copper and Tungsten, it was not difficult for the company to reweight its efforts and focus from the "tough" metal to the "red" metal
- + Copper is moving to the fore with two different exposures, one indirectly via EnviroCopper and one directly via the exploration and development of Alford East
- + Thor is one of the survivors in the Tungsten space after the ranks of explorers/developers were brutally thinned out since 2011
- + The company has two Tungsten projects under development, one in the Northern Territory of Australia and another in the state of Nevada in the US
- + Tungsten bottomed in 2020 and is now on the upswing. It has been one of the last of the specialty metals to get moving
- + The Kapunda copper project (and Alford West) has been folded into EnviroCopper, a private company developing mining plans based around *In situ* Recovery (ISR) techniques
- × Tungsten's long downtime has thwarted the ambitions of the company that persisted in advancing development plans
- × Developers, particularly in Iberia, are moving near to production thus adding to Western output
- × Raising money for Tungsten projects remains challenging

Seeing Red

The hunt for Tungsten has been a long and lonely one for Thor with the torpid price of the metal (until recently) not having helped in moving the development of the company's resources towards production or financing thereof. The company has long had a second string in Copper and indeed some of its Tungsten deposits or the concessions shared with Tungsten assets also had copper mineralisation.

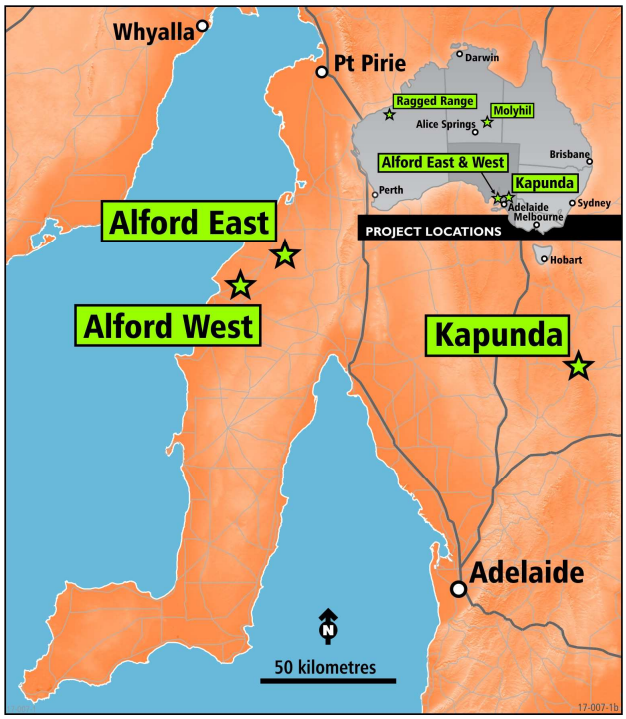
With copper shaking off its long-term blues in the second half of 20020 and soaring from being range-bound below $3 per lb to around $4.30 (before pulling back to around $4, the opportunity has arisen to refocus the company on its Copper assets while waiting Tungsten moving to a more profitable range to develop or pondering over solutions for the Tungsten assets.

In this update we shall look at how Copper is pulling ahead of Tungsten as the main focus at Thor. Then there is the gold and Uranium/Vanadium components. We examine how the management team might shape the company to take advantage of these different opportunities.

The Copper Assets

The copper exposure at Thor consists of its 30% participation in EnviroCopper, a Joint Venture focused upon InSitu Recovery (ISR) of copper from suitable mineralogies, and its direct holding in the Alford West development. All of these (on map at right) are in South Australia.

There is also exposure to copper via the, primarily, Tungsten-focussed Molyhil asset in the Northern Territory.



EnviroCopper

EnviroCopper Limited is the partner with Thor in the Kapunda project. EnviroCopper is earning a 70% interest in this resource with Thor holding 30% of EnviroCopper.

The company is a specialist in InSitu Recovery of metals including copper and gold. ISR is not suitable for all mineralogies but can provide substantial benefits over conventional mining in the right geological setting. The goal is to deliver a low-cost method of mineral extraction with minimum environmental footprint. The technology employs recent developments of innovative environmentally benign solutions to recover gold and copper.

In July 2018, EnviroCopper received a Cooperative Research Centres (CRC) Program Grant from the Department of Industry, Innovation and Science for the Kapunda project. The Commonwealth Government has committed AUD$2.85mn over three years (to June 2021) for this project.

The CRC Program supports industry-led collaborations between industry, researchers and the community. The research is in conjunction with University of Adelaide's Institute for Mineral and Energy Resources and CSIRO's Minerals and Land & Water Divisions.

The Kapunda Project

The Kapunda Copper Mine is located on block EL5626 in the northern Mount Lofty Ranges, South Australia approximately 35km north of Gawler and 80km from Port Adelaide. Environmental Copper

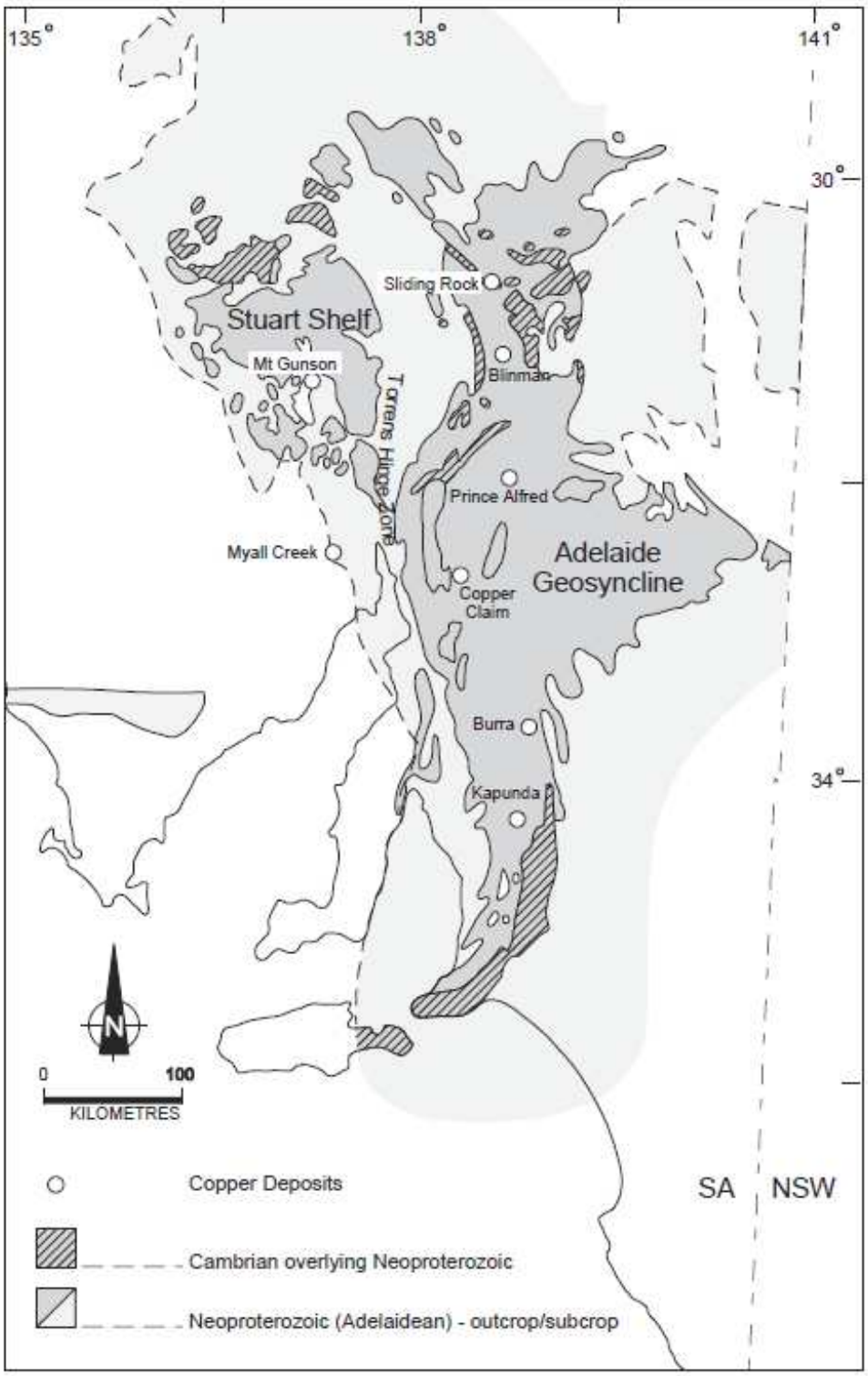
Recovery SA Pty Ltd (the former name of EnviroCopper) was earning-in, from Terramin (ASX:TZN), up to a 75% interest in the mineral rights and claims over the leachable portion of Kapunda.

The Kapunda Mine, discovered in 1842, was the first copper mine in Australia, yielding about 13,500t from 68,000t of ore. It was developed and mined by Tin and Copper miners from Cornwall in England, who emigrated to the area, bringing invaluable techniques to the nascent country. Low copper prices, the apparent depletion of easily accessible high grade ore and excessive in-flows of water led to the closure of the mine in 1877. Minor operations continued sporadically until 1912.

The joint venture is investigating the potential to extract copper using ISR from the shallow mineralised halo around the historic Kapunda Mine workings. Because ISR processes are not burdened by the normally high capital and operating cost activities of mining, crushing, grinding, and flotation, there is a general expectation that production from shallow deposits amenable to in-situ techniques may be at relatively low cost.

Regional Geology

An explanation of the regional geology is detailed in the research paper: “Sediment-hosted stratiform copper deposits in the Adelaide Geosyncline, South Australia: Geophysical responses of mineralisation and the mineralised environment” by Mike Dentith & Robert Stuart in *ASEG Extended Abstracts, 2003:3*, pages 169-196. The regional geology is shown below:



The authors relate that the Neoproterozoic rocks were deposited within the Adelaide Geosyncline. This is a complex system of successive rift and subsident basins, extending north-south for a distance of

about 750 km. Large thicknesses of sediment accumulated in these basins, although lateral migration of depocentres making estimation of the overall thickness difficult.

The rocks are predominantly continental sediments, with only minor occurrences of igneous rocks. Unconformably overlying the youngest Neoproterozoic rocks are Cambrian carbonates deposited in the Arrowie Basin. Subsequently, deformation during the Cambro-Ordovician Delamarian Orogeny, created the present-day fold-thrust belt.

Previous researchers (Solomon and Groves in 1994) summarised the characteristics of South Australian sediment-hosted copper deposits, and their observations are used as the basis for the following:

- Most of the deposits are stratabound, in that they are confined to particular units in the local stratigraphy, but mineralisation may transgress lithological boundaries
- Most of the deposits are copper-rich, although some contain significant amounts of Lead and Zinc sulphides. (The region also contains sediment-hosted mineralisation containing lead and zinc minerals instead of copper)
- The main primary ore minerals are pyrite, chalcopyrite, bornite, quartz, and carbonate, and Cobalt-rich phases are characteristic
- At most there is only minor hydrothermal alteration in the wall rocks
- The ore minerals normally occur in small veins and veinlets, disseminated along bedding, and in the oxidised zone also in vugs
- In many deposits, ore-grade is only achieved through the process of secondary enrichment

Kapunda's Geology

The deposit features substantial near surface oxidized copper mineralisation, transitioning at depth to readily leachable chalcocite then primary chalcopyrite. The copper deposits described here occur within deformed Neoproterozoic and Cambrian sedimentary rocks.

The local geology consists of folded and faulted sediments of the Tapley Hill Formation. In the Kapunda Mine area, the local strike is to the northnorthwest and dip is about 45º to the westsouthwest. Most of the mineralisation itself occurs within what has been termed the *Kapunda Mine series*. This unit is 500-700 m thick, consisting mainly of massive to laminated siltstones that contain pyrite and pyrrhotite. However, the cupriferous units are two dolomitic siltstone horizons, ranging from 50m to 300m in thickness. The mineralised dolomitic units grade laterally into unmineralised siltstone.

Mineralisation is in two main forms:

- low-grade disseminated to bedded

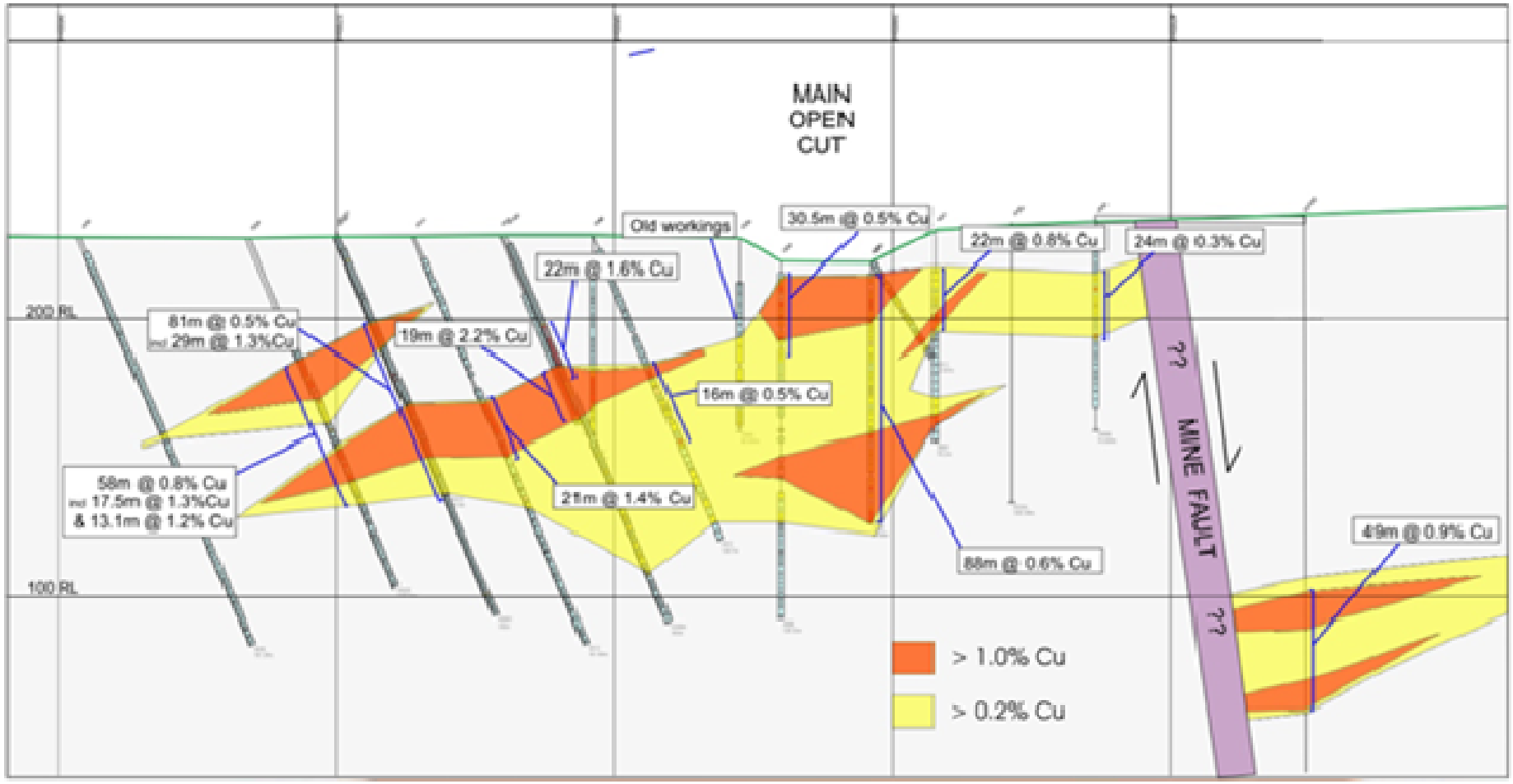
- discordant to concordant chalcopyrite-pyritepyrrhotite-carbonate-quartz veins

Chalcopyrite is the main copper-bearing mineral, and pyrite and pyrrhotite are also present. The veins mainly have sharp irregular contacts with the host rocks, and there is no associated alteration.

Mining was mainly of secondary ore, created by supergene enrichment of the vein mineralisation. The oxidised zone is characterised by leaching near the surface, with a south-plunging zone of enrichment, typically 75m thick, below this. The vein mineralisation at Kapunda coincides with a northwest-trending zone of kaolinised sediments, about 150m wide. Some mining of primary mineralisation occurred, but this was of substantially lower grade. The mineralised veins are sub-parallel, trending about 5-20° and dipping between 60 and 80° to the west. The ''main lode'' is an exception, trending 340-350° and dipping at 30-45° to the west, parallel to bedding.

Mineralisation also occurs between the veins in places. The locations of veins have been thought to be joint-controlled, since evidence of displacement is rare. The mineralised veins define an en-echelon pattern, and may be related to movements on a fracture zone trending northnorthwest, parallel to a conjugate joint set.

Besides the main ore zones, low-grade disseminated mineralisation occurs in the "kaolin ore body". This mineralisation trends sub-parallel to the zone of supergene-enriched vein mineralisation, and has a shallow plunge to the southeast, closely corresponding in the vertical plane with the supergene-enrichment zone.


MAIN
OPEN
CUT
Old workings
30.5m @ 0.5% Cu
22m @ 0.8% Cu
24m @ 0.3% Cu
22m @ 1.6% Cu
200 RL
81m @ 0.5% Cu
incl 29m @ 1.3%Cu
19m @ 2.2% Cu
16m @ 0.5% Cu
58m @ 0.8% Cu
incl 17.5m @ 1.3%Cu
& 13.1m @ 1.2% Cu
21m @ 1.4% Cu
88m @ 0.6% Cu
49m @ 0.9% Cu
100 RL
?? MINE FAULT ??
> 1.0% Cu
> 0.2% Cu

Resource

In February of 2018 a new inferred resource was published. This had been commissioned by ECR and by Terramin and related to the part of the resource that is recoverable by way of in-situ leaching techniques.

Following an extensive review of historical drill data, historical mining records along with additional test work, TEL and ECR have estimated a combined Resource of 47.4mn tonnes at 0.25% copper using a 0.05% copper cut off.

Kapunda Resource Estimate

Mineralisation	Category	MT	Cu Grade	Contained Cu tonnes
Copper Oxide	Inferred	30.3	0.24%	73,000
Secondary Cu Sulphide	Inferred	17.1	0.27%	46,000
Total		47.4	0.25%	119,000

That resource grade is well within the recommended ranges for in-situ recovery of copper and preliminary investigations of hydro geological parameters appear favourable.

The resource includes a high-grade core of 29mn tonnes at 0.32% Cu containing 91,200 tonnes of Copper.

As an aside we would note that back in February 2014 Terramin announced the discovery of significant REE mineralisation (with Scandium) at Kapunda following the identification of unusually high concentrations of REE and Scandium in quartz veins at the historic Kapunda Mine. Our enthusiasm for Scandium is undimmed and REEs are a turnaround story at the moment.

Alford West

The Alford Copper Belt is a coherent zone of potentially In Situ Recovery (ISR) amenable copper-gold oxide mineralization,within a structurally controlled north-south trending trough of deeply kaolinized and oxidized metamorphic units on the edge of the Tickera Granite. Kaolin and alunite overprints metasediment, granite and calc-silicate altered metasomatites. The timing of the argillic alteration is contentious and may be either a primary hydrothermal alteration assemblage or a product of deep weathering during the Tertiary.

Thor's partnership with EnviroCopper has reported an Inferred Mineral Resource of 66.1mn tonnes @

0.17% Cu for three deposits Wombat, Bruce and Larwood. In addition to Wombat, Bruce and Larwood, there are several other deposits with mineralisation confirmed by drilling but insufficient drill density resource estimation

Alford East

In November of 2020 the company announced that it had executed a binding term sheet for Thor to acquire an interest in the oxide mineral rights from Spencer Metals Pty Ltd over the Alford East copper-gold project, which is adjacent to EnviroCopper's Alford West project. The property is located on the Yorke Peninsula, South Australia and has been subject to substantial historical drilling and is considered amenable to copper production via ISR, like the properties in the EnviroCopper JV.

Thor is to acquire up to 80% interest directly in the Alford East Project, covering portions of EL6255 and EL6529, as shown on the map on the page that follows.

The Deal

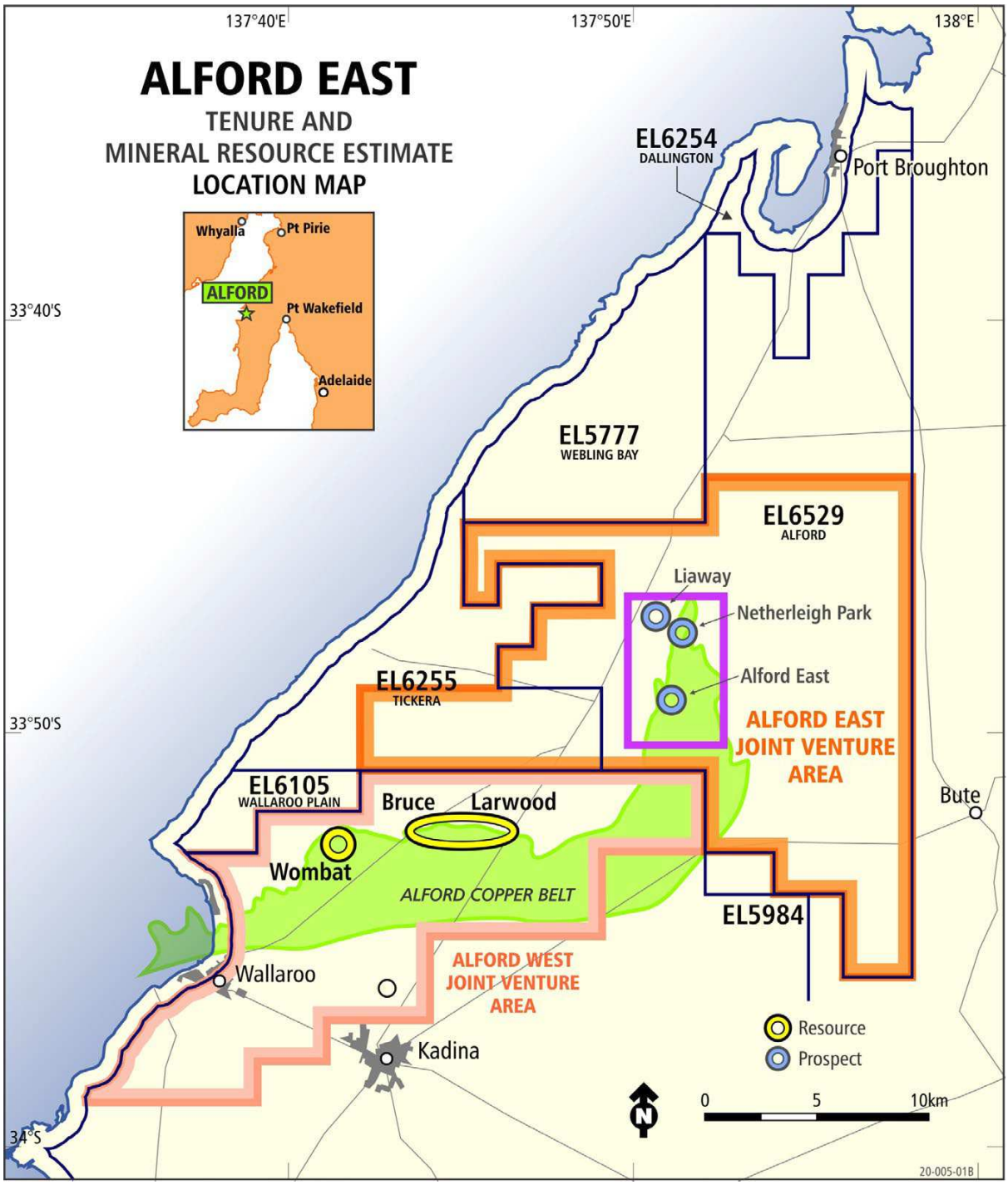
Thor has been granted the right to explore for minerals on the agreed portions of the exploration licences (EL6255 and EL6529), and to conduct feasibility and development activities to earn an interest of up to 80% over two stages directly in the project.

There was an upfront cash consideration of AUD$30,000 upon execution of the binding term sheet. There are two stages to the earn-in.

- Stage 1: Thor can earn a 51% interest by funding A$500,000 expenditure over two years to 11 November 2022, and for additional consideration of A$250,000 in fully paid Thor shares, issued at the 5-day ASX VWAP on the date immediately prior to allotment, together with two free attaching options per share issued, exercisable at $0.03 within 5 years from the date of issue

- Stage 2: Thor can earn a further 29% interest (taking it to 80% in total) by funding an additional AUD$750,000 of expenditure over a subsequent two years to 11 November 2024 and for additional consideration of AUD$250,000 in fully paid Thor shares, issued at the 5-day ASX VWAP on the date immediately prior to allotment and two free attaching options per share issued, exercisable at a$0.03 within 5 years from the date of issue (Stage 2 expenditure).

If Thor does not proceed with the Stage 2 earn-in, then its interest in the project is relinquished. Upon Thor completing the acquisition of an 80% interest in the project, Spencer will hold a free carried 20% interest in the project, until decision to mine. The parties will endeavour to negotiate and execute a formal JV for the development and operation of a mine and associated facilities within 60 days from the end of Stage 2.



Geology

The Alford East Project comprises numerous oxide copper-gold prospects including Alford East,

Netherleigh Park and Netherleigh North, each with extensive previous drilling.

The Alford East Project covers the northern extension of Alford Copper Belt, where to the south west Thor's partnership with EnviroCopper has been proving up, as mentioned earlier, three deposits Wombat, Bruce and Larwood.

The property has substantial near-surface oxidised copper mineralisation, transitioning at depth to readily leachable chalcocite then primary chalcopyrite. There is also leachable gold also present.

Past Exploration

Drilling was undertaken by joint venture partners of Argonaut Resources, Hillgrove Resources and Sandfire Resources from 2001 to 2015, and intersected copper oxide mineralization at Alford East and a nearby prospect Netherleigh Park.

The property has a substantial drilling history chasing IOCG targets unveiling oxide mineralisation over several decades. There have been multiple intersections of probable ISR amenable mineralisation, examples being:

- Copper-oxide intercepts include; ·122m @ 0.63% Cu from 95m (ALDDH09) including14m @ 2.26% Cu from 111m
- 76m @ 0.95% Cu from 138m (ALDDH01) including14m @ 2.18% Cu from 146m
- 14m @ 1.5% Cu from 162m, and 34m @ 0.5% Cu from 190m (MPBD3)

Historic exploration over the Alford Copper Belt has focused on the IOCG sulphide mineralization beneath the interpreted oxide zone, however recent metallurgical testwork by EnviroCopper Ltd over their Alford West project (Figure 1), approximately 10km to the south west has highlighted the amenability of this copper-gold oxide mineralization to In situ Recovery (ISR) processes.

Alford West has an ISR amenable Inferred Mineral Resource (MRE) of 66.1Mt @ 0.17% Cu, containing 114,000 tonnes of contained copper, at a cut-off grade of 0.05% Cu, covering Wombat, Bruce and Larwood deposits, Figure 1 (THR:ASX Announcement 15 August 2019). The amenability of this oxide mineralization within the deep weathered trough presents exciting opportunities for Thor to add further mineralization extensions over the Alford East Project.

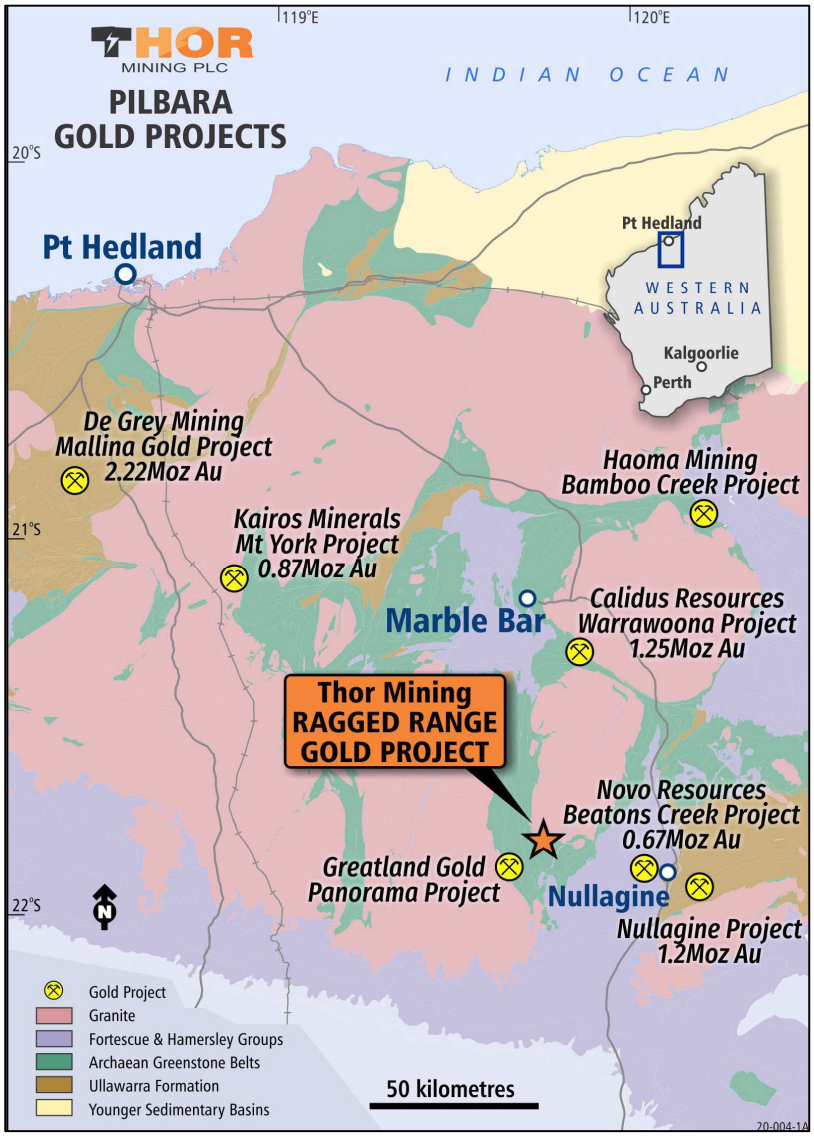
There is an Inferred mineral resource estimate extant for Alford East consisting of 177,000 tonnes of contained Copper and 71,500 ozs of contained gold.

The project has excellent infrastructure being located adjacent to mains electricity & sealed highways. Nearby towns should provide workforce on daily commute basis.

Ragged Range – Gold on the Side

The Pilbara region of Western Australia has become a gold hot-spot in the last few years. When the opportunity presented itself to get a foothold in the region, Thor's management seized it. Whether this stays as part of the long term strategy or is monetized through either a sale or spin-out remains to be seen.

Thor Mining holds 92 square kilometres of exploration licences approximately 40 kms west of Nullagine, in the Pilbara region of Western Australia. The project area lies on the eastern boundary of the Greatland Gold Panorama project and predominantly comprises of Eastern Pilbara greenstone highly prospective for both gold and nickel.



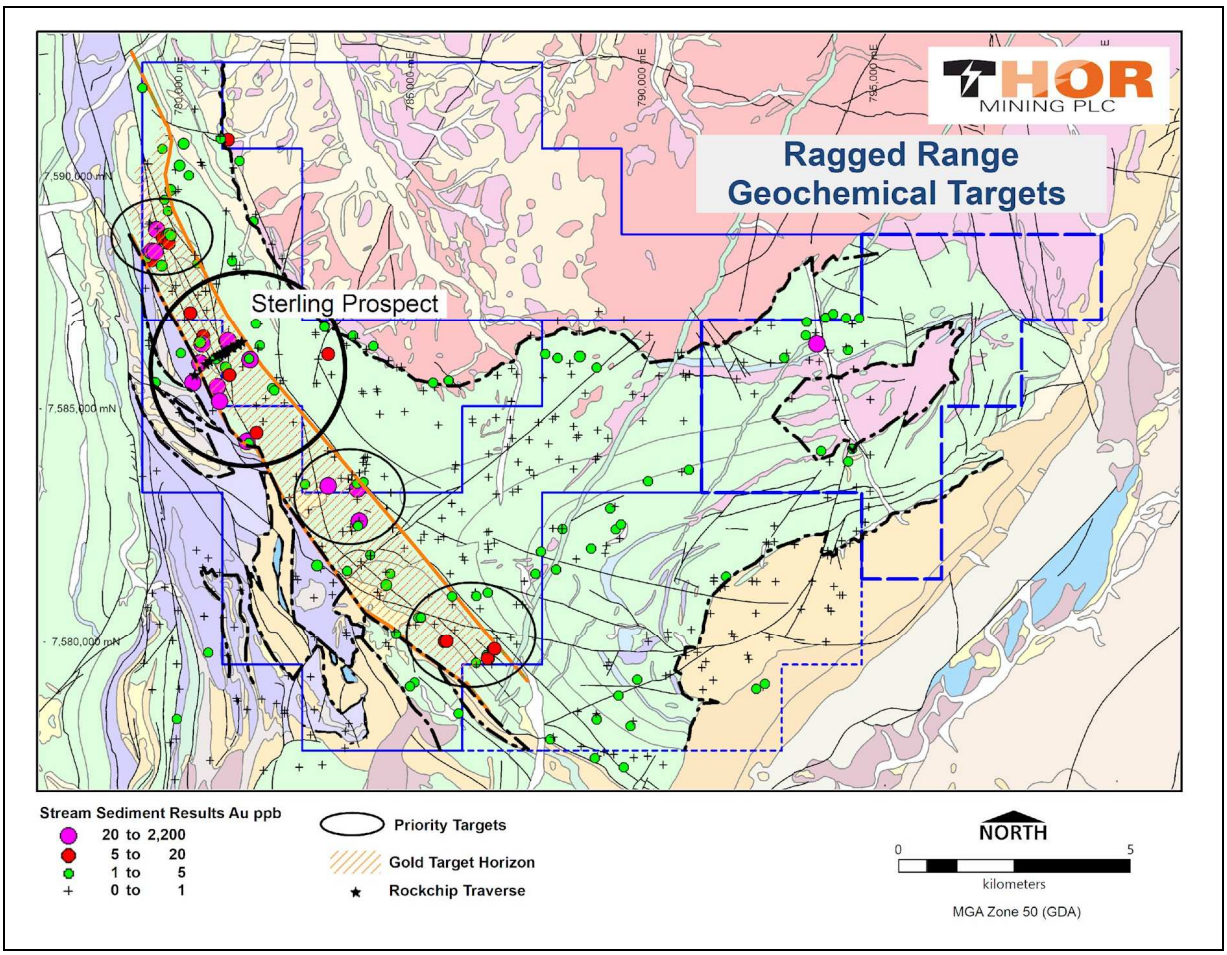
The nearest project is the Panorama prospect of the UK-listed Greatland Gold PLC (AIM:GGP). At that property gold nuggets have been found in more than 10 locations, including an area further south along strike, thereby extending the strike extent of the mineralised trend from 3.2km to 4.3km.

Exploration

In late 2019, a stream sediment sampling program was conducted comprising 44 sites across the two tenements. Visible gold was observed in panning samples at 15 of the 44 test sites. Subsequent laboratory assays confirmed eight sites with anomalous gold and a further two sites with anomalous nickel and chrome.

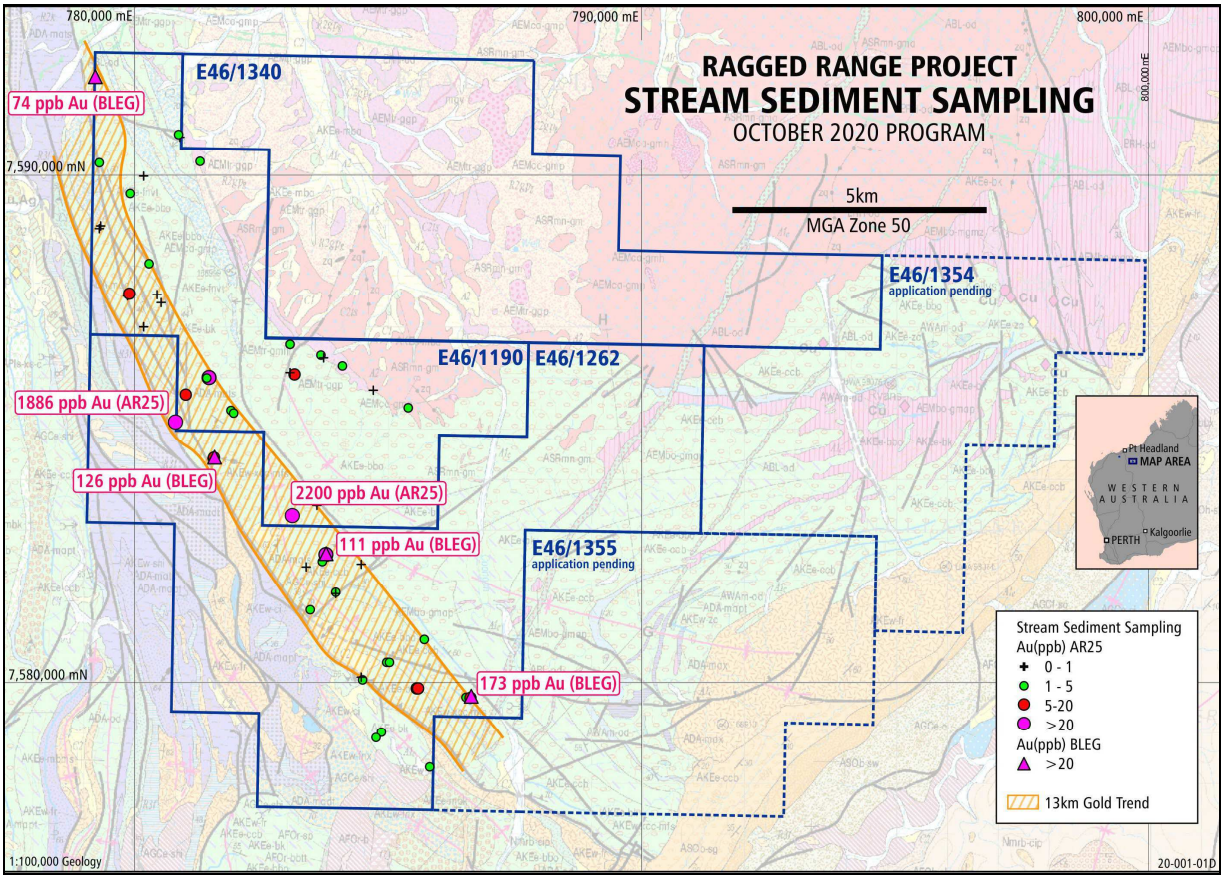
A follow up sampling program was conducted In July 2020 to further evaluate the eight gold target sites

identified from the 2019 program. Gold assay results from this program show clusters of further gold in multiple stream sediment samples upstream of two of the 2019 test sites 19PST22 and 19PST32. These two sites are situated on the same greenstone horizon approximately 800 metres along strike of each other. Thor now has a strike distance of approximately 13 kilometres of this gold prospective greenstone horizon within the tenement to be evaluated in subsequent field programs.



An Airborne mag survey was conducted in November 2020. The company has also engaged in mapping and sampling of the identified targets as well as additional stream sediment sampling of over the remainder of the 13 kilometres long prospective greenstone horizon.

Next stage is a drill campaign scheduled for June 2021, with AUD$160,000 of WA government co-funding.



Into the Uravan Belt

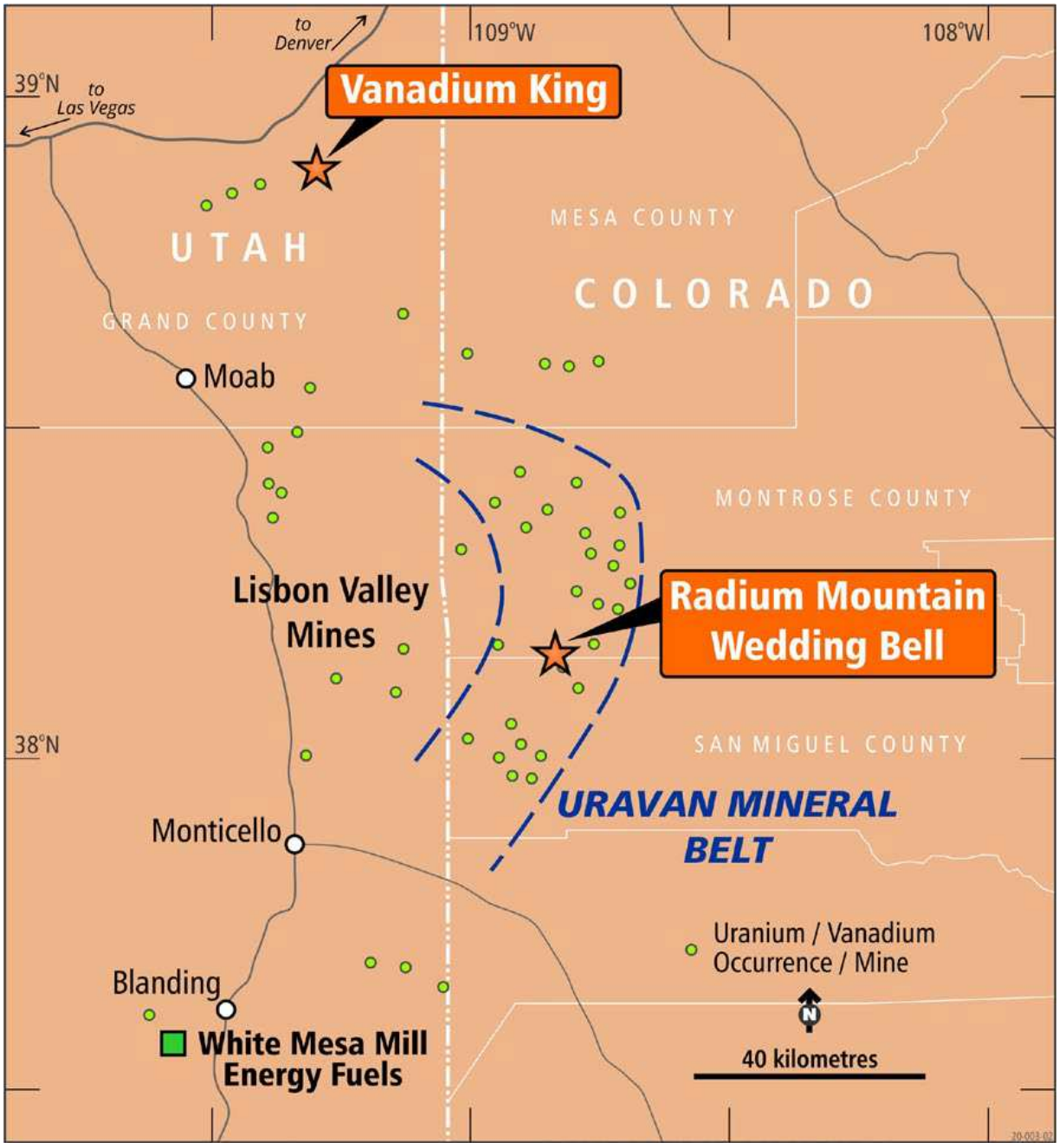
In June of 2020, Thor acquired 100% of the shares in American Vanadium, an Australian company which 199 contiguous claims in the Uravan Mineral Belt of south-western Colorado, and 100 claims in south-eastern Utah. We have written of the Uravan belt with its sandstone-hosted Uranium and Vanadium mineralisation before in the context of Western Uranium (TSX-v:WUC) which holds a number of projects in the vicinity.

The consideration for the acquisition consisted of AUD$100,100 (US$67,463) for an exclusivity fee, which will be satisfied through the issue of 8.35 million ordinary shares in Thor Mining, and an AUD$144,000 (US$96,984) acquisition fee to be satisfied by the issue of 24 million ordinary shares. Future payments may also be incurred across three stages subject to the achievement of project milestones.

The Uravan mineral belt hosts Uranium in shallow depth uranium-vanadium fluvial sandstone that is conducive to testing with low-cost reverse circulation drilling.

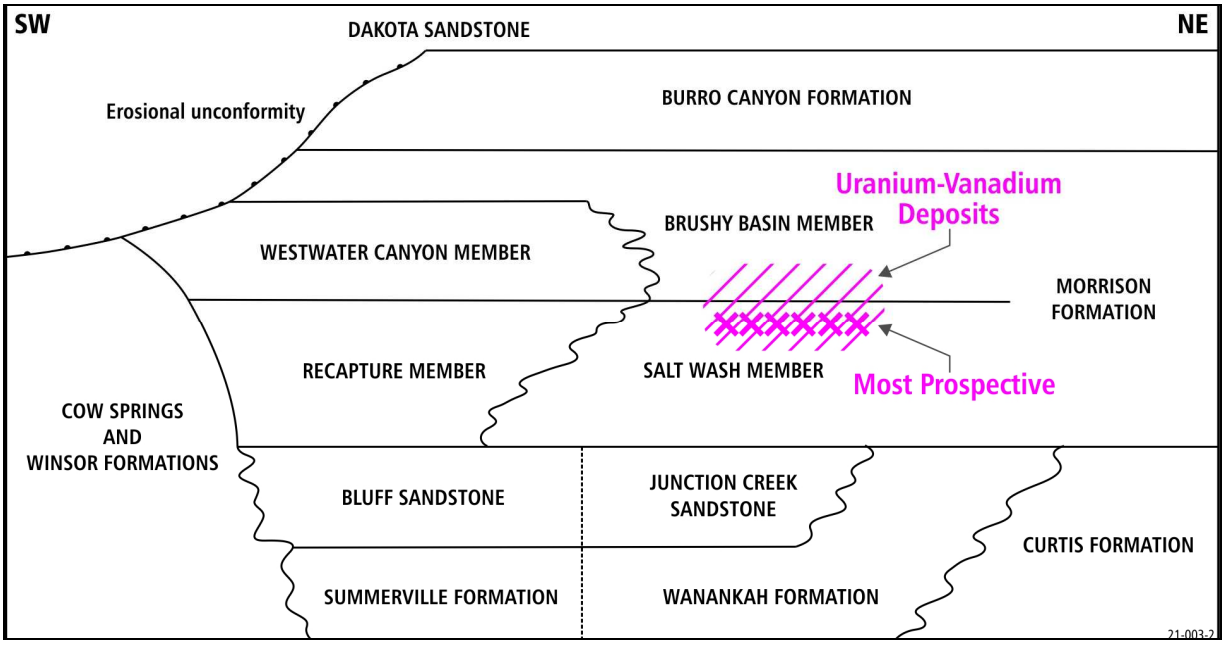
The mineral belt has produced in excess of 85 million pounds of Uranium oxide and 660 million pounds of Vanadium over the past 100 years.

The claims acquired from American Vanadium, include historical mines at the Radium Mountain and Wedding Bell sites that have had intermittent production activity going back more than a century.



The Uranium-Vanadium projects are close to the White Mesa Mill of Energy Fuels (UUUU) that has traditionally tolled local minerals and is also close to well-developed infrastructure.

Below is a schematic of the usual UraVan geological sequence.



Exploration

In July of 2020, first results started flowing with the announcement of 13 assay results averaging 0.706% U_3O_8 and 1.36% V_2O_5. Four samples assayed 1.0% U_3O_8 or greater with a best Uranium assay of 1.25% U_3O_8. Three samples assayed over 2% V_2O_5 with a best Vanadium assay of 3.47% V_2O_5.

The company is ready to embark on a more substantial drilling of several new promising targets that the geological team pinpointed at the Wedding Bell and Radium Mountain projects.

The targets: Section 23, Groundhog, and Rim Rock were detected as a result of the aforementioned field sampling in mid-2020. The effort has also caught a tailwind in the form of the strengthening

The planned drilling consists of 15 holes, to a max depth of 100 metres.

Tungsten on the Climb (Again)

Persistence has kept Thor Mining in the Tungsten despite the prolonged Tungsten price slump that has ravaged the subsector over recent years.

Post-2011 the slumping price of Tungsten wreaked destruction upon both the explorers AND the producers (with two major Western producers going under). The explorers largely faded into mere shadows or repurposed their vehicles as something else.

Tungsten – Last to the Party

While the prices of Antimony and Tin have been the best performing metals over the last six months, Tungsten has only started the long ascent from the shallows & miseries in which it has long been becalmed. While drilling in oil & gas and mining have been off for a number of years, now there is no real reason for the metal (the main usage of which is in machine tools) to have been so beaten up, unless one ascribes nefarious motives to the Chinese. Never let it be said that they would suppress the price of a commodity that they wish to maintain dominance in. Sorry, Peking, that boat has sailed.

The rising tide of new producers (mainly in Iberia) and, in particular, Almonty's Sangdong mine in South Korea risk toppling Chinese dominance in this metal that they had hoped to use to clobber the German machine tool industry with.

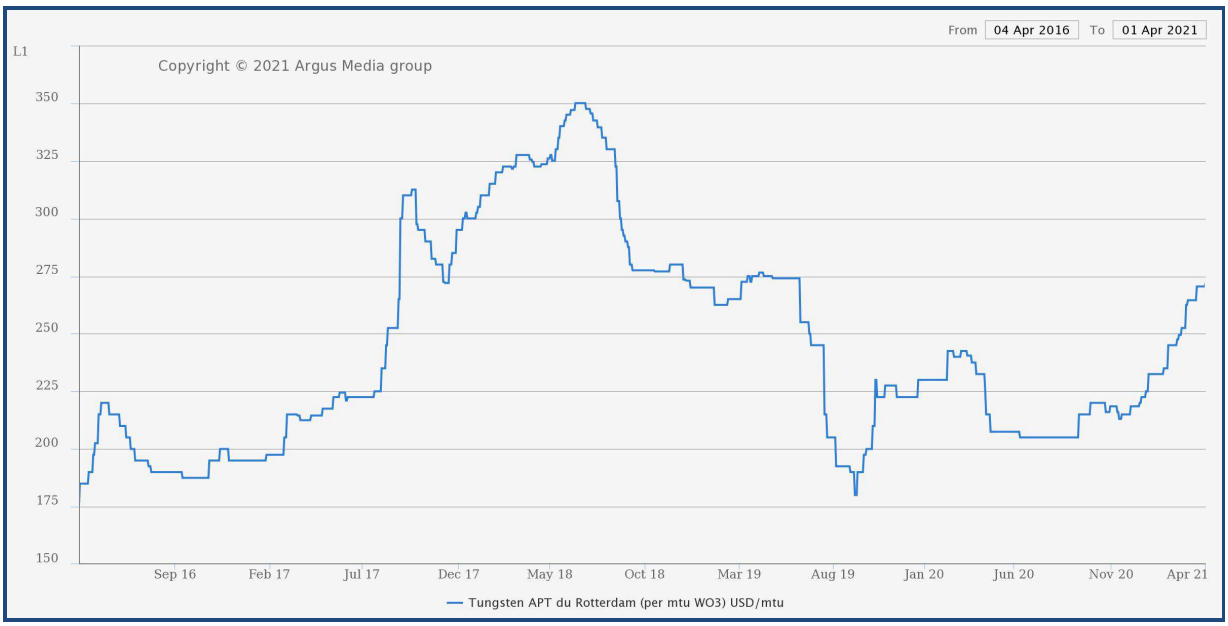
Tungsten is one of those metals where the fluctuating price makes it hard to plan a company's trajectory for more than a couple of years. The slump in prices post-2011 left the space devastated with a meagre group of survivors in the producer, developer or explorer categories. With the slow steady recovery in the price since mid-2017 there now exists a window of opportunity for Tungsten plays as end users look to secure alternative, more reliable sources of supply than China.

The broader economic recovery should lead eventually to increased competition for Tungsten concentrates in the global market between Chinese and non-Chinese processors and consequently result in an enhanced price for Tungsten and its products in the future. A rise in prices of Ammonium Paratungstate (APT) to above $300 is now within reach and we would look for $400 per mtu within the next two or three years.

The metal's potential sources are quite geographically diversified with Tungsten (or Wolfram) resources located in China, Canada, Russia and the United States, at least in the official versions. And yet the largest sources of production outside China are Spain/Portugal, Australia and, shortly, South Korea.

Some would have us believe that Chinese restrictions on its Tungsten industry (concerning mining, exports, foreign investment) brought changes to the global supply pattern, but instead we believe that the change is driving by Western end –users having become wary of China-dependence and thus have been paying over the odds to ensure that a non-Chinese source of supply survived to insulate them from eventual predatory pricing.

As the chart below shows prices are quite a ways from even those levels of three years ago. They are still half the levels of where they reached in 2013. The crash after that time cleaned out most of the Canadian players and clipped the wings of the Australians. A few London-listed names with Iberian targets soldiered on… and of course, Almonty, with two mines in Europe and the one in South Korea advancing rapidly.



Source: Argus Metals

This is not a crowded market by any means and it should be noted that NONE of the players are in North America, and particularly the US, except Thor with its Pilot Mountain project.

Molyhil

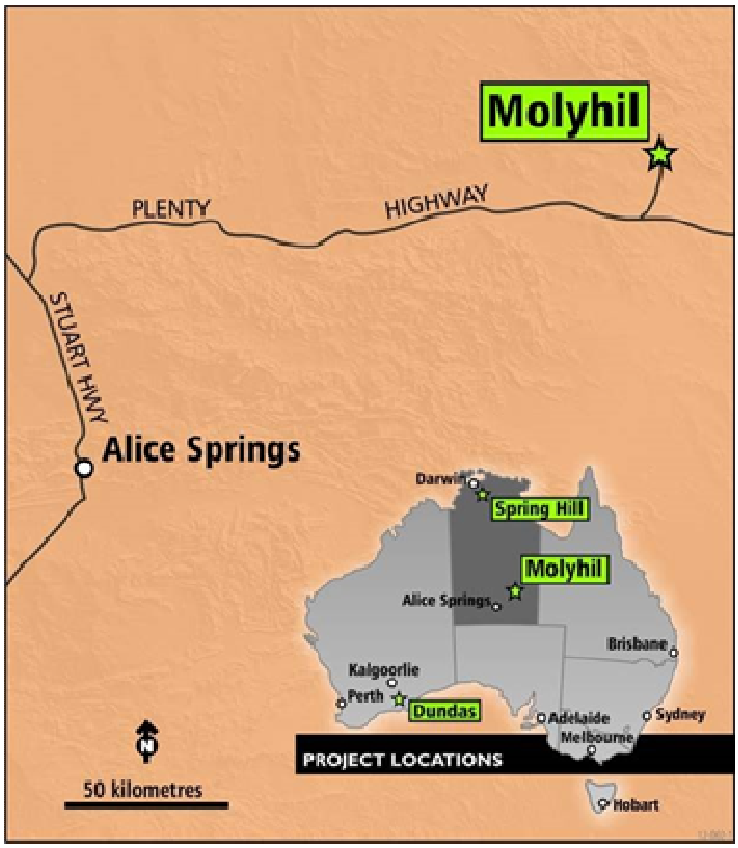
Molyhil is located 220 kilometres north-east of Alice Springs (320km by road) within the prospective polymetallic province of the Proterozoic Eastern Arunta Block in the Northern Territory.

The Molyhil deposit is the most significant granite-related deposit in the Aileron Province. The project consists of two adjacent magnetite skarn bodies with economic mineralisation of scheelite, molybdenite and magnetite.

The Southern ore body was mined briefly during the late 1970s & early 1980s, the legacy of which is the shallow pit shown at the right.

Some 20,000 tonnes of ore were mined from the current open cut between 1974 and 1976, yielding 100 tonnes of concentrate grading 70% WO_3 (MoS_2 was not extracted).

Over the last five years Thor has conducted resource extension drilling, metallurgical test work, technical, environmental and social studies, secured environmental approvals, and agreements with traditional owners.



Resource & Reserve

The resource and reserve at Molyhil date back to March 31 2021, reported at a cut-off grade of 0.07% WO_3 Tungsten, assuming an open cut mining technique.

Molyhil - Resource Estimate

		WO3		Copper		Molybdenum	
Category	Tonnes	Grade %	Contained Metals (tns)	Grade %	Contained Metals (tns)	Grade %	Contained Metals (tns)
Measured	464,000	0.28	1,300	0.06	280	0.13	600
Indicated	2,932,000	0.27	7,920	0.05	1,470	0.12	2,630
	3,396,000	0.27	9,220	0.05	1,750	0.12	3,230
Inferred	990,000	0.26	2,580	0.03	300	0.12	1,170

The long-term prices used were US$300/mtu for WO_3 concentrate and US$7.92/lb for Mo concentrate at an exchange rate of US$0.75 to AUD$1.00. The WO_3 and Mo Processing Recovery post- ore-sorting used was 85% and 77.8% respectively.

Feasibility Study

In August of 2018 the company published an upgraded Feasibility Study for the Molyhil Tungsten project. There was a previous Feasibility Study dating back to 2014. Mining is envisioned utilising conventional open cut mining methods; contract drill & blast, followed by owner operated excavation and haulage. The pit-shell model utilized an average pit slope of 48˚ resulting in a fairly hefty stripping ratio of 7.6:1.

The key takeaways from the revised FS were:

- Project revenue of in excess of AUD$500mn over the projected seven-year life of mine
- EBITDA of AUD$239mn with project payback period of less than 18months after payment of royalties and taxation
- Net Present Value (NPV) of AUD$101mn at a discount rate of 5% with an Internal Rate of Return (IRR) of 59%, both after payment of taxation and royalties
- Project finance requirement of US$43mn
- Seven-year mine life
- Production cost of US$90/mtu concentrate (after deduction of Molybdenum bi-product credits), ensuring Molyhil will be a very low cost Tungsten producer

There is substantial upside potential from eventually moving underground mining at Molyhil and from the nearby Bonya Tungsten deposits.

At the time the latest FS was announced the company envisaged that the project finance requirement of US$43mn, would be comprised of a total capital expense of AUD$69mn (US$51mn), offset by approximately AUD$11mn for mining and power generation equipment and camp facilities, which are suitable for capital finance.

In July of 2020 the government of the Northern Territory awarded “major project status” to the Molyhil project. Thor is pursuing project finance of an estimated AUD$43mn for the development ready Molyhil project, for which the Definitive Feasibility Study released in 2018.

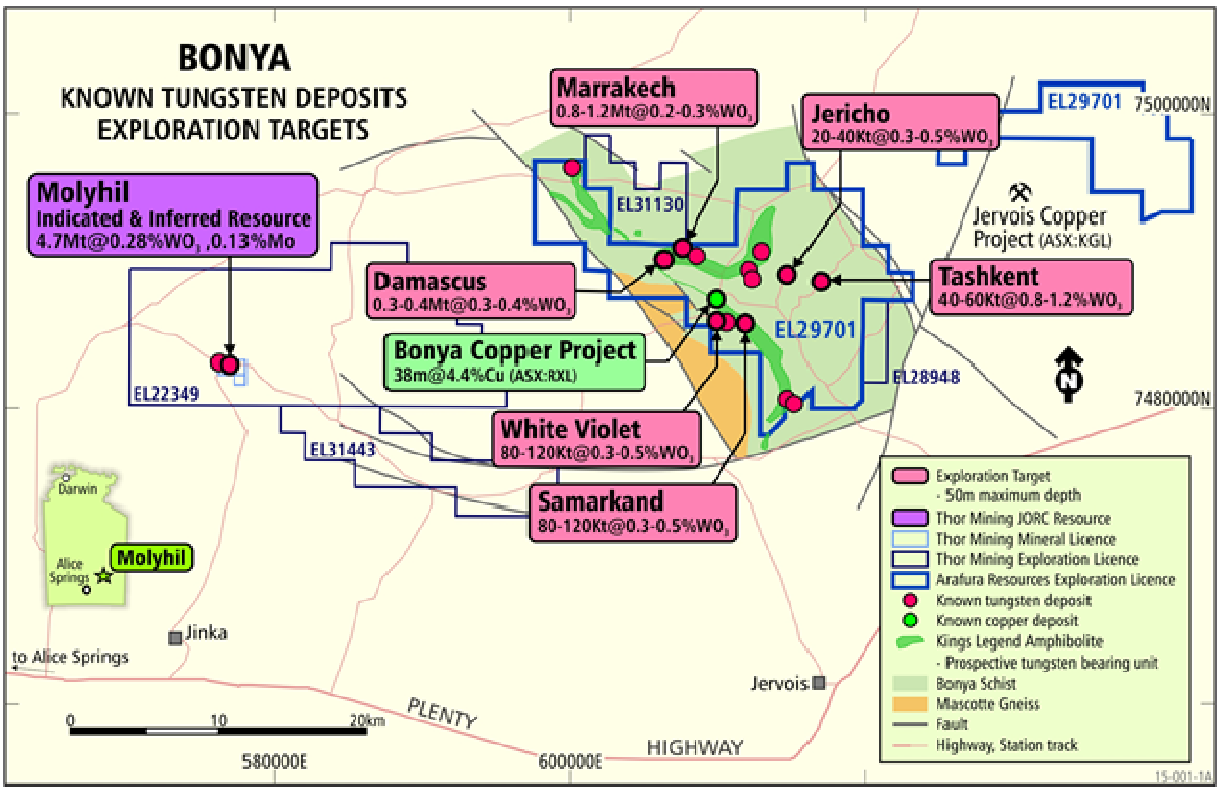
The Northern Territory Chief Minister Michael Gunner was quoted as saying: “…… this project will support 59 ongoing jobs in Alice Springs with a further 40 jobs supported during construction”.

The planned operation is substantially permitted at this stage.

Creating a Tungsten District?

In March 2018 the company announced the purchase of an interest in tenements hosting outcropping Tungsten deposits in the Bonya Creek area, along with a high grade copper deposit, approximately 30 kilometres from Molyhil. At the time there had been no Tungsten exploration on the project area over 35 years.

Below can be seen a district map. The existing Thor licences at Molyhil being to the left and the new acquisition bordered in bright blue to the centre right. The block EL29701 is in two parts. The eastern blocks host a large Titanium/Vanadium deposit.



The most extensive reporting on the potential dates back to a study by Dave Ransom (ex-Acorn Capital), who did some work on the Tungsten prospects back in the 1970's.

All of the Tungsten prospects (Tiers 1 & 2) identified so far in the Bonya region have outcropping mineralisation discovered by surface prospecting between 1929 and 1972. Beyond this the potential exists for the discovery of blind deposits by application of contemporary exploration practices in the Tier 3 prospect areas.

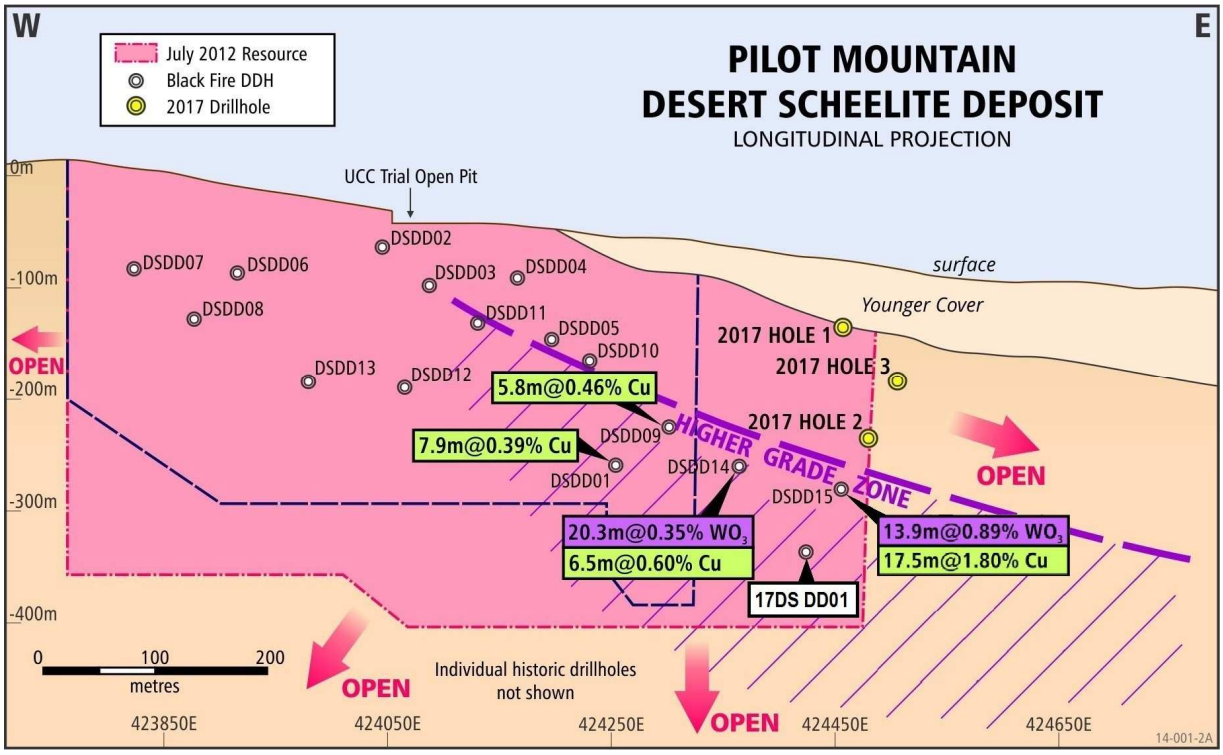
The Pilot Mountain Project

This Tungsten project is situated 200km southeast of Reno in the state of Nevada in the USA. The main target until recently was the Desert Scheelite deposit, but there are several other deposits (including a past-producing area) on Thor's concessions which have potential and are being brought into the broader plan for evolving this project.

History

The Pilot Mountain District (sometimes referred to as the Sodaville District) resulted from the discovery of cinnabar, Tungsten, copper, and gold in the early part of the twentieth century. Many small scale mines and little mills sprang up and the town of Eddyville was formed around a gold mine in the 1930's. In 1916 Tungsten deposits were also found on Pilot Mountain.

The Desert Scheelite claims are situated on the east slope of the Pilot Mountains about 20 miles southeast of Mina.



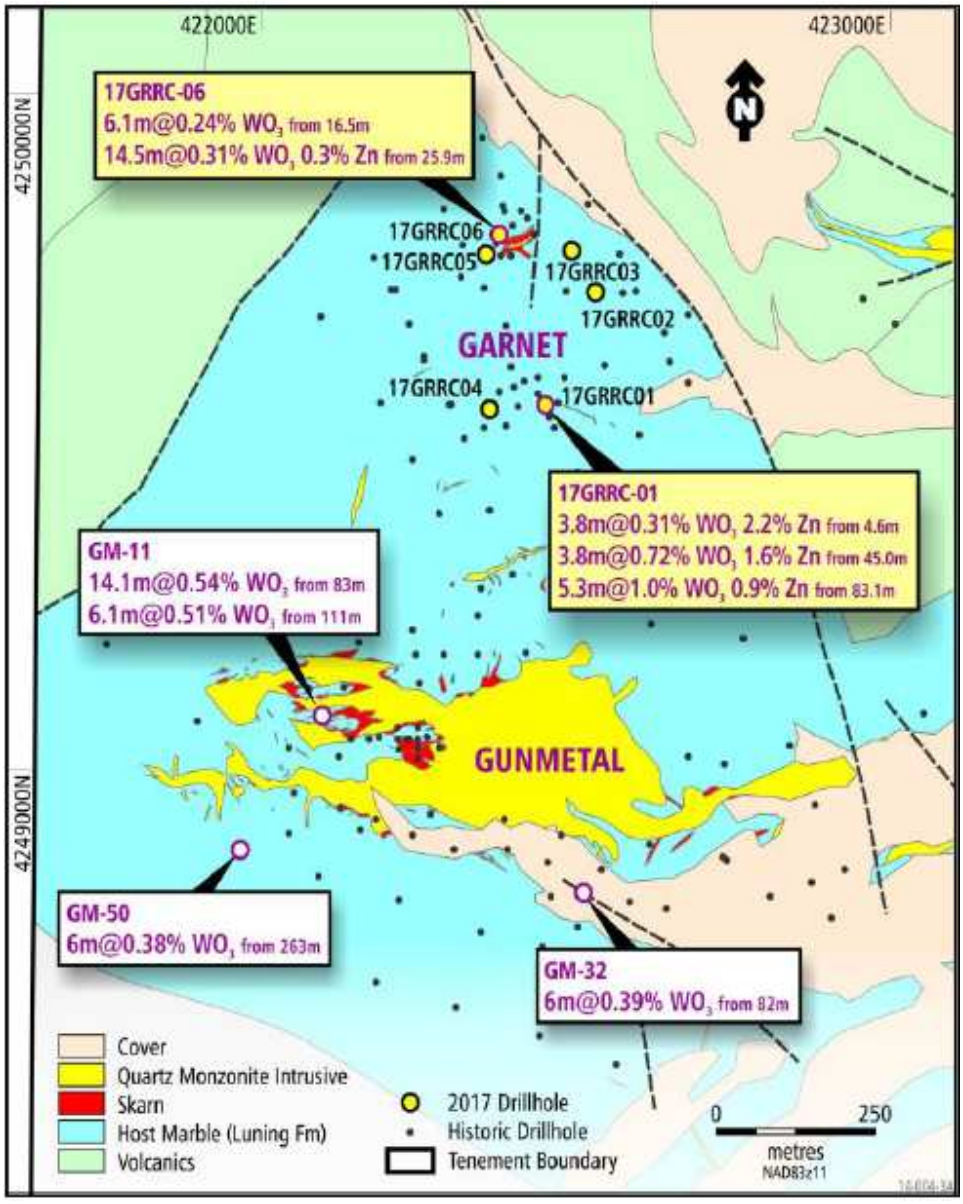
The Gunmetal Group, which is on Thor's property, was a Tungsten operation active from around 1924 - 1927 and erected a 25-ton mill that used pneumatic concentration. A Lezeart mill was equipped with a small crusher, an Abbe ball mill, and two stebbins dry concentrating tables were used.

Geology

Rocks in the area consist of limestone, shale and conglomerates which have been intruded by granite. The sedimentary rocks trend southwest and dip 20° Northeast. Adjacent to the granite contact the limestone has been altered to recurring lenses of tactite that vary in lengths up to 200 ft and in width to 25 to 50 ft. Scheelite mineralisation is finely disseminated in the tactite.

Scheelite mineralisation in the tactite bands occurs where the beddings are cute by a west-trending fault. Most of the ore bodies are within 200 feet or less of this fault.

To the right can be seen a map of the Garnet and Gunmetal prospect area.



The 2017 Garnet drill holes tested less than a third of the total historic drill data over the entire Garnet and Gunmetal area.

This deposit has been worked before. In addition to the numerous surface cuts and trenches the principle working is a 65ft shaft from which a 35 ft cross-cut was extended north from the bottom of the shaft. Despite the presence of this shaft, in an unpublished document from the US Bureau of Mines in 1963, it was reported that no Tungsten ore had been produced or shipped from the propertyThe Gunmetal Tungsten property is a past-producer and is situated on the eastern flank of the Pilot Mountains, about 20 miles southeast of Mina, which in the past operated as the shipping point and distribution centre.

Resource

In May of 2017 the company announced a resource estimate for Pilot Mountain showing a 55% increase in the Tungsten resource. This included a maiden resource estimate for the Garnet prospect, and an increase in the resource estimate at Desert Scheelite.

Following drilling in March of 2018, an inferred resource estimate for the Garnet deposit was completed comprising 1.83mn tonnes at an average grade of 0.36% WO_3 (using cut-off grade of 1,000 ppm WO_3).

Further, a re-evaluation of the Desert Scheelite deposit was published in mid-December 2018 further upgrading the resource estimate to 27,700 tonnes of contained Tungsten at an average grade of 0.26% WO_3. This new resource used a cut-off of 1,500ppm WO_3.

Pilot Mountain - Updated Resource

			WO3		Silver		Copper	
	Category	**Tonnes mns**	**Grade %**	**Contained Metals (tns)**	**Grade g/t**	**Contained Metals (ozs)**	**Grade %**	**Contained Metal (tns)**
Garnet	Indicated	-	-	-				
	Inferred	1.83	0.36	6,590				
	Sub-Total	**1.83**	**0.36**	**6,590**				
Desert Scheelite	Indicated	9.01	0.26	23,400	20.73	6,012,050	0.15	13,200
	Inferred	1.69	0.25	4,300	12.24	675,150	0.16	2,800
	Sub-Total	**10.70**	**0.26**	**27,700**	**19.38**	6,655,050	**0.15**	16,000
Summary	Indicated	9.01	0.26	23,400				
	Inferred	3.53	0.31	10,890				
Pilot Mountain	**Total**	**12.53**	**0.28**	**32,720**				

Management contends that, in addition to the Desert Scheelite resource from 2017, the Pilot Mountain project has significant exploration potential comprising exploration targets totaling 11mn-22.6mn tonnes at 0.3% to 0.5% WO_3.

Scoping Study

In September of 2018 a Scoping Study, premised upon mining the Desert Scheelite deposit as an open-pit, was published. The report was prepared by Andrew Vidale Consulting Services (AVCS) covering the Desert Scheelite deposit only. An assessment by US-based consultants Practical Mining LLC indicated possible additional open-cut and underground potential from the Garnet deposit nearby.
The main features of the Scoping Study were:

+ An operational life of 12 years, with open pit mining over 11 years and one additional year to complete processing

+ Forecast open pit production of 7.5 million tonnes from Desert Scheelite pit

+ Annual throughput of 650,000 tonnes from the Desert Scheelite pit, producing scheelite concentrates and copper silver concentrates, plus zinc silver concentrates

+ Preliminary analysis also suggests some potential for economic mining and processing from the higher grade Garnet deposit (inferred resource), supplementing production from Desert Scheelite

+ Pre-tax profit expectations from initial open pit operations ranged from US$125mn base case from Desert Scheelite, up to US$317mn, which included improved Scheelite recovery, reduced mining costs at greater throughput volumes and the potential inclusion of Garnet mine production

The study mooted Capital Expenditure in the range of US$30 to US$35 million with a project payback of 36 months on the base case, reducing to less than 18 months if metallurgical testwork, was successful in improving recovery to 85% or above.

Offtaker

The Letter of Intent for a Tungsten offtake that the company signed in October 2013 with from US-based Global Tungsten & Powders (GTP) is still extant. This accord is in respect of 70% to 75% of total Tungsten concentrate production for the life of the proposed Molyhil operation.

Risks

The risks for the Thor might be enumerated as:

- A pullback in the Copper price
- Loss of momentum in the recovery of the Tungsten price
- Weakened global industrial demand (particularly in tools) that would soften prices and volumes
- Investor perceptions that the company has divided loyalties between Copper and Tungsten

- Financing difficulties

"What goes up must come down" is a sometime phenomenon in stock markets (and commodity prices). We have seen prices fall as much as we have seen them rise and the proponents of the "this time it is different" school of thought are always with us. However we have seen copper and Tungsten price retreats before and they should not be discounted as a risk. The dynamics for higher prices are enhanced though long periods of underinvestment, particularly in Tungsten. Meanwhile falling grades in new (and old) Copper mines undermine the economics of many mines at the type of prices (below $3 per lb) that have reigned for much of the last decade.

It is not a given that the post-pandemic world economies will be as robust as they were before the event. There is a certain amount of pent-up demand and dislocation out there which augurs for a bounce but the length of the bounce and its strength remain unknown quantities at this time. Global recession is still a possibility or a major outbreak of inflation, or both…. Stagflation.

Mixed metals investment stories can leave some investors confused or drive them towards pure plays. Until now Thor has not been strong enough in copper for its assets there to stand alone and neither was the metal's price propitious for adopting a copper focus. Likewise Tungsten was flaccid for so long that the attractions of a pure play there were not obvious to investors. Eventually a moment will come in which both metals are doing well and the company's assets can be separated to g their own way and appeal to investors that favour pure plays.

Financing remains difficult and dilutive when it takes place. The only way to harvest the more attractive price is to be in production and the only way to do that is to finance mine-builds/reactivations.

Conclusion

The rise and rise of copper since the middle of 2020 has proven fortuitous for Thor as it had been rebalancing its business focus from Tungsten towards the Red Metal. The long wait for Tungsten to turn upwards (which has finally done) meant that Thor needed a second string to its bow and now copper looks like being the main attraction for the foreseeable future.

However, Tungsten is now on the move but, as yet, has little buzz associated with its revival. On past experience that will come as the commodity cycle progresses. Thor Mining has managed to survive the Tungsten downturn and has progressed and expanded its project portfolio despite the grim environment and general investor disinterest. Now it stands as one of the few explorers in the sub-space with a portfolio of Tungsten projects with extant resources.

With a relatively low CapEx at Molyhil, and enhanced Moly credits now that metal also has awoken, the time seems right to expand the resource base, to further enhance the economics, then move towards development. Fortunately Tungsten offtakers are proactive participants in the development of producing assets in this metal in a way that is not evident in other specialty metals. GTP's past

commitment at Molyhil is a good augury for getting this project across the financing line. Then there are the other prospects across the Bonya district in the Northern Territory, plus the Pilot Mountain project, which should make Thor into a geographically diversified producer.

We can envisage scenarios in which Thor might evolve into separate listed vehicles to give investors pure plays in Copper, Tungsten and even gold. It is too early to conjure with the last metal but the company already has evolved the projects in the first two metals for them to stand alone. One tempting scenario would be to create a US-listed Tungsten entity with Pilot Mountain as the main asset and the Australian Tungsten assets underneath it.

We reiterate Thor Mining rating as a **Long** position with a 12-month target price of AUD 6cts.

Important disclosures

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