vitalmetals

ASX/Media Announcement
05 September 2017

Watershed Tungsten Project – Optimisation Studies Boost Value

HIGHLIGHTS

- **Metallurgical test work optimisation increases tungsten recoveries to 77% from 74%**
- **Improvements to be incorporated into an update of the Watershed Feasibility Study which will capture the recent favourable moves in price, FX and costs**
- **At current spot price of US$310/mtu APT and US$0.79, Watershed Tungsten Project is estimated to have a post-tax valuation of over A$150M**[1]
- **Discussions ongoing with financiers and potential offtake partners**
- **Strong increase in tungsten prices have significantly increased investor and offtake interest**
- **Tungsten concentrate shortages influenced by production closures in China due to violations of environment and safety law**
- **Emerging battery technology utilising Tungsten that may transform energy storage via the development of a battery that can be charged instantaneously over thousands of cycles**

Vital Metals Limited (ASX:VML) is pleased to report improved metallurgical results for its 100%-owned Watershed Tungsten Project in Far North Queensland. The results focussed on optimisation of the feed size to Density Media Separation (DMS) to increase both efficiencies as well as recoveries at Watershed.

Vitals' Managing Director Mr Mark Strizek said:

"Results from DMS test work conducted by NAGROM in Perth have shown simple changes to the flowsheet should improve recoveries of WO_3, resulting in an uplift to the value of the project."

"Our focus on continuous improvement of the shovel ready Watershed tungsten project in far north Queensland has the potential to be the best development ready project in a Tier 1 mining jurisdiction."

[1] Details on page 3

Continuous Improvements to 2014 DFS

Vitals' Watershed Tungsten Project is located around 130km north of Cairns (Figure 1) and is well placed to provide tungsten concentrates that are necessary to make the metals and composites that underpin modern industry.

The Watershed Tungsten Project has granted Mining Leases and Environmental Authority of a large scale open pit development. The DFS was completed in 2014 and since that time Vital has continued to optimise the engineering and increase recoveries. Some of this work has included flotation optimisation with GZRINM in China and gravity optimisation of spirals and DMS in Australia[2].

The continuous improvement program has been boosted by recent results from DMS test work performed by NAGROM in Perth on diamond core from Watershed. The program confirmed the effectiveness of DMS on -3.35mm material to take a high grade feed forward to flotation. Vital estimates that this will increase overall recovery from around 74% to 77% WO_3.

Furthermore, Vital has identified significant opportunities to achieve savings in both Capex and Opex compared to the 2014 study:

Capex

- Civil earthworks optimization
- Reduced concrete costs
- Improve plant layout
- Signification reduction in gang rates and direct construction cost
- Flowsheet optimization identified savings in
    - Ore sorting
    - DMS separation
    - Spiral circuit
    - Flotation

Opex

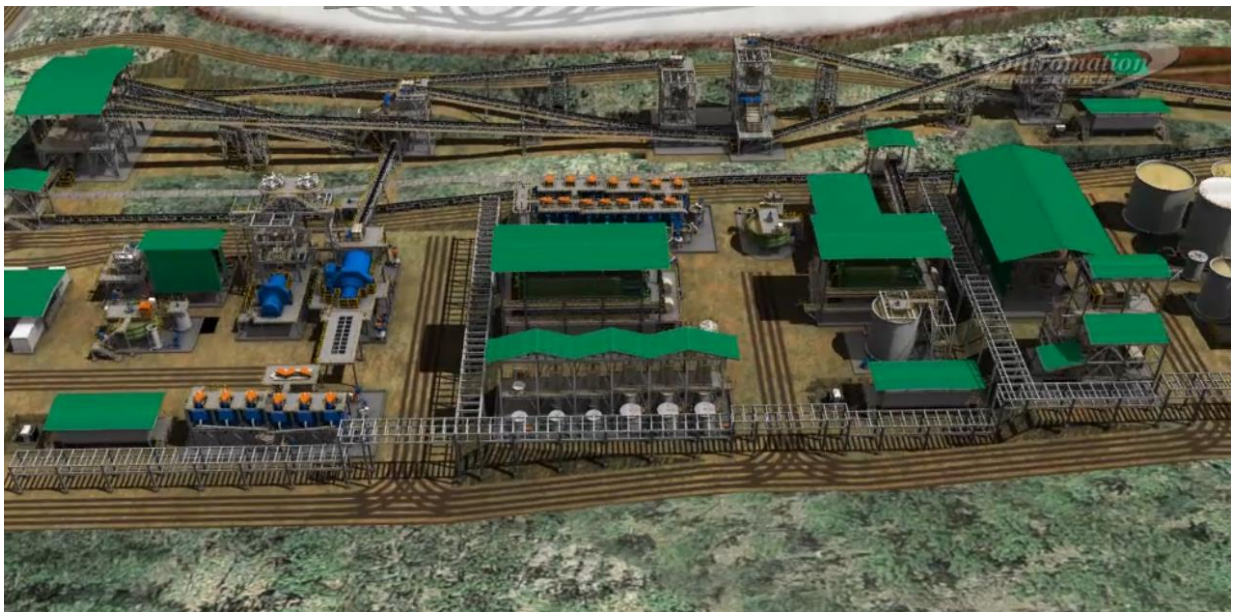
- Fuel and energy cost reductions
- Positive changes in salary and wages
- Optimisation of staffing levels
- Flowsheet optimization
    - Ore sorting
    - DMS separation

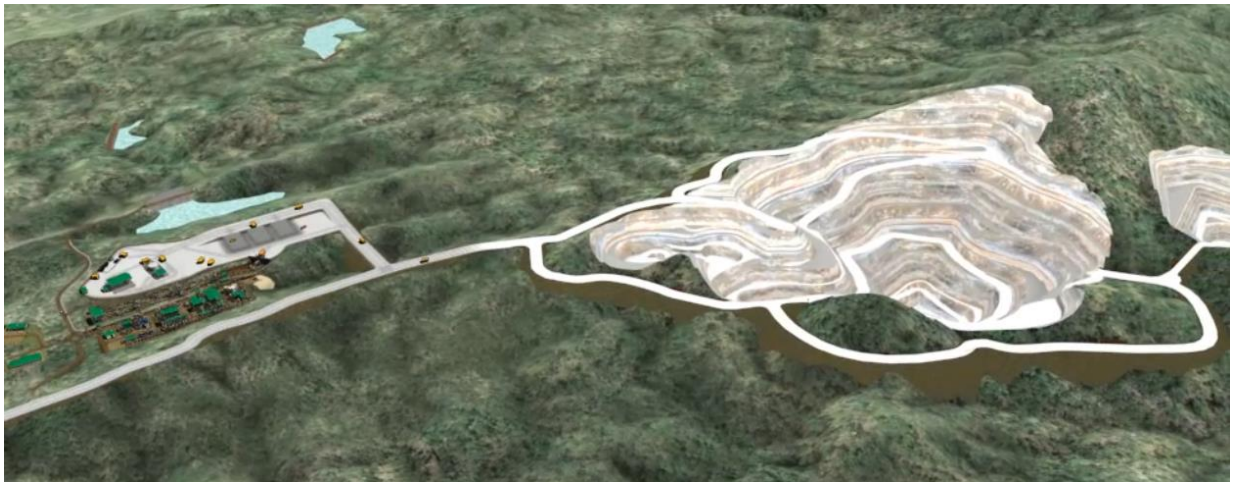
[2] DFS reported in ASX Announcement 17 September 2014. Updated DFS figures reported in ASX release 22 January 2015, 29 June 2015 and 22 January 2016. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous announcements.

- Spiral circuit
- Flotation

- Mine optimization
  - Drill and blast
  - Load and haul
  - Visual nature of ore (ore is white, waste is black) will aid grade control (Figure 2)

View showing 3D engineering design of proposed Watershed processing plant and site layout





Drives the Bottom Line

The focus on improving the bottom line has positioned Watershed in a very good position for development as it demonstrates very attractive financial returns at both current and forecast financial scenarios.

From a financing perspective, the Watershed Tungsten Project presents an outstanding, development-ready opportunity. It is fully permitted with all landowner and Indigenous agreements in place in a Tier 1 jurisdiction.

As per the original DFS, Watersheds short payback period and low breakeven price makes the project a good candidate for a range of funding alternatives.

Updated Financial Scenario*	Pre Tax	Post Tax
NPV @ 5%	$225M	$150M
IRR	40%	32%
Project Breakeven price @ IRR=0	US$210/mtu	
Payback Years		2
Free Cashflow	330M	230M
LoM Cash Costs A$/ mtu	164	
LoM Total Cost A$/ mtu	204	
LoM Cash Costs US$/ mtu	130	
LoM Total Cost US$/ mtu	161	

***Assumptions:**

- 100% equity basis
- US$310/mtu APT (EU) current price
  10 year Average = US$300/mtu
- US$ 0.79 current rate
- Capex A$100M
- Opex -20% on 2014 DFS
- 77% WO_3 recovery

Strong Market Fundamentals

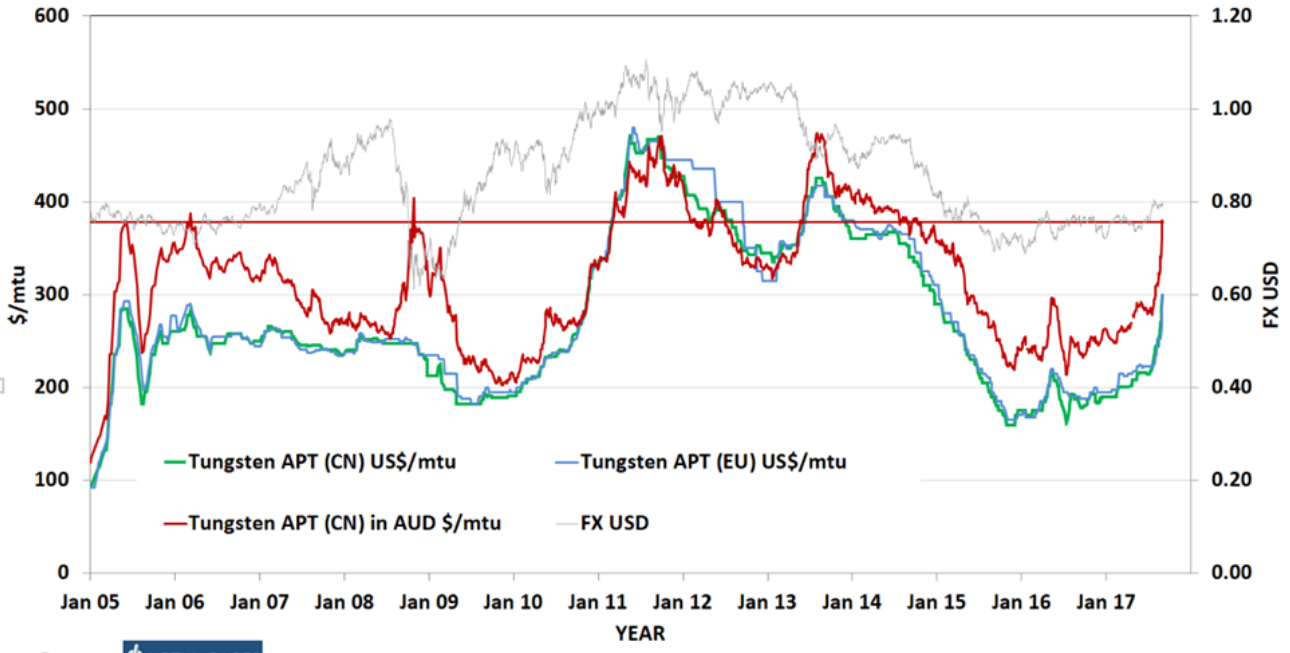
Tungsten prices have risen by over 50% for the year to be at US$310/mtu APT (above the 10 year average price) due to increased end user demand and reduced supply. In Australian dollar terms the price is now A$392/mtu at the current exchange rate.

Tungsten metals and composites have outstanding properties; being very hard, very tough, heat-resistant and are indispensable in the following applications:

- Automotive Industry
- Industrial Engineering
- Mining & Road Construction
- Aviation & Space
- Energy Oil & Gas
- Health
- Agriculture
- Defence Industries

Demand for tungsten increasing year on year as world GDP continues to increase. A push by the Trump Administration to increase military readiness in the US will increase demand for tungsten containing ordnance.

On the supply side, Chinese authorities have been active in closing polluting mines and refiners following the enforcement of environmental and safety regulations. Many of these old non-compliant operations will be permanently shut due to these violations.



Source: METAL-PAGES

Emerging Tungsten Usage in Energy Storage

As a technology metal, tungsten looks set to transform energy storage with the development of a battery by researchers at the University of Central Florida that can be charged instantaneously over thousands of cycles. The properties of the tungsten compounds means the new battery would be flexible and a fraction of the size of a lithium-ion battery[3].

The discovery and application by German technologists of tungsten composites in World War 1 changed their industrial productivity overnight. The reported performance of tungsten battery prototypes looks set to do the same offering the holy grail of near instantaneous charging, high energy density over up to 30,000 charging cycles.

The design is based on a hybrid supercapacitor composed of a core with millions of highly conductive nanowires coated with shells of two-dimensional materials. The core nanowire material is tungsten trioxide (WO_3) and the two-dimensional shell material is tungsten disulphide (WS_2). It combines fast charging and discharging (high power density) and high storage capacity (high energy density).

Another advantage would be "cyclic stability" (how many times a battery can be charged, drained and recharged before beginning to degrade). A lithium-ion battery can be recharged fewer than 1,500 times without significant failure, compared to recently developed supercapacitors based on two-dimensional materials, which can be recharged more than 30,000 times.

This would give electric vehicles longer-range operation and improved bursts of power and speed. As the material is flexible this could mean a significant advancement in wearable tech, according to the researchers, and would also avoid the risk of overheating and explosion with lithium-ion batteries.

Whilst early days, this emerging use may lead to a strong increase in tungsten demand, as well as offer a superior battery technology.

3 High-Performance One-Body Core/Shell Nanowire Supercapacitor Enabled by Conformal Growth of Capacitive 2D WS2 Layers

Next Steps

The Watershed project continues to be refined with ongoing improvements. The work to date has already optimised the project beyond the 2014 DFS results and Vital continues to examine other areas to enhance.

The project has been substantially de-risked with a high-quality mineral resource and significant potential to grow the project beyond 10 years. It is located in a Tier-1 jurisdiction where costs are internationally competitive with highly skilled workers and delivers attractive economics and is development-ready. In addition, it is fully permitted with all landowner and Indigenous agreements in place.

The Company believes Watershed is a compelling development proposition and will be progressed to add value for shareholders.

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Competent Person's Statement

The information that refers to Mineral Resources in this announcement was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since last reported.

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Mark Strizek, a Competent Person who is a Member or The Australasian Institute of Mining and Metallurgy. Mr Strizek is a full time employee of the Company. Mr Strizek has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Strizek consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources for the Watershed Deposit is based on information evaluated by Mr Simon Tear who is a Member of The Australasian Institute of Mining and Metallurgy (Maksim) and who has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Tear is a Director of H&S Consultants Pty Ltd and he consents to the inclusion of the estimates in the report of the Mineral Resource in the form and context in which they appear.

This Ore Reserves statement has been compiled in accordance with the guidelines defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code – 2012 Edition). The Ore Reserves have been compiled by Mr Steve Craig of Orology Group Pty Ltd, who is a Fellow of Australasian Institute of Mining and Metallurgy. Mr Craig has had sufficient experience in Ore Reserve estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Craig consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

Forward looking statements

Certain written statements contained or incorporated by reference in this report, including information as to the future financial or operating performance of the Company and its projects, constitute forward-looking statements. All statements, other than statements of historical fact, are forward-looking statements. The words “believe”, “expect”, “anticipate”, “contemplate”, “target”, “plan”, “intend”, “continue”, “budget”, “estimate”, “may”, “will”, “schedule” and similar expressions identify forward-looking statements.

Forward-looking statements include, among other things, statements regarding targets, estimates and assumptions in respect of tungsten, gold or other metal production and prices, operating costs and results, capital expenditures, mineral reserves and mineral resources and anticipated grades and recovery rates. Forward-looking statements are necessarily based upon a number of estimates and assumptions related to future business, economic, market, political, social and other conditions that, while considered reasonable by the Company, are inherently subject to significant uncertainties and contingencies. Many known and unknown factors could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward-looking statements.

Such factors include, but are not limited to: competition; mineral prices; ability to meet additional funding requirements; exploration, development and operating risks; uninsurable risks; uncertainties inherent in ore reserve and resource estimates; dependence on third party smelting facilities; factors associated with foreign operations and related regulatory risks; environmental regulation and liability; currency risks; effects of inflation on results of operations; factors relating to title to properties; native title and aboriginal heritage issues; dependence on key personnel; and share price volatility and also include unanticipated and unusual events, many of which are beyond the Company's ability to control or predict.

For further information, please see the Company's most recent annual financial statement, a copy of which can be obtained from the Company on request or at the Company's website: www.vitalmetals.com.au. The Company disclaims any intent or obligation to update any forward-looking statements, whether as a result of new information, future events or results or otherwise. All forward-looking statements made in this presentation are qualified by the foregoing cautionary statements.
Investors are cautioned that forward-looking statements are not guarantees of future performance and, accordingly, not to put undue reliance on such statements.

Cautionary Statement

The Definitive Feasibility Study (DFS) referred to in this report is based on a Proved and Probable Ore Reserve derived from a Measured and Indicated Mineral Resource, plus a small proportion of mining inventory, which comprises material that is currently classified as Inferred Mineral Resource. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

The Company advises that the Proved and Probable Ore Reserve provides 93% of the total tonnage and 93% of the total WO3 metal underpinning the forecast production target and financial projections, and that the additional life of mine plan material comprises less than 7% of the total tonnage and WO3 metal. Furthermore, in the first five years of production, 95% of the material planned to be processed is based on Proved and Probable Ore Reserves.

As such, the dependence of the outcomes of the DFS and the guidance provided in this announcement on the lower confidence Inferred Mineral Resource material contained in the life of mine plan is minimal. The Company has concluded that it has a reasonable basis for providing the forward looking statements included in this report.

Figure 1: Project Location Plan

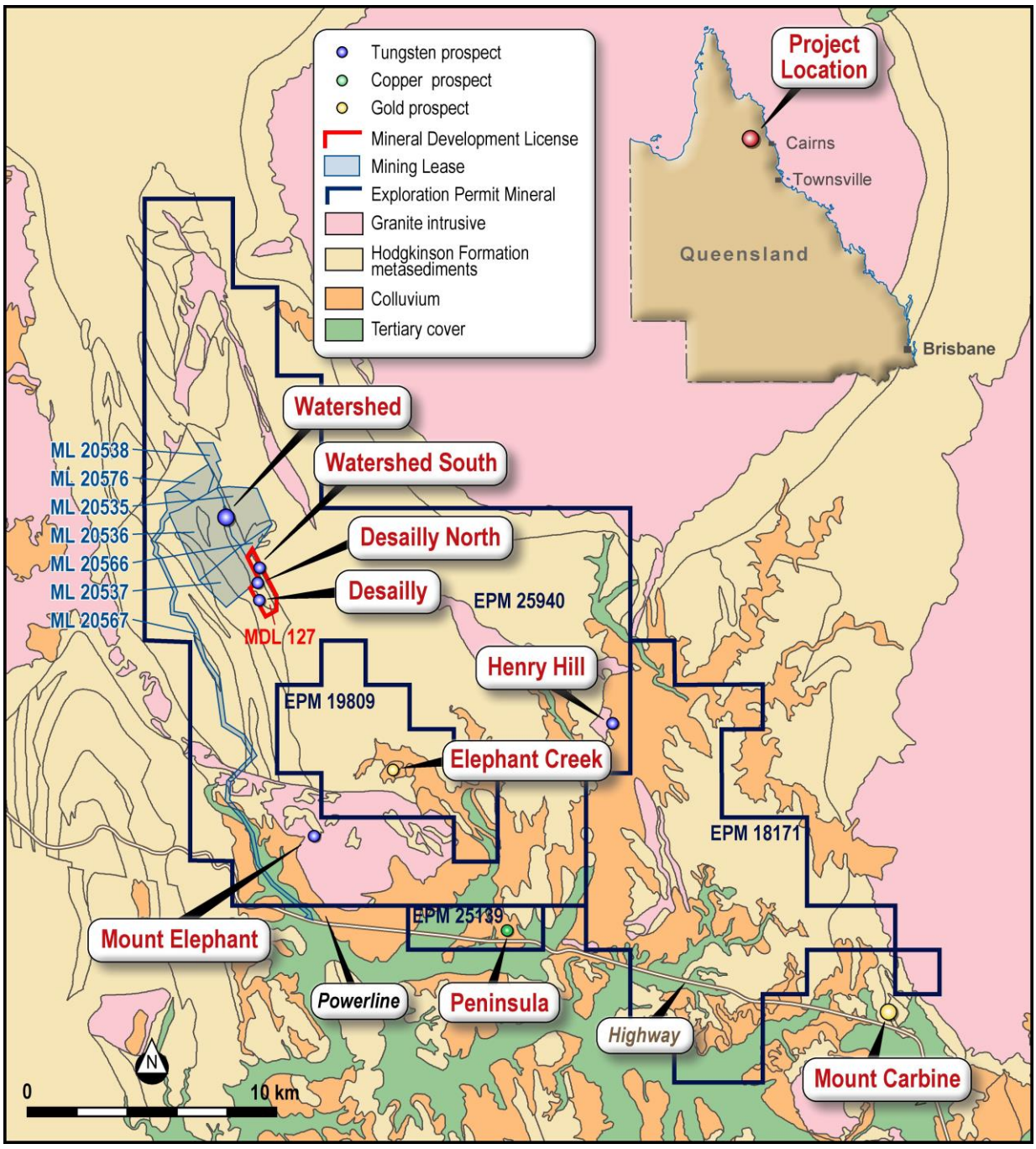
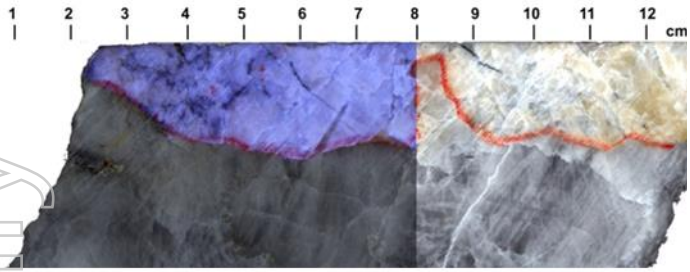
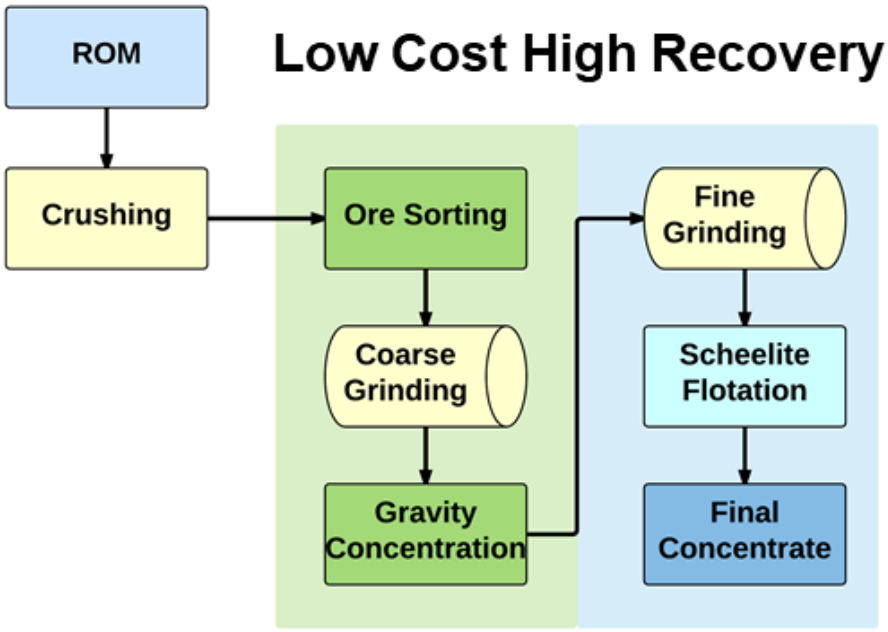


Figure 2: Example of scheelite in veins and in outcrop



High grade scheelite in veins

Figure 3: Watershed flowsheet



Watershed Mineral Resources	Tonnage Mt	WO_3%
Measured	9.5	0.16
Indicated	28.4	0.14
Sub Total: Measured and Indicated	**37.8**	**0.15**
Inferred	11.5	0.15
Total: Measured, Indicated and Inferred	**49.3**	**0.14**

Table 1: Watershed Mineral Resources[4]

Watershed Ore Reserves	Tonnage Mt	WO_3%
Proved	6.4	0.16
Probable	15	0.14
Total: Proved and Probable	**21.3**	**0.15**

Table 2: Watershed Ore Reserves[5]

Name	Tenement	Elements of Interest	Tonnage Range (kt)	Grade Range	Comments
Watershed including Deeps	ML20536	W	10,500 – 14,000	0.14 - 0.25%	**These Exploration Targets are conceptual in nature, and there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.**
Watershed South	MDL127	W	830 - 1,000	0.06 - 0.15%	
Desailly North	MDL127	W	830 - 1,000	0.06 - 0.15%	
Desailly	MDL127	W	1,150 – 1,500	0.06 - 0.15%	
Mt Elephant	EPM 25940	W, Sn	1,000 - 3,000	0.06 - 0.15%	
Slaty Range	EPM 25102	W, Sn	35,000 – 60,000	0.10-0.18%	
Exploration Potential exclusive of current Mineral Resource		**W**	**49,000 – 80,000**	**0.10-0.19%**	

Table 3: Watershed Tungsten Project Exploration Targets

[4] *Watershed Mineral Resources first reported in ASX release 30 July 2012.*

[5] *Watershed Ore Reserves first reported in ASX release 17 September 2014.*
Watershed Mineral Resources are inclusive of Ore Reserves.
Watershed Mineral Resources and Ore Reserves reported at a cut-off grade of 0.05% WO_3.
The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous announcements.

ABOUT VITAL METALS

Vital Metals Limited (**ASX: VML**) is an explorer and developer , focused on progressing three highly prospective mineral Projects: the Watershed Tungsten Project in far north Queensland, Australia, the Aue Tungsten Project in Saxony, Germany and the Doulnia Gold Project in southern Burkina Faso, West Africa.

Doulnia Gold Project – Burkina Faso

The Doulnia Gold Project (100% Vital) is located in southern Burkina Faso. The Project is made up of three contiguous permits; the Doulnia, Kampala and Zeko exploration permits. The Project is located in highly prospective Birimian Greenstone terrain with 400 sq. km of contiguous tenements lying on the trend of the Markoye Fault Corridor and hosting the Kollo Gold Project and Boungou South Gold Prospect.

Watershed Tungsten Project – Queensland

The Watershed scheelite (calcium tungstate) Project, in far north Queensland, 150 kilometres north-west of Cairns, is the Company's flagship venture. The Watershed Tungsten Project is a development-ready project that has a completed Definitive Feasibility Study (DFS), is fully permitted and has all landowner and Indigenous agreements in place.

Aue Tungsten Project – Germany

The Aue Tungsten Project (100% Vital) is located in the western Erzgebirge area of the German state of Saxony. The permit, comprising an area of 78 sq. km is located in the heart of one of Europe's most famous mining regions, being surrounded by several world class mineral fields. Historical mining and intensive exploration work carried out between from the 1940's and 1980's showed high prospectivity of the Aue permit area for tungsten, tin, uranium and silver mineralisation.

Vital Metals Limited

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Board & Management

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Mark Strizek
CEO and Managing Director

Peter Cordin
Non-Executive Director

Francis Harper
Non-Executive Director

Andrew Simpson
Non-Executive Director

Ian Hobson
Company Secretary

Capital Structure

1,055.7 million shares

186.9 million unlisted options