



16 September 2014

## **BUSHVELD MINERALS LIMITED**

### **Operations Update - Mokopane Tin Project Scoping Study Results**

Bushveld Minerals is pleased to present a summary of a Scoping Study for the development of its Mokopane Tin Project located on the northern limb of the Bushveld Complex (the "Scoping Study").

The Scoping Study incorporates a simple process design based on closed circuit multi-stage gravity separation, followed by small-scale flotation and electrostatic separation, and smelting to produce high purity metal.

Bushveld is pleased that, as such, the Project's parameters are in line with its criteria for the development of its projects, being: low cost curve positioning, a proven path to near-term production, low capital expenditure and scalability.

The Company also announces the outcome of its technical due diligence conducted for the potential acquisition of The Zaaipplaats Tin Tailings Dump ("the Zaaipplaats Dump"). Bushveld has elected not to pursue this acquisition on account of the unsatisfactory results of the due diligence exercise with the realizable size and grade of the tin resource contained in the Zaaipplaats Dump as well as the realisable recoveries inadequate to meet the company's acquisition criteria. Accordingly the Zaaipplaats Dump is excluded from the scoping study reported herein.

### **Scoping Study Highlights**

For a Base Case production scenario of 691 ktpa Run-of-Mine producing ~700 tpa of 99.5% tin metal (from 1,380 tpa of 51.4% tin concentrate) (the "Base Case"), the Scoping Study delivers robust post-tax economics (i.e. after a corporate tax of 28%, a withholding tax of 15% and a maximum royalty tax of 5% - September 2014 money terms, discounted to 1 February 2014):

- **Low capital expenditure of US\$16.7 million;**
- **Pre-tax NPV of US\$18.0 million and post-tax NPV of US\$10.0 million (at 10% discount rate);**
- **Pre-tax IRR of 49.8% and real post-tax IRR of 34.6% with a low project risk profile;**
- **Low operating costs (C1 cash + royalties costs of ~US\$ 14,276 / tonne of tin metal);**
- **Average EBITDA margin of 31.5% over current 12 year life of mine; and**
- **Payback: Two years from start of mining.**

Bushveld Minerals applied the Economist Intelligence Unit (EIU) 2015 price forecast (published in June 2014) of US\$10.40 / lb (equivalent to US\$22,928 / tonne) as the long term real tin price over the life of mine. This is in comparison to the June 2013 to June 2014 average price of US\$22,326 / tonne.

## About the Mokopane Tin Project

Within the Mokopane Tin Project licence area, numerous targets for open-castable disseminated tin resources have been identified. The Company has explored and drilled two out of five targets, Groenfontein and Zaaiplaats, upon which this Scoping Study is based.

The Project has a total combined mineral resource of 18,447 tonnes of tin ("Sn") which has been steadily increased over the past two years towards the Company's 20,000 tonne mineral resource inventory target. Groenfontein mineral resource consists of 5,995 tonnes of Sn at an average grade of 0.15% Sn, while Zaaiplaats mineral resource consists of 12,452 tonnes of Sn at an average grade of 0.106% Sn. Resource and project characteristics include:

- Open-castable mineral resource on both deposits due to broad, continuously mineralised zones occurring at or near surface;
- Current mineral resource based on two out of the five targets identified to date in the licence area – three additional targets are to be explored as the project progresses;
- Low capital expenditure route chosen that optimises recovery and produces high purity metal;
- High tin recoveries of ~75%;
- Existing paved road and rail infrastructure offers sufficient options to transport expected product volumes; and
- Power requirements can be met by an existing transmission line 25 km from the Project area, and water requirements are anticipated to be met by a wellfield in the Project area that would be developed.

Bushveld has a number of opportunities to further improve the project economics from those today presented by the Mokopane Tin Project Scoping Study. These include:

- Optimisation of capital expenditure costs, including sourcing second hand plant equipment in pristine condition;
- Increasing the mineral resource base through additional exploration on licence area properties (with some target areas having already been identified through mineralised intersections in drilled boreholes) and lowering the cut-off grade on the Groenfontein deposit (from 0.10% Sn to 0.07% Sn, as utilised for the Zaaiplaats deposit) to add more economically mineable mineral resource;
- Defining mineral resource estimates for all potential economic by-products, including tungsten and copper in both the Zaaiplaats and Groenfontein deposits.

Two alternative production scenarios were assessed that considered either 1) producing a 51.4% tin concentrate only, or 2) producing ferrotungsten in addition to tin metal. The concentrate scenario yielded a similar IRR although the NPV was slightly lower, while the production of ferrotungsten increased the post-tax NPV by 47% with a significant increase in IRR.

The results of both the Base Case and the potential upside of the Tungsten Metal Sales Scenario support Bushveld's intention to move the Project to its next stage of development.

Accordingly, Bushveld intends to:

- 1) Initiate additional drilling at Zaaiplaats to define the contained tungsten mineral resource and increase the tin resources in the Indicated category;

- 2) Undertake detailed open pit planning including production scheduling at Groenfontein and Zaaiplaats once the additional drilling program is complete;
- 3) Conduct Pilot Plant testwork to finalize the beneficiation flowsheet for the processing plant; and
- 4) Investigate the availability of pristine condition second-hand processing equipment for use in the processing plant.

### **Zaaiplaats Tailings Dump acquisition update**

Further to the announcement of 25 March 2014 and update of 22 May 2014, the technical due diligence work conducted in respect of the acquisition of the Zaaiplaats Tailings Dump determined that the tin content and grade does not meet Bushveld's acquisition criterion to be included as part of its tin portfolio. As such, the Tailings will not be evaluated further as part of the Project.

Bushveld Minerals CEO, Fortune Mojapelo, said:

*"We are pleased to release the scoping study for the Mokopane Tin Project. When Bushveld listed in 2012, we began with a small mineral resource on the Groenfontein Deposit of 5,995 tonnes contained tin, stating our intent to build a critical mass of tin resource inventory and set up an independent African focused tin platform. We have since grown the mineral resource three-fold to 18,500 tonnes of contained tin across two adjacent deposits, with a positive scoping study offering attractive economics, simple processing methods and low capex requirements.*

*In addition to the scoping study, Bushveld believes there is significant potential to further increase the mineral resource base via additional resource drilling on Groenfontein and Zaaiplaats, and proving up the other identified targets in the Mokopane Tin Project area and the Marble Hall Tin Project.*

*Our stated objective remains to grow our Greenhills portfolio to critical mass with the economics supporting a portfolio of tin assets capable of supporting a standalone tin company.*

*This scoping study demonstrates progress towards that goal and we are confident the identified targets will enable us to do so long-term, while we prioritise, in the short term, the development of the Bushveld Vanadium Project in the short to medium term."*

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## EXECUTIVE SUMMARY

The Mokopane Tin Project is located in the Limpopo Province, South Africa. It is situated on the northern limb of the Bushveld Complex and consists of one prospecting licence, 2205 PR, covering six farms with an area of approximately 13,422 ha. Within this licence area, numerous targets for open-cast disseminated tin resources have been identified, and the Company has explored and drilled two of the targets, Groenfontein and Zaaiplaats, upon which this Scoping Study report has been based.

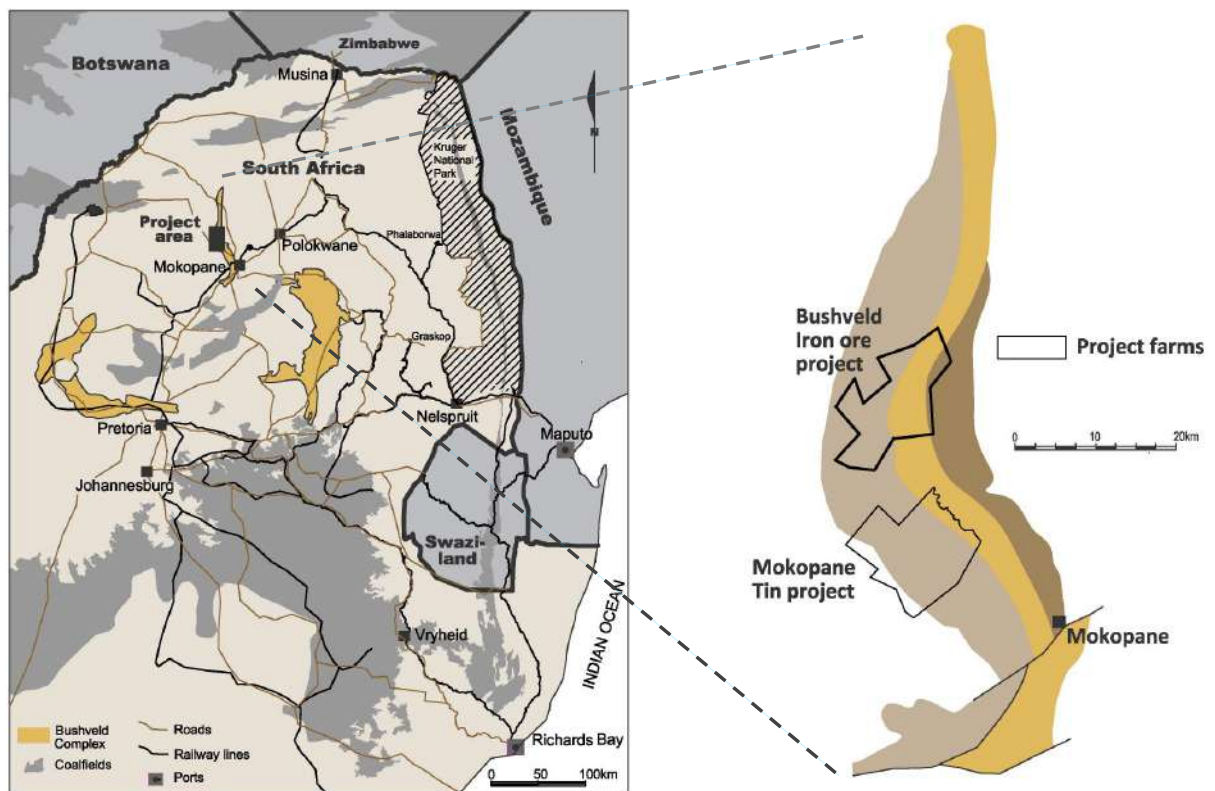


Figure 1.1 – Location of the Mokopane Tin Project in relation to the Bushveld Complex, infrastructure and coalfields

The aim of this Scoping Study was to investigate the viability of mining these disseminated tin deposits, to gain a better understanding of the tin geology and its processing methods to be able to quickly expand the mineral resource base across other potential targets, and to potentially expedite the development of tin production.

### **Mineral Resource**

The Company explored and drilled two targets (Groenfontein and Zaaiplaats) where it established a JORC mineral resource containing a total of 18,447 tonnes of tin.

The **Groenfontein** deposit has total Inferred, Indicated and Measured Mineral Resources of 3.99 Mt, containing approximately 5,995 tonnes of tin (at 0.1% Sn cut-off). The table below shows the Mineral Resources in these various categories at the Groenfontein Deposit.

Resource Category	Tonnes of ore (Mt)	Grade (Sn %)	Tonnes of Sn
Inferred	0.89	0.134	1,203
Indicated	1.92	0.14	2,685
Measured	1.18	0.179	2,107
<b>Total – Indicated + Inferred + Measured</b>	<b>3.99</b>	<b>0.15</b>	<b>5,995</b>

Table 101 - Mineral Resources for the Groenfontein Deposit, at a 0.1% Sn cut-off grade

The Zaaiplaats deposit has total Inferred and Indicated Mineral Resources of 11.73 Mt, containing approximately 12,452 tonnes of tin (at a 0.07% Sn cut-off). These Mineral Resources are summarized in the table below.

Resource Category	Tonnes of ore (Mt)	Grade (Sn %)	Tonnes of Sn
Indicated	1.23	0.09	1,110
Inferred	10.50	0.108	11342
<b>Total – Indicated + Inferred</b>	<b>11.73</b>	<b>0.106</b>	<b>12,452</b>

Table 1.2 - Mineral Resources for the Zaaiplaats Deposit, at a 0.07% Sn cut-off grade

### Geology

Cassiterite (SnO<sub>2</sub>) is the principal mineral of interest, being the tin-bearing phase in the granites, and scheelite (CaWO<sub>4</sub>) is also found in these granites. Cassiterite mineralisation is restricted to the Lease and Bobbejaankop Granites where it occurs in pipe-like bodies, sub-horizontal lenticular bodies and as sub-horizontal disseminated lower-grade bodies within both granites. These broad, lower-grade zones of disseminated tin mineralisation within the Bobbejaankop and Lease Granites are the primary ore bodies of interest for this project. This is because these zones are broad and continuous, with high tonnages, and occur at or near surface. These features make them amenable to simple bulk open-pit mining.

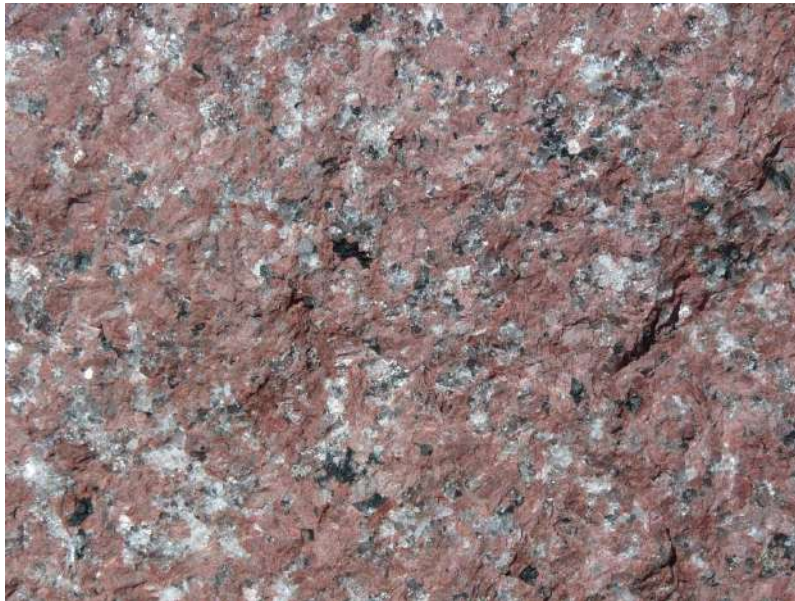


Figure 1.2 - Coarse-grained Bobbejaankop Granite. The rock is composed of bright pink-red feldspar and white quartz, with minor dark biotite.

At the Groenfontein deposit, the disseminated cassiterite ore body is found in the Lease Granite, while at Zaaiplaats the ore body is found in the Bobbejaankop Granite. At both localities, high-grade pipe-like mineralised bodies are found. These are restricted bodies, roughly circular in cross-section with diameters varying from a few centimetres up to 12 m and lengths from a few metres up to 1,200 m. The attitude varies from horizontal to vertical. Although they have average cassiterite concentration of 12 – 30% (with some up to 70% SnO<sub>2</sub>), they have been largely mined out, and their erratic nature and small size means they are difficult to evaluate; hence they have not been considered as part of the mineral resources of the two deposits herein reported.

Although Tungsten (W) grades have only been estimated for the Zaaiplaats deposit, scheelite (CaWO<sub>4</sub>) is known to occur at both deposits. This may present possible upside as it is found in association with tin and could be mined and processed in conjunction with cassiterite.

### ***Mining.***

The 12 year production schedule assumes an initial two year period with ore mined from the Groenfontein deposit only, following which mining will be at the Zaaiplaats deposit only.

The concentric zonation at the Groenfontein deposit means that production can begin in the higher-grade core areas of the deposit. Additionally, the fact that the deposit largely outcrops along a relatively flat surface means that stripping ratios can be kept low in the initial stages of mining. Production is planned from two shallow open-pits. Following the initial period of shallow open-pit mining with very low stripping ratios, strip ratios would increase in order to extract the remaining targeted mineral resources from the deposit.

Owing to the location of the Zaaiplaats deposit on the side of a hill, and the moderate dip of the deposit to the northwest (into the hill), open-pit mining targeting the shallow mineralisation along the side of the hill would initially have very low stripping ratios. However, continued removal of overburden as one moves down-dip into the hill would result in higher stripping ratios later in the life-of-mine. This would involve stripping of areas previously partially mined using underground mining.

The Groenfontein and Zaaiplaats deposits will be mined by utilising open-cast mining methods with drilling, blasting and truck-and-shovel operations. The ROM material will be hauled to the concentrator plant by means of trucks. It is assumed that mining contractors will be used for the in-pit mining activities, which will negate the need for mining equipment capital expenditure. However, mine site establishment capital has been included in the capital expenditure forecast. Annual stripping ratios range from 0.19:1 to 2.45:1 and average 1.38:1 over the life of operation.

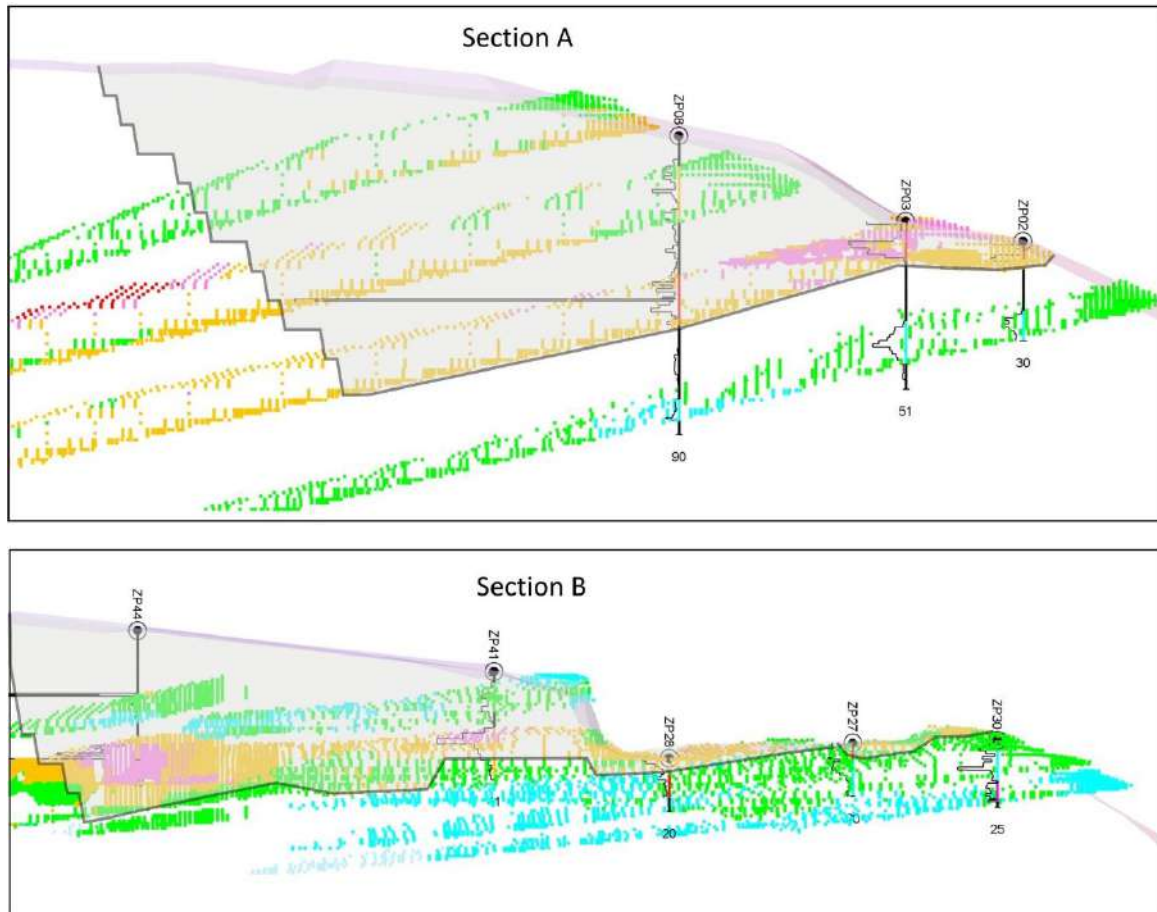


Figure 1.3 - Cross-sections across the Zaaiplaats orebody showing the extent of the planned open-pit relative to the block model.

### **Metallurgy.**

Several tests were conducted on the Groenfontein and Zaaiplaats ores including mineralogical characterisation, X-ray diffractometry, size-by-grade analysis, Quantitative Evaluation of Minerals by SCANning electron microscopy (Particle Mineralogical Analysis) (“QEMSCAN (PMA)”), heavy liquid separation, dense medium separation (DMS), and flotation. These tests served to help to develop the final process flow diagram.

The process employs a combination of various gravity separation techniques at different size fractions. This process route is aimed at limiting the plant capex and installed power requirements, while curtailing the production of ultra-fines in order to maximise tin recovery. The plant also incorporates small-scale flotation for sulphide removal from the final concentrate, and electrostatic separation for separating cassiterite from scheelite (thereby providing a potential scheelite product as an upside opportunity). The concentrator plant produces three separate concentrate streams of tin (containing ~51.4% Sn), tungsten (containing 10.4% W, equivalent to ~13.1% WO<sub>3</sub>), and copper (containing 22.7% Cu). Throughout the processing plant there is ~75% Sn recovery.

The process design philosophy is aimed at maximising cassiterite and scheelite recovery efficiency and final concentrate grades. The following features were used:

- a. Compression crushing (as opposed to impact crushing) to minimise the production of ultra-fines.



- b. Primary grinding via a rod mill due to its superior grinding attributes, i.e. this type of mill effects preferential grinding of the large ore particles in the mill feed stream, while exerting minimal energy on the smaller particles in the mill charge.
- c. Jigging of the rod mill effluent stream for the recovery of coarse cassiterite and scheelite (up to 2mm).
- d. Accurate de-sliming of the -1mm stream directly upstream from the spiral plant in order to restrict the loss of fine heavy minerals to the slimes fraction.
- e. Four stages of heavy mineral spirals (roughers, scavengers, cleaners and re-cleaners) for the recovery of cassiterite and scheelite in the -1mm size fraction.
- f. Re-grinding of specific streams via a ball mill and re-circulating the ball mill effluent stream to the spiral plant.
- g. Three lines of shaking tables for upgrading the coarse (-2mm +1mm), mid-size (-1mm +400 $\mu$ m) and fine (-400 $\mu$ m) primary concentrates.
- h. Removing copper sulphides (chalcopyrite) from the shaking table concentrates via ball milling and flotation.
- i. Drying the flotation tailings stream and separating the cassiterite from the scheelite via electrostatic separation.

The following process diagram was proposed:

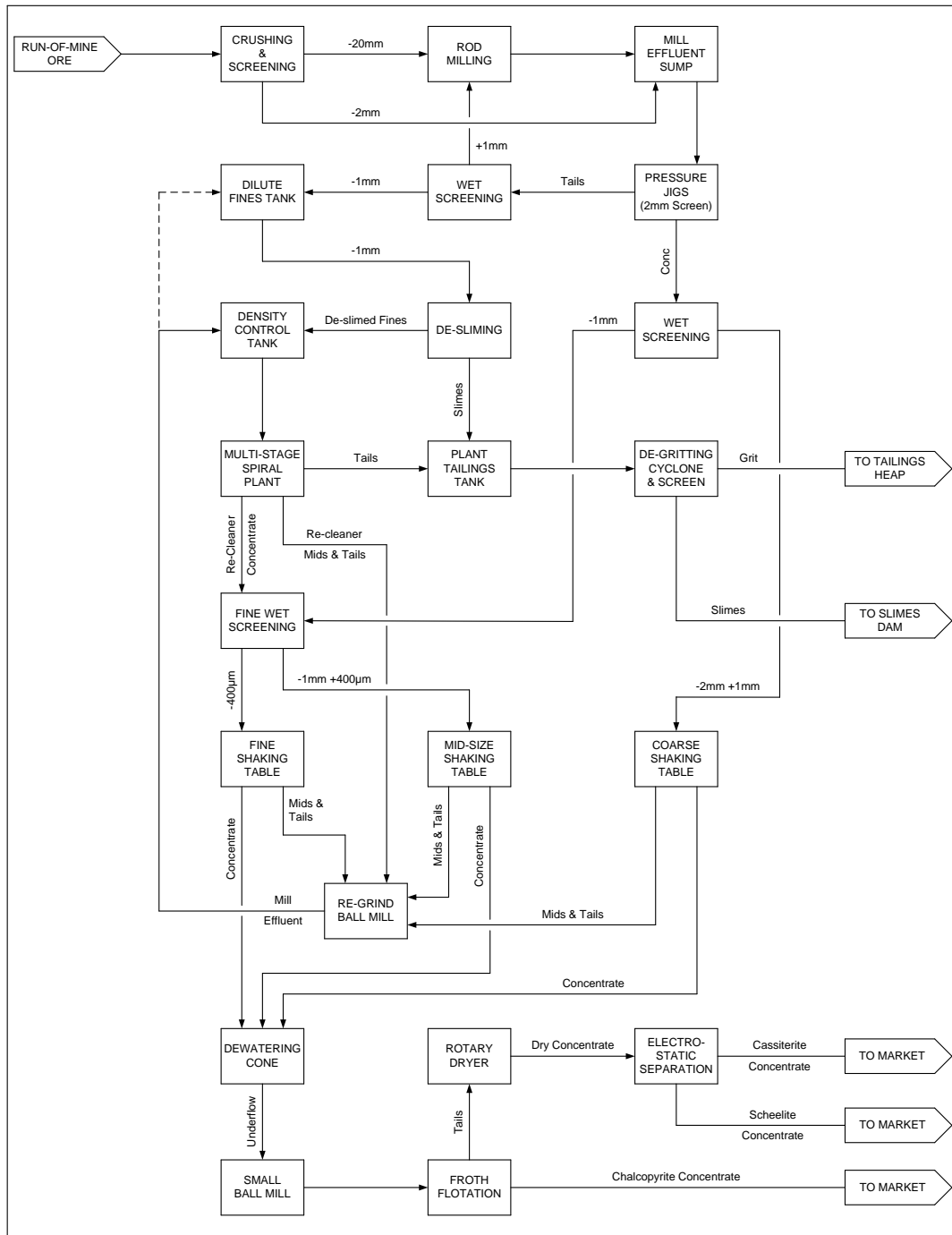


Figure 1.4: Block Flow Diagram for processing of Zaaipplaats and Groenfontein ore

The resulting tin and tungsten concentrates are passed through two different smelters to produce >99% purity Sn metal and ferrotungsten (containing 55% tungsten). It is anticipated that pilot plant testwork in the next phase of development will confirm these outputs and further testwork will be conducted to further refine the ferrotungsten. Initial plant capex costs, including the two smelters, is estimated at US\$11.4 m with the potential to reduce further through sourcing of pristine quality second-hand equipment.

## **Infrastructure**

The region is served by major existing power infrastructure. The 765 kV Matimba-Witkop power line passes 25 km north of the property. In addition, further infrastructure is in development to transmit power from the Matimba power station (situated approximately 120 km to the northwest of the property) to accommodate the increased demand in the Mokopane area, specifically to satisfy the platinum mining industry.

Water availability may be limited due to the semi-arid environment. However, the old underground mine workings are flooded, indicating significant ground water resources, and the property is flanked by the Mogolakwena and Sterk Rivers. It is therefore probable that sufficient process water could be sourced locally. Capital expenditure has been included to develop a well field to provide the project with water.

## **Markets**

### **Tin:**

The tin market study focused on the supply and demand dynamics of tin metal, including analysing existing and future tin projects and consumers, and the historic and forecast price movements of tin.

The study revealed the following positive highlights:

- Current potential opportunities in the tin market outweigh the potential threats, and should support a continuing increase of approximately 2% per year in global consumption (with the Chinese consumption growth rate being 4%);
- Peru's production, which ranks third in the world, is in structural decline with the world's largest tin mine, San Rafael, depleting rapidly;
- Indonesian legislation restricting the amount of lead permissible in tin metal could possibly result in a fall of exports from Indonesia;
- In the period 2011 – 2015, an increase in the current supply-demand deficit is expected. Approximately 70,000 additional tonnes per year is to be required, and current projects in development look set to add only 18,500 tonnes per year.

Bushveld Minerals applied the Economist Intelligence Unit (EIU) 2015 price forecast (published in June 2014) of US\$10.40 / lb (equivalent to US\$22,928 / tonne) as the long term real tin price over the life of mine (assumed to be a September 2014 price or mid-financial year 2015). This is in comparison to the June 2013 to June 2014 average of US\$22,326 / tonne.

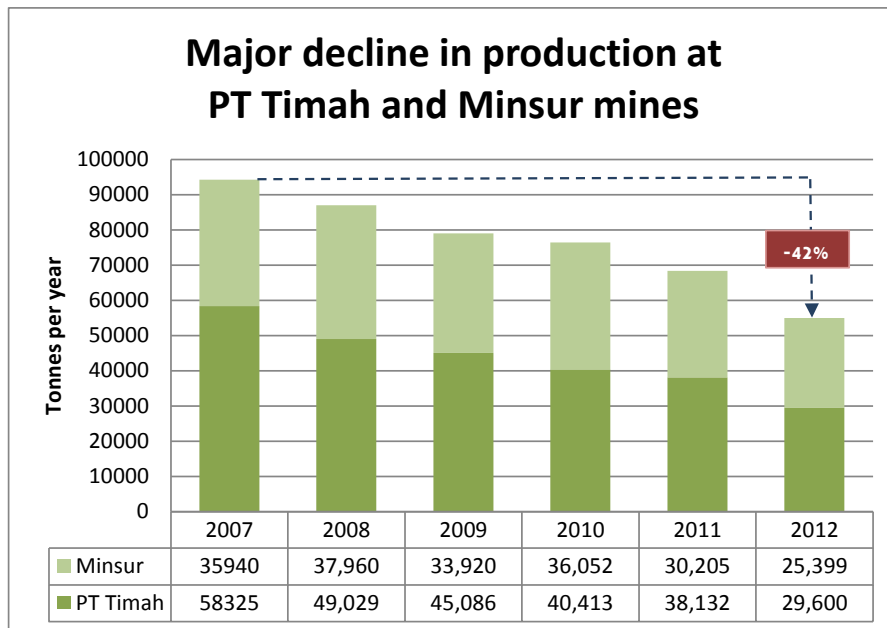


Figure 1.5 - Declining production at PT Timah and Minsur mines in Peru (Source: Company Reports, ITRI, Bushveld research)

#### Tungsten:

Additional coverage was given to tungsten market fundamentals as this has been identified as a potential economic by-product of the Project.

The global tungsten market is buoyed by strong fundamentals that are expected to sustain in the long-term as demand for the metal rises alongside tightening supply lines. China is a major source of tungsten market supply, making pricing for the metal inelastic. China controls over 85% of the supply and is reducing its export quotas by 15% per annum making the availability of tungsten scarce outside of China; even within China the metal is becoming scarce, given the ban on new mines. The price of tungsten in ferrotungsten (FeW), which would be the final product sold from the Project, is forecast to remain stable and above \$400 / mtu (US\$40,000 / tonne) for the next couple of years with price movements dependent on the level of new production to come on line outside of China. Bushveld has assumed a long-term ferrotungsten price of US\$400 / mtu. The FeW produced by the Project will have a W grade of 55%. Consequently, a 25% discount to the FeW (75% W) price has been assumed.

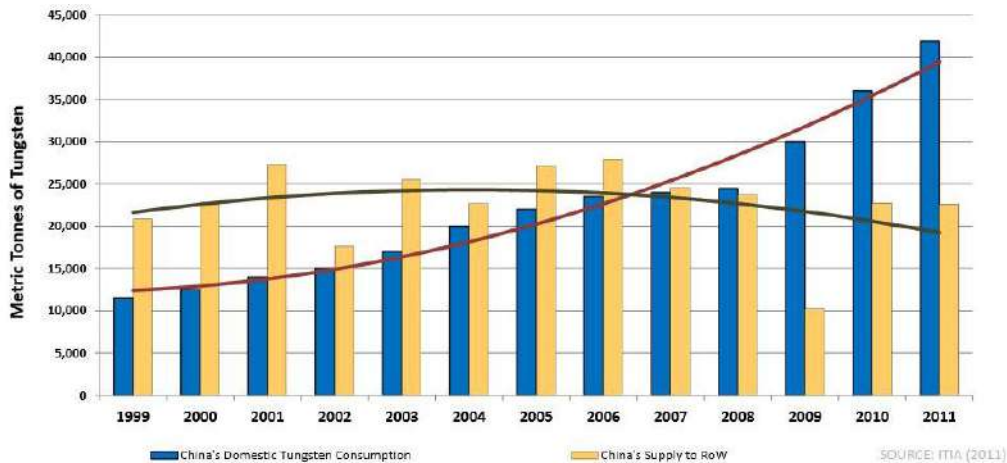


Figure 1.6 - Chinese domestic Tungsten consumption vs China exports to rest of world (Source: ITIA, 2011)

## Financials

The Project's financial evaluation was completed based on the production of tin ("Sn") concentrate in a concentrator plant, followed by on-mine smelting to produce Sn metal destined for the international market ("Base Case"). Two alternative scenarios were modelled as follows:

- 1) Sn and ferrotungsten ("FeW") metal sales to calculate the upside potential to the Base Case ("W Metal Sales Scenario"); and
- 2) Selling Sn concentrate into the market at assumed concentrate terms ("Concentrate Scenario").

Although copper is also present in the Groenfontein and Zaaiplaats deposits, and the concentrator plant has been designed to recover and produce a copper concentrate, no benefit to the project economics has been modelled within this Scoping Study. Factoring this should be investigated in Prefeasibility stage to possibly enhance the economics of the Project.

The W Metal Sales Scenario assumes the production of tungsten concentrate on a secondary production stream within the concentrator plant. The W concentrate will then be smelted on-mine to produce FeW at approximately 55% W.

The Base Case life-of-mine plan, which is common to the alternative scenarios, assumes mining will commence at Groenfontein for the first two years and thereafter will be centered at Zaaiplaats. This incorporates an annual run-of-mine ("ROM") tonnage of 691 ktpa at a rate of 100 tonnes per hour of ROM feed into the concentrator (80% availability). The financial valuation is based on Sn ROM grade (net of 5% dilution at 0.09% Sn) ranging between 0.221% and 0.116%, assuming a cut-off grade of 0.1% Sn. A life-of-mine of 12 years has been assumed based on the mineral resources suitable for open cast mining.

The W Metals Sales Scenario has been calculated for the production of Sn and its by-product W. A constant annual average W ROM grade of 0.01% has been assumed as there is a reasonable correlation between the Sn and W in-situ grades.

## Capital Expenditure Summary

The estimates for Project establishment capital expenditure are set out in Table 1.3 below and are similar for all scenarios. All figures are in September 2014 money terms.

Establishment Capital Expenditure - Bushveld Tin Project					
	Unit	FY 2015	FY 2016	FY 2017	FY 2018
External Power Supply	US\$m	0.00	3.38	0.00	0.00
Wellfield for Initial Water Supply	US\$m	0.00	0.44	0.00	0.00
Haul Road Construction	US\$m	0.00	0.88	0.00	0.00
Office, Sewage and Fencing	US\$m	0.00	0.34	0.00	0.00
Contingency	US\$m	0.00	2.07	0.00	0.00
Project Management	US\$m	0.00	0.52	0.00	0.00
Closure Costs Contribution	US\$m	0.00	0.19	0.00	0.00
Processing Plant incl. Tailings Dam, Civils	US\$m	0.00	7.35	0.00	0.00
Mining Establishment Capital (Zaaiplaas)	US\$m	0.00	0.00	0.00	0.35
Mining Establishment Capital (Groenfontein)	US\$m	0.00	0.34	0.00	0.00
Sn Smelter	US\$m	0.00	0.10	0.00	0.00
W Smelter	US\$m	0.00	0.39	0.00	0.00
Pre-feasibility Study	US\$m	0.71	0.00	0.00	0.00
<b>Total Capital Expenditure</b>	<b>US\$m</b>	<b>0.71</b>	<b>15.99</b>	<b>0.00</b>	<b>0.35</b>
<b>Total Capital Expenditure</b>	<b>US\$m</b>	<b>17.05</b>			

Table 1.3 - Project Capital Expenditure Schedule

Note: Base Case Total = US\$16.66m; Concentrate Scenario = US\$16.57m

Annual sustaining capital expenditure has been assumed to be 2.0% of the aggregate establishment capital required, or some US\$0.34 million per annum, commencing from year one of production (anticipated to be 2017).

### Operating Costs Summary

The cash operating costs assumed for the Project, which are similar for all scenarios, are set out in Table Table 1.4 below, and are all in September 2014 money terms:

	Unit	US\$
Ore Mining Open-pit Cost	Per ton mined	2.45
Logistics cost from pit to concentrator	Per ROM ton	0.34
Processing (for production of Sn & W Concentrates)	Per ROM ton	6.74
Smelting Cost –Sn & W	US\$m pa	0.27
General and Administration	Per ROM ton	0.88
Loading, Rail, Port, and Freight - US\$ per ton of Sn & W metal	Per ton metal	125
Agency fees per ton of Sn Metal	% of CIF	3%

Table 1.4 - Estimated Operating Costs – All Cases (Concentrate Scenario excludes smelting costs)

Note: Smelting costs are not applicable for the Concentrate Scenario. Smelting costs are assumed to be significantly fixed..

Economic evaluation of the Project has shown the potential to establish an economically viable operation at the Mokopane Tin Project. The Base Case Scenario's economic indicators for the project are summarised below:

<b>Bushveld Tin Ore Project</b>			
<b>Base Case Scenario Financials (in September 2014 Money Terms), Totals and Averages</b>			
<b>Item</b>		<b>Unit</b>	<b>Value</b>
Gross Revenue		LOM US\$m real	182
Royalty		LOM US\$m real	2.67
Net Revenue		LOM US\$m real	180
Operating Costs		LOM US\$m real	118
Average Cash Operating Costs	ROM ton	LOM US\$/ton	14.23
	Sn Concentrate	LOM US\$/ton	7,092
	Sn Metal	LOM US\$/ton	14,276
Capital Costs	Initial	US\$m real	16.7
	Sustaining	US\$m p.a.	0.3
Net Cash Flow		LOM US\$m real	25.1
Total Positive Cash Flow		LOM US\$m real	41.4
<b>Economics - post-tax</b>	NPV @ 8% real	US\$m	12.08
	NPV @ 10% real	US\$m	10.08
	NPV @ 12% real	US\$m	8.41
	IRR real	%	34.6%
<b>Economics - pre-tax</b>	NPV @ 8% real	US\$m	21.04
	NPV @ 10% real	US\$m	18.02
	NPV @ 12% real	US\$m	15.47
	IRR real	%	49.8%
Pay back (based on discounted cash flow) from commencement of production		Yrs	2.00
Life of Mine		Yrs	12.00

Table 1.5 - DCF Valuation Model – Base Case Scenario Financials

In the W Metal Sales Scenario, it is assumed that the W concentrate is produced by the concentrator and smelted to produce a W metal in the form of FeW (containing 55% W). The W Metal Sales Scenario's economic indicators for the project are summarised below:

<b>Bushveld Tin Ore Project</b>			
<b>W Metal Sales Scenario Financials (in September 2014 Money Terms), Totals and Averages</b>			
<b>Item</b>		<b>Unit</b>	<b>Value</b>
Gross Revenue		LOM US\$m real	200
Royalty		LOM US\$m real	3.47
Net Revenue		LOM US\$m real	196
Operating Costs		LOM US\$m real	119
Average Cash Operating Costs	ROM ton	LOM US\$/ton	14.39
	Sn Concentrate	LOM US\$/ton	6,105
	Sn Metal	LOM US\$/ton	12,289
Capital Costs	Initial	US\$m real	17.1
	Sustaining	US\$m p.a.	0.3

Net Cash Flow		LOM US\$m real	35.0
Total Positive Cash Flow		LOM US\$m real	51.7
<b>Economics - post-tax</b>	NPV @ 8% real	US\$m	17.47
	NPV @ 10% real	US\$m	14.80
	NPV @ 12% real	US\$m	12.55
	IRR real	%	42.0%
<b>Economics - pre-tax</b>	NPV @ 8% real	US\$m	29.34
	NPV @ 10% real	US\$m	25.27
	NPV @ 12% real	US\$m	21.86
	IRR real	%	59.3%
Pay back (based on discounted cash flow) from commencement of production		Yrs	2.00
Life of Mine		Yrs	12.00

Table 01.6 - DCF Valuation Model –W Metal Sales Scenario - Financials

In the Concentrate Scenario, it is assumed that only Sn concentrates are sold. It is assumed that the W concentrate is not sold. The Concentrate Scenario's economic indicators for the project are summarised below:

<b>Bushveld Tin Ore Project</b>			
<b>Concentrate Scenario Financials (in September 2014 Money Terms), Totals and Averages</b>			
<b>Item</b>		<b>Unit</b>	<b>Value</b>
Gross Revenue		LOM US\$m real	177
Royalty		LOM US\$m real	3.17
Net Revenue		LOM US\$m real	174
Operating Costs		LOM US\$m real	115
Average Cash Operating Costs	ROM ton	LOM US\$/ton	13.85
	Sn Concentrate	LOM US\$/ton	6,902
	Sn Metal	LOM US\$/ton	0
Capital Costs	Initial	US\$m real	16.6
	Sustaining	US\$m p.a.	0.3
Net Cash Flow		LOM US\$m real	23.5
Total Positive Cash Flow		LOM US\$m real	39.7
<b>Economics - post-tax</b>	NPV @ 8% real	US\$m	11.29
	NPV @ 10% real	US\$m	9.43
	NPV @ 12% real	US\$m	7.86
	IRR real	%	34.3%
<b>Economics - pre-tax</b>	NPV @ 8% real	US\$m	19.83
	NPV @ 10% real	US\$m	17.00
	NPV @ 12% real	US\$m	14.63
	IRR real	%	49.9%
Pay back (based on discounted cash flow) from commencement of production		Yrs	2.00



Life of Mine	Yrs	12.00
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Table 01.7 - DCF Valuation Model –Concentrate Scenario - Financials

### Conclusion

The calculated NPV and IRR of the Base Case (Sn only) indicates that the Project is financially robust (positive post-tax NPV at an appropriate range of real discount rates and a post-tax IRR of 34.6% real). The Concentrate Scenario has a similar IRR and slightly lower NPV. The W Metal Scenario Alternative suggests that extracting the W from the ROM material in the form of W concentrate, smelting it to produce FeW and selling it to market, would significantly increase the viability of the Project (a 47% increase in NPV and a post-tax IRR of 42%).

Based on the results of both the Base Case and the potential upside of the W Metal Sales Scenario, it would seem prudent to move the Project to its next stage of development. The preparation of a SAMREC compliant mineral resource base for W at Zaaiplaats would also seem prudent in order to ensure the W upside is captured in the feasibility study stages. The NPV and IRR of the Concentrate Scenario also suggest that the project be carried on to feasibility stage.

There are significant potential opportunities which could be explored further in the next stage of the Project. These include:

- Optimisation of capex costs, including sourcing second hand plant equipment in pristine condition;
- Increasing the mineral resource base through additional exploration on licence area properties (with some targets having already been identified through mineralized intersections in drilled boreholes) and lowering the cutoff grade on the Groenfontein deposit (from 0.10% Sn to 0.07% Sn) to add more economically mineable mineral resource
- Defining mineral resource estimates for all potential economic by-products, including tungsten and copper in both the Zaaiplaats and Groenfontein deposits, and scoping a work programme to fully investigate and design the processing of these minerals

To advance the Project to the next stage of development it is recommended that the following be considered;

- That additional drilling be done at Zaaiplaats to estimate the tungsten grade and increase the tin resources in the Indicated category;
- That more detailed open pit planning including production scheduling be completed both at Groenfontein and Zaaiplaats once the additional drilling program is complete;
- That Pilot Plant testwork be completed to finalize the flowsheet for the processing plant; and
- That the availability of secondhand processing equipment be investigated.

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**About Bushveld Minerals**

Bushveld Minerals Limited is a mineral development company with a portfolio of vanadium-and titanium bearing iron ore and tin assets in Southern Africa. The Company owns the Bushveld Iron Ore Project, Bushveld Vanadium Project and Mokopane Tin Project, all located on the northern limb of the Bushveld Complex, South Africa. In addition, Bushveld has a controlling 57.21% interest in Lemur Resources (ASX: LMR), that owns the Imaloto coal project in Madagascar.

Bushveld was admitted to the AIM of the London Stock Exchange in March 2012.

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