



## QUARTERLY ACTIVITIES REPORT



PERIOD ENDING 31 December 2011  
ASX CODE: SHE

### Stonehenge Metals Ltd

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### OVERVIEW

- Commencement of pit optimisation modelling
- Metallurgical test work delivers 90% Uranium extraction and >70% Vanadium extraction
- Environmental baseline monitoring commences
- Vanadium Exploration Target announced
- Tasmanian assets divestment

Stonehenge Metals Limited (ASX:SHE) (**Stonehenge** or the **Company**) is pleased to provide shareholders the following quarterly activities report with respect of the Company's activities.

### GEOLOGY & EXPLORATION

Work has continued to build on the historical geological exploration undertaken by KORES over the Daejon Project area.

An accurate ground survey was performed during November to verify the location of the historical drill collars. Approximately 60% of the drill collar locations have now been verified via differential GPS. This is one of the essential requirements to move the current resource from JORC inferred to indicated category.

Geochemical sampling of 3 trenches up to 50m in length was completed in December along

outcropping black shale across the Chubu deposit. Assays from 2m composite samples are pending.

Data searches continue to provide new data into the Company's drilling database. Information on a further 5 drill holes were obtained within the Daejon project area.

A pit optimisation study was completed during the quarter to identify priority areas for follow-up exploration work. More importantly the study showed the Chubu and Yokwang deposits could be open pit mined at a very low strip ratio. The study indicated the first 5 years of mining can be achieved at a strip ratio for 1:1.3 and then increasing up to 1:2.3 at year 10.

Historical diamond drill cores from the Geumsan deposit located within the Daejon project area have been secured and will be relocated to the Company's Chubu exploration office. Six cores will be initially cut and assayed to verify work completed by KORES.

Ventilation and ground support will be installed in the adit to allow suitable access to map the geology of the adit and perform additional sampling along mineralised zones for vanadium.

### **Vanadium Exploration Target**

Subsequent to the end of the quarter, Stonehenge announced an Exploration Target<sup>1</sup> of 385-695 M lbs V<sub>2</sub>O<sub>5</sub> at its Daejon project in South Korea.

Based on vanadium assays from the Chubu exploration adit and reconnaissance surveying along strike, an Exploration Target<sup>1</sup> of 70-90 Million tonnes at a grade of between 0.25% to 0.35% V<sub>2</sub>O<sub>5</sub> for a contained 385-695 M lbs V<sub>2</sub>O<sub>5</sub>, is estimated to be within the Daejon project area.

Continued reconnaissance surveying completed by Stonehenge has confirmed that vanadium mineralisation occurs along strike and multiple drill targets have been identified.

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<sup>1</sup> It should be noted that, under JORC guidelines, the potential quantity and grade of the vanadium exploration target is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and that it is uncertain if further exploration will result in the determination of a Mineral Resource

This sampling is part of the ongoing exploration campaign to gain a better understanding of the deposit and its extensions. Stonehenge is evaluating historical Korean Government work completed on the Stonehenge tenements where vanadium grades of up to **1.21% V<sub>2</sub>O<sub>5</sub>** are reported in the Yokwang deposit located within the Daejon project area. Occurrence of vanadium has been confirmed by Stonehenge in all three deposits Yokwang, Chubu and Guemsan located across the Daejon project.

Vanadium demand is directly linked to global steel consumption, with approximately 85 to 90% of global vanadium production consumed in the steel industry. Vanadium is primarily used as an alloy to steels in order to increase the strength and improve the high temperature performance of steels. Steels can contain from 0.05% to 4% vanadium depending on the grade. Other key uses for vanadium include titanium alloys for the aerospace industry, catalysts and vanadium redox flow batteries. Worldwide vanadium consumption is currently 65,000 tonnes per annum.

There are 95 historical drill holes located across the Chubu and Yokwang deposits. Only seven of these holes have been partially assayed for vanadium, which coincided with high grade uranium intersections. The remaining drill holes have not been assayed.

Geochemical sampling of a 340m long exploration adit within the Chubu deposit is on-going; the adit traverses part way into the mineralised ore zone and then travels along strike.

Assay results from the adit include 59m @ 0.32% V<sub>2</sub>O<sub>5</sub> and 33m @ 0.79% V<sub>2</sub>O<sub>5</sub> (including 9m @ 1.33% V<sub>2</sub>O<sub>5</sub>), and further intersections of 20m @ 0.31% V<sub>2</sub>O<sub>5</sub>, 50m @ 0.20% V<sub>2</sub>O<sub>5</sub> and 25m @ 0.21% V<sub>2</sub>O<sub>5</sub>.

To put this into context, Windimurra in Western Australia reports a head grade of 0.46%, similarly the Crosshair CMB vanadium project in Labrador has a resource grade of 0.15% and finally Xstrata's Rhovan vanadium operation in South Africa has a grade of approximately 0.60% V<sub>2</sub>O<sub>5</sub>.

Stonehenge is currently working towards a maiden vanadium resource estimate.

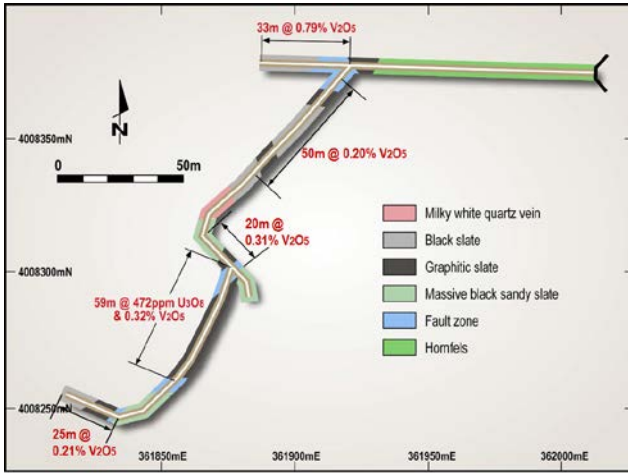


Figure 1: Chubu adit at Daejon Project showing mineralised zones identified from the historical geochemical sampling.

## METALLURGY

Process development work for the Daejon project has continued to focus on establishing an economic process route to co-extract and generate uranium oxide and vanadium oxide products.

Uranium extraction is well understood for the Daejon ore and current testwork is aimed to improve vanadium extraction.

### 97.6% Vanadium Extraction Achieved

On 24 November 2011 the Company announced metallurgical results from ongoing process development work being performed on the Company's Daejon Project in South Korea.

Pressure leach tests completed during the quarter confirmed vanadium is soluble under acid pressure leach conditions with the majority of uranium and vanadium leached in the first 30 minutes. Uranium extractions average over 92% for all five samples tested and vanadium over 70% extraction. In fact the vanadium extraction averaged 78%, for the main mineralised ore (graphitic schist) samples.

Testwork will now focus on obtaining similar uranium and vanadium leach extractions at 80-90°C. This will allow conventional open leach tanks to be used, which will minimise capital costs.

## Test Results

Metallurgical testing to date has primarily been focused on the pressure leach option. Bulk samples have been collected along strike from the Daejon deposit and also within the Chubu exploration adit.

Figure 2 shows sample locations and Table 1 details chemical assays and ore type for each sample.

Uranium assays ranged between 171 and 828 ppm  $U_3O_8$ , with the higher grade uranium ores associated with those samples containing a high portion of carbon. Sample BK008 obtained from the Chubu exploration adit contains 13,000 ppm  $V_2O_5$ , which is exceptionally high grade.

Table 1. Chemical analysis of bulk metallurgical samples.

Sample ID	Ore type	Chemical analysis			
		$U_3O_8$ ppm	$V_2O_5$ ppm	Mo ppm	Carbon %
BK004/5	Graphitic Schist	175	4,712	220	15.7
BK007	Graphitic Schist	828	2,927	950	37.2
BK008	Graphitic Schist	465	13,280	695	18.6
BK006/10	Shale Ore	342	3,284	615	NA
BK001/3	Shale Ore	171	4,570	250	2.3

The Daejon project has two distinctive ore types with the hard shale ore located along the foot and hanging walls of the deposit, and the primary uranium bearing and main mineralised ore - graphitic schist - located between these walls.

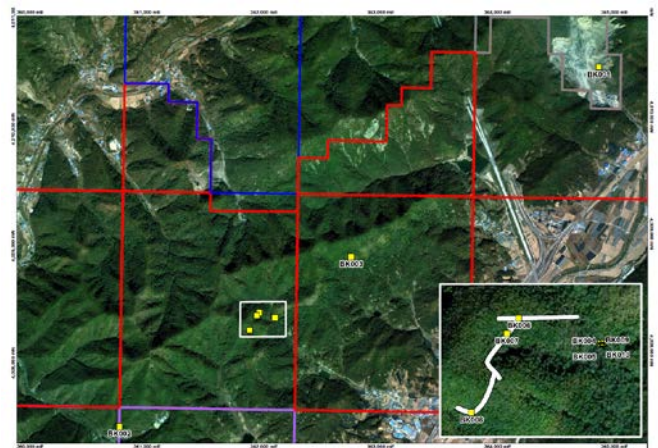


Figure 2. Bulk metallurgical sample locations from Daejon project.

The five samples tested across the Daejon project area were crushed and milled to an 80% passing sizing of 106 µm prior to leaching. Initial testing has been performed at a leach temperature of 180°C under an oxygen atmosphere, where uranium extraction was extremely rapid with maximum extraction achieved after 30 minutes.

Table 2 shows the maximum extraction of uranium, vanadium and molybdenum for each of the bulk samples within a 1 hour leach residence time.

*Table 2. Summary of pressure oxidation results at 180 °C and 750 kPa oxygen overpressure.*

Sample ID	Ore type	% Extraction		
		U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>	Mo
BK004/5	Graphitic Schist	98.8	74.8	80.9
BK007	Graphitic Schist	94.3	78.3	79.3
BK008	Graphitic Schist	88.1	97.6	53.1
BK006/10	Shale Ore	92.1	61.8	77.9
BK001/3	Shale Ore	91.0	42.1	39.0
<b>Average</b>		<b>92.9</b>	<b>70.9</b>	<b>66.0</b>

The current operating cost model assumes an average uranium and vanadium extraction of 90% and 50% respectively. Uranium extraction results showed a modest improvement on the existing model. With respect to vanadium, these current sets of results represent a 40% improvement on the current assumptions used for the Project.

### **Molybdenum**

The benefit of pressure oxidation is that it can also extract molybdenum from the ore and initial results show extraction ranged between 80.9% to 39% with an average of 66%. Further work is required to understand the amount of molybdenum present in the Daejon deposit and the reason for ore variability on molybdenum extraction.

### **Next Steps**

The next round of metallurgical test work on vanadium extraction has commenced. This new phase of work will focus on atmospheric acid leaching of vanadium. Pressure leach tests completed in the second half of last year demonstrated that vanadium could be consistently leached to in excess of 70%. Preliminary atmospheric leach tests performed at 80-90°C have shown comparable results to pressure leaching provided sufficient leach

residence time is allowed. Tests performed on sample BK004/5 resulted in 92% uranium extraction and 66% vanadium extraction after 4 hours at a controlled acidity. Sulphuric acid consumption was 45 kg acid per dry tonne of ore. The next tests will push to improve on the vanadium extraction and greatly improve the (already encouraging) NPV of the project. This phase of the work is scheduled to be completed by the end of March 2012.

As part of the planned work programme, Stonehenge will quantify a Vanadium and Molybdenum resource to determine the overall economic evaluation of the deposit.

## **ENVIRONMENTAL AND COMMUNITY**

A first season of baseline environmental data has been collected across the Daejon project area. A minimum of four weather seasons of baseline data is required in order to proceed to environmental assessment. Stonehenge is strongly positioned to complete its baseline monitoring requirements by mid-2013.

Laboratory assays of surface water and groundwater sampling have shown some elevated concentrations of dissolved uranium, vanadium, molybdenum and nickel.

V-notch weirs were also constructed along various tributary water streams for flow measurements at various locations to establish baseline hydrologic conditions for mine water run-off.

Dust depositional gauges were installed with the commencement of monthly air quality monitoring of Total Suspended Particles and ash content.

Drilling and installation of groundwater monitoring bores are planned for 2012.

Radiation monitoring will also commence in 2012 with commitments to best international practice.

Community engagement is ongoing with the Daejon Project land access requirements to be finalised with land owners, in preparation for drilling in 2012.

## MANAGEMENT

On 5 October 2011 the Board of Stonehenge announced that Mr Cheong-Hie Kim had joined the Company in Korea in the position of Senior Advisor.

Mr Kim was previously employed by BHP Billiton Korea Co. Ltd from 2002 to 2008 as Senior Advisor and Representative Director. He had overall marketing responsibility of company products in Korea, including coal, iron ore, non-ferrous minerals, LNG/petroleum products, alloys etc. and his role included management of customer relationship including POSCO, Korean power corporation groups, Korea Gas Corporation and Hyundai steel.

Prior to his position with BHP, Mr Kim was with the Samsung Group since 1978 in a variety of roles including four years with the Samsung Group in Sydney as Senior General Manager, Energy Department, and The Samsung Corp - International Trading, 1998 to 2002 and General Manager, Export Department, Samsung America Inc. (New York)- 1987 to 1990.

From 1975 to Jan 1978 he was employed by Korea Resources Corp (KORES) as a Mining engineer-valuation of mine, expatriate to premier office, Republic of Korea.

### Competent Person Statement

The information contained in this report that relates to Mineral Resources, exploration targets and exploration results is based on information compiled by Mr. Michael Andrew of Optiro Pty Ltd (ABN 63 131 922 739), which provides geological consulting services to Stonehenge Metals Limited. Mr. Andrew is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Andrew consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Mr Kim is a graduate of The College of Engineering, the Yonsei University in Korea, the Delft University of Technology, Netherlands and the Seoul National University, Korea. He is also the technical advisor to the Korea Mining Industry Association.

## CORPORATE

### Tasmanian assets divestment

On 13 December 2011 the Company advised that it had reached agreement with RMG Limited ("RMG") for the sale of two of its non-core tenements in Tasmania.

Under the agreement RMG will purchase 100% of tenements EL17/2003 and 20M/2001 located in the Zeehan district of Tasmania for a total consideration of \$70,000 cash and 20 million RMG shares. The divestment is subject to the transfer being approved by the Minister of the Department of Infrastructure, Energy and Resources Tasmania.

The Annual Report was submitted to the ASX and is available on the Company website.

For further information please visit: [www.stonehengemetals.com.au](http://www.stonehengemetals.com.au)



**Appendix 1 Stonehenge Tenement Details**

**Table 1: Granted Korean Exploration Licences (held directly by Chong Ma)**

Registration Number	Land Register	Number	Area (ha)	Minerals	Registration Date	Registrant	Property
76967	Goesan	114	275	Uranium	28/05//2008	Sim Jae Youl	<b>Goesan [Gwesan]</b>
76942	Goesan	115	275	Uranium	14/05/2008	Sim Jae Youl	
76965	Goesan	117	275	Uranium	28/05/2008	Sim Jae Youl	
76966	Goesan	118	275	Uranium	28/05/2008	Sim Jae Youl	
76964	Goesan	124	275	Uranium	28/05/2008	Sim Jae Youl	
76941	Goesan	125	275	Uranium	14/05/2008	Sim Jae Youl	
76968	Goesan	126	275	Uranium	28/05/2008	Sim Jae Youl	
76969	Goesan	128	275	Uranium	28/05/2008	Sim Jae Youl	
77018	Miwon	36	276	Uranium	11/06/2008	Sim Jae Youl	
77019	Miwon	46	276	Uranium	11/06/2008	Sim Jae Youl	
77020	Miwon	58	276	Uranium	11/06/2008	Sim Jae Youl	
77225	Miwon	37	276	Uranium	21/08/2008	Sim Jae Youl	
77291	Miwon	47	276	Uranium	23/09/2009	Sim Jae Youl	
77292	Miwon	57	276	Uranium	23/09/2009	Sim Jae Youl	
77010	Okcheon	136	138	Uranium	10/06/2008	Sim Jae Youl, Sim Jun Bo	<b>Daejon</b>
77011	Daejon	18	277	Uranium	10/06/2008	Sim Jae Youl, Sim Jun Bo	
77012	Daejon	28	259	Uranium	10/06/2008	Sim Jae Youl, Sim Jun Bo	
77013	Daejon	38	277	Uranium	10/06/2008	Sim Jae Youl, Sim Jun Bo	
77014	Daejon	48	277	Uranium	3/07/2008	Sim Jae Youl, Sim Jun Bo	
77038	Okcheon	147	277	Uranium	19/06/2008	Sim Jae Youl, Sim Jun Bo	
77039	Daejon	17	103	Uranium	19/06/2008	Sim Jae Youl, Sim Jun Bo	
77114	Daejon	7	190	Uranium	3/07/2008	Sim Jae Youl, Sim Jun Bo	
77115	Daejon	27	56	Uranium	3/07/2008	Sim Jae Youl, Sim Jun Bo	
77363	Daejon	47	242	Uranium	16/10/2008	Sim Jae Youl	
77364	Daejon	57	186	Uranium	16/10/2008	Sim Jae Youl	

**Table 2: Korean Mining Right Applications (held directly by Chong Ma)**

Registration Number	Land Register Name	Number	Area (ha)	Minerals	Registration Date	Expiry Date of Application	Registrant	Property Location
136	Daejon	58	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	Daejon
135	Daejon	59	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
134	Daejon	68	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
133	Daejon	69	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
132	Daejon	70	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
131	Daejon	27	170	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
130	Daejon	90	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
129	Geumsan	72	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	
128	Miwon	69	277	Uranium, Vanadium, Molybdenum	19 January 2012	18 July 2012	Chong Ma	Miwon

**Table 3: Korean Mining Rights (held directly by Chong Ma)**

Registration Number	Land Register Name	Number	Area (ha)	Minerals	Registration Date	Registrant	Property Location
79161	Goisan	137	275	U, V	Dec 30, 2010	Chong Ma	Gwesan

**Technical Note:** All Mining Rights & Applications (above) have been pegged as standard 1 minute latitude X 1 minute longitude graticules and are approximately 277- 275 ha in size.

**Table 4: Tasmanian Tenement Schedule**

Project Name	Tenement	Area	Expiry Date	Holder	Stonehenge Interest
Granville Leases/ Twelve Mile Creek - Granville East, Central Big H, North Heemskirk Alluvial, Heemskirk Tin Mill	21M/2003	68 ha	05-Mar-09	Stonehenge Metals Ltd	100% - Subject to 100% transfer to McDermott Mining*
Granville East Extended Lease	9M/2006	10 ha	09-Oct-11 (pending renewal)	Stonehenge Metals Ltd	100%

Sunshine/ McLean Creek Lease	20M/2001	21 ha	10-Mar-09 (extension application)	Stonehenge Metals Ltd	100% - Subject to 100% transfer to RMG Limited
Stonehenge Creek	EL17/2003	7 km <sup>2</sup>	09-Jul-10 (pending renewal)	Stonehenge Metals Ltd	100% - Subject to 100% transfer to RMG Limited

\* The planned divestment of the Heemskirk Tin Project, as outlined in the September 2009 Quarterly report, remains subject to approval by the Department of Infrastructure, Energy and Resources (Tasmania). An inspection of the site was conducted by the Department during the 30 June 2010 Quarter in preparation for the finalisation of the transfer.