

# Corporate Update

KING ISLAND  
**SCHEELITE**



## ASX: KIS

Market Capitalisation \$18.2 million

Shares on Issue 165.3 million

52 Week High 16.5 cents

52 Week Low 8.9 cents

Share Price 11.0 cents

## Board of Directors

Johann Jacobs Chairman

Allan Davies Director

Chris Ellis Director

**Tungsten APT USD 19,000 / tonne (16 September 2015)**

## King Island Scheelite Limited (KIS)

through its 100% Dolphin Project on King Island, Tasmania is one of the world's richest tungsten deposits and could meet a significant proportion of the world's tungsten requirements over a minimum 13 years.

## King Island Scheelite Limited

**ABN 40 004 681 734**

Level 26, 259 George Street

Sydney NSW 2000

GPO Box 5154

Sydney NSW 2001

P. +61 2 8622 1400

F. +61 2 8622 1401

[www.kingislandscheelite.com.au](http://www.kingislandscheelite.com.au)

The International Tungsten Industry Association will be holding their Annual General Meeting in Vietnam from 22 September to 25 September 2015.

Johann Jacobs will be attending on behalf of King Island Scheelite and will take the opportunity of briefing delegates on the Revised Dolphin Development Plan – which incorporates an 8 to 9 year open cut mine life.

The attached brochure, containing the most up to date information on the Dolphin Project, will be presented to interested parties.

## BASIS OF NEW DEVELOPMENT PLAN

- Open cut mining for approximately 8 years
- Subsequent underground mining for 8 years
- Processing plant to include both gravity and flotation circuits as well as a possible ore sorter upgrading the plant head feed grade.

# Investment Opportunity: King Island Scheelite Limited

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## Investment Highlights

- One of the world's known highest grade tungsten deposits, with a reserve grade of 0.73% (open-cut) and a resource grade of 1.20% (underground) compared to peers published at between 0.15% to 0.4%
- Mineral reserve of 3.14 million tonnes at 0.73% WO<sub>3</sub> supports initial open cut mine life of eight to nine years
- Large Scale capacity with the Dolphin Project expected to mine and mill 450,000 tpa of ore and produce an average of around 4,000 tpa of tungsten concentrate (65% WO<sub>3</sub>), containing around 2,600 tpa of WO<sub>3</sub>, upon completion
- Low capital cost redevelopment, with upfront estimated expenditure of A\$78.5M including A\$1.4M expenditure to date, mainly on the processing plant and dewatering the pit
- Low operational costs through initially utilizing the existing open cut mine
- Sound understanding of geological conditions, benefiting from almost a century of historical mining operations
- The Board and management have significant experience in the development and operation of mining assets, working for some of the leading mining companies in Australia and globally
- The Board, and other top five shareholders, own over 50% of the issued shares

## Introduction

King Island Scheelite ("KIS" or the "Company") is redeveloping one of the world's richest known tungsten deposits at its 100% owned Dolphin Project ("Dolphin" or "the Project"). The Project incorporates an existing mine site that was operated until 1990, and therefore represents a low capital cost restart opportunity with sound geological understanding.

Ironstone Capital has been appointed to assist KIS with funding the equity and project finance for redevelopment of the Project.

## Project History

A brief history of the Dolphin Project is as follows:

- Discovered in 1911 under shallow sand cover
- Operations commenced in 1917 as an underground mechanised drift mine
- Open cut operations were established in the 1960s
- Underground mining occurred from 1973 up until 1990, when the mine was closed and rehabilitated due to low tungsten prices
- KIS acquired the Project in 2004

KIS is finalising a definitive feasibility study ("the Study") on the restart of operations, with technical input from various consultants which is expected to be released in Q4 2015.

The existing open-cut mine has been dewatered and KIS is in the process of finalising all necessary land, permits and approvals to commence construction.

## KIS Corporate Overview

KIS is listed on the Australian Securities Exchange, with a market capitalisation of A\$18M at 11 September 2015. The Company has about 619 shareholders. The Company has A\$1.57M (as at 30 June 2015) in cash and no debt.

## Overview of the Dolphin Project

The Project is located on the south east coast of King Island, Tasmania and is adjacent to Grassy Bay which has port facilities capable of servicing the Project.

Based on the Study, Dolphin will commence operations as an open-cut mine for an initial eight year period, with potential for mine life extension by way of an underground mining operation and potentially satellite pits such as Bold Head. The Project will on average produce 2,600 tonnes of WO<sub>3</sub> p.a. – equivalent to 260,000 metric tonne units (mtu's) p.a., representing approximately 3% of current global production.

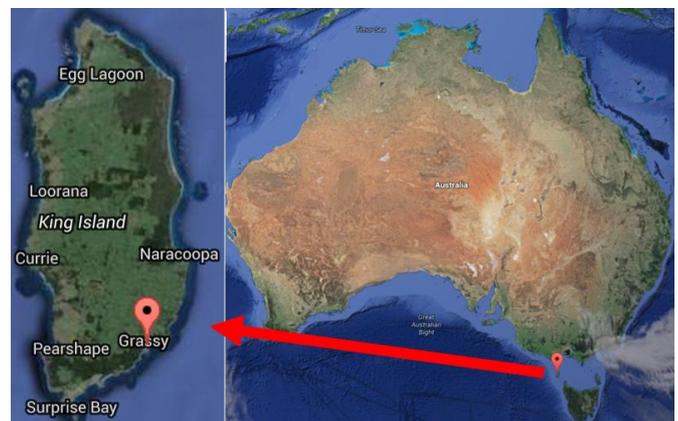


Figure 1: Location of the Dolphin Project

## Local community, consultation, permitting and approvals

The social, economic and environmental development of the town of Grassy is closely linked to the previous scheelite mine. Permitting is ongoing and well advanced as are discussions with the Tasmanian Environment Protection Agency (EPA) and King Island Council about the potential impact the mining operation would have on the local community and the environment.

Subject to lodgement of bonds, the Mining Lease Application is current and, in 2012, KIS completed the purchase of council land over the Dolphin Mine. KIS also held King Island community consultation evenings at Grassy.

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The Company is of the view that feedback from the local King Island community has been positive, as Grassy would greatly benefit from the rejuvenation of the Dolphin Project. Community contributions in the form of infrastructure and Community commitments by the Company are approved.

KIS has been advised that, as the proposed operations are currently envisaged to be contained within the same development footprint as the original Permitting Approval Development Agreement (DA), the original DA is current (and the permit, conditions, requirements and management plans remain relevant).<sup>1</sup> This permit provides for all activities on site including the tailings storage facility, expanded open pit and reclamation of part of Grassy Bay. The EPA will also need to approve the revised Environmental Effects Report (EER) which will outline all environmental management actions, potential impacts and commitments. KIS expects to lodge in Q4 2015 an amended EER with the EPA.

## Geology

A seven kilometre strike length of Cambrian volcanic and calcareous sediments are exposed along the northern and western margin of the Grassy granodiorite. Previous exploration has identified mineralized calc-silicate skarn adjacent to the granodiorite and several major fault structures have been mapped regionally.

The Project benefits from significant understanding of geotechnical, hydrological and mineral processing data from historical mining operations.

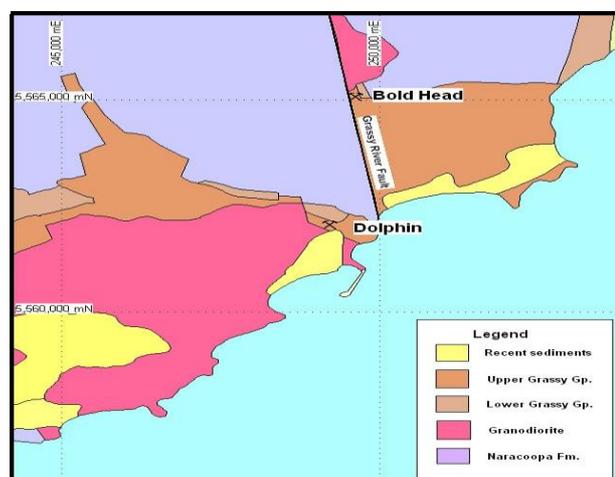


Figure 2: Dolphin Geology

KIS recently released an ore reserve statement for the Dolphin Project's open-cut mine. Refer ASX release dated 21 September 2015. This is shown in the Table 1:

Ore Reserves	Mt	WO <sub>3</sub> %
Probable – Open Cut	3.14	0.73

Table 1: Dolphin Project Reserves

<sup>1</sup> Detailed plans, surveys and programs required prior to construction are subject to separate management agreements.

KIS also released a mineral resource statement, in the same ASX release, for both the open-cut and underground mines of the Dolphin Project. This is shown in Table 2:

Mineral Resource	Mt	WO <sub>3</sub> %
Indicated – Open Cut 0.2% cut off	4.12	0.74
Indicated – Underground 0.5% cut off	4.16	1.20
<b>Total Resource</b>	<b>8.28</b>	<b>0.97</b>

Table 2: Dolphin Project Resources, inclusive of reserves

The mineral resource and ore reserve statements have been prepared in accordance with JORC 2012<sup>2</sup>.

## Mining

The current Study is based on detailed mine planning undertaken by Xenith Consulting. Mining is expected to commence in 2016 at a rate of 450,000 tonnes per annum using a mining fleet consisting of one 120 tonne excavator and four 85 tonne rear dump trucks. In the third year of operations, the mining fleet would be expanded by another excavator and a further rear dump truck. The additional mining fleet would be required as the mine progresses into a higher strip ratio, however the higher costs are largely offset by a higher grade area of the deposit.

The mine plan involves expanding the existing open pit mine to the east and to the south.

During year three, a bentonite / cement membrane wall would be constructed between the top of the final pit high wall and the overburden dump to the east which would otherwise have hydraulic connectivity to the ocean. This membrane is not a sea wall, rather it is designed to prevent seepage of water into the mine.



Figure 3: Dolphin mine plan with final overburden dump

KIS is considering whether to operate the mine under a contract mining arrangement, or as owner operator.

## Processing

During 2015, Mineral Technologies Pty Ltd, a member of the Downer Group, prepared a design definition study based on a flowsheet for the processing facility. The documentation provided, allows the Company to enter into a fixed price contract for the construction. The Study envisages 450,000 tonnes of ore per annum capacity. The process flow sheet, set out in Figure 4, has been developed through extensive

<sup>2</sup> The Competent Person for the Reserve estimate is Scott McEwing of SRK Consulting.

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metallurgical test work by KIS and previous owners and aims to minimise costs and simplify the processing route.

The average head grade is 0.73% WO<sub>3</sub> with an average recovery of 85% over the envisaged life of the mine.

Processing will involve crushing, grinding, gravity, flotation to produce around 4,000 tonnes per annum of concentrate at a grade of 65% WO<sub>3</sub> over the current mine life. The processing plant is planned to- be located to the north-east of the open pit. Tailings will be deposited in a tailings storage facility of around 3.7 million wet tonnes, sufficient to support the expected mine life.

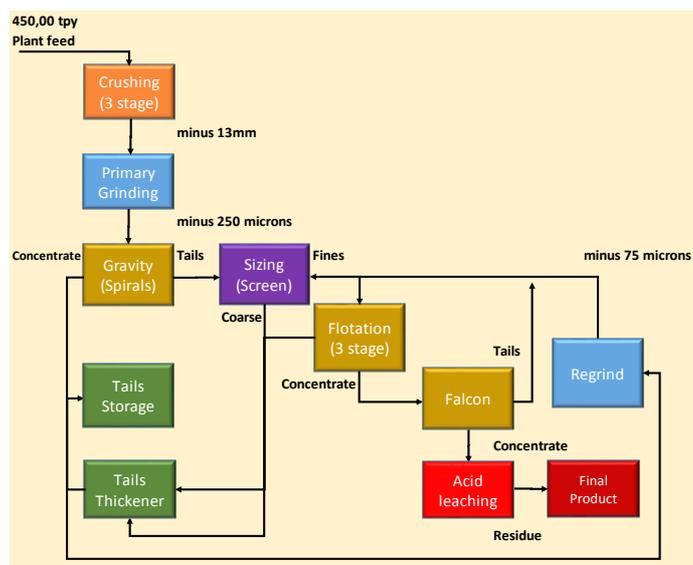


Figure 4: Process flowsheet

Final concentrate will be bagged and containerised for export from the nearby Grassy Port. KIS is engaged with a number of parties regarding product off-take arrangements.

## Infrastructure

The Dolphin Project's location in close proximity to Grassy Bay, is a significant advantage. Existing port facilities are capable of receiving liquid fuels and other consumables for the mining operation. Grassy port is capable of handling 5,000 tonne ships, providing a route to market for Dolphin's concentrate.

Power to the mine site will be provided by four diesel generators between 1,000-1,200kW each. 100,000 litres of fuel storage capacity would also be built.

Raw water for the Project would be obtained from the existing Lower Grassy Dam.

King Island is well serviced by mobile phone network coverage. Flights operate on a daily basis to and from Melbourne.

## Capital Costs

Capital cost estimates for the mine's redevelopment are shown in Table 3.

	A\$M
Crushing, processing, power and tailings	53.8
Mining fleet	13.8
Admin and overheads	10.9
<b>Total</b>	<b>78.5</b>

Table 3: Indicative mine capital cost estimates, 2016 nominal

## Operating Costs

Xenith Consulting has undertaken detailed mine planning work, including mine capital and operating costs. Mineral Technologies has provided processing plant capital and operating costs. In addition independent contractor rates have been sourced as a further verification step in the process.

Operating costs per mtu of WO<sub>3</sub> are shown in Table 4.

	A\$/mtu WO <sub>3</sub>
Mining	44.94
Processing	74.99
Transport	4.23
Other	4.91
Royalties	26.09
<b>Total</b>	<b>155.16</b>

Table 4: Indicative operating costs

## Project Economics

The preliminary economic analysis performed as part of the Study demonstrates robust project economics under a range of APT<sup>3</sup> pricing scenarios which will be finalised when the Study is completed and released in Q4 2015.

## Upside Potential beyond Base Case

- Ore sorting:** Preliminary test work on samples of Dolphin ore utilising X-ray Transmission (XRT) technology has been recently undertaken with encouraging results (approximately 30% of ROM ore was rejected with minimal loss in metal recovery). Further test work is planned with potential to increase processing capacity and reduce operating costs.
- Alternative power supply:** KIS is investigating using two 850kW wind turbines and a 500kW solar PV system to supplement diesel generation. Preliminary analysis suggests this approach would enable renewable penetration of around 45% and could lead an overall reduction in power costs by 20-25%.
- Underground operation:** Whilst the current focus of the KIS team is in restarting the open cut operation, there is potential for mine life extension with an underground operation to access the underground resource.
- Development of Bold Head:** The Bold Head deposit has potential to form part of any mine life extension. The additional mining fleet that is required for the Project from year three could continue to be used at Bold Head.

<sup>3</sup> Ammonium Para-Tungstate (APT) price, usually priced in mtu's, is the benchmark product used to establish most tungsten contract pricing.

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## Board and Management

The Board and management team is highly experienced in all aspects of integrated natural resource project development and operation, across multiple resource types.

### KIS Team

**Johann Jacobs – Executive Chairman:** Former chairman of IMX Resources, developing the first new South Australian iron ore mine in over 100 years.

**Chris Ellis – Executive Director:** Founding director of Excel Coal, designing and engineering four new mines.

**Allan Davies – Non-Executive Director:** Founding director of Excel Coal, responsible for construction and operations, and a previous a General Manager at Rio Tinto

**Cam Halfpenny - Consultant:** More than 31 years of operating experience with Rio Tinto.

**Alvin Johns – Project Manager:** 28 years' worldwide experience in design, construction, commissioning and operation of mineral processing plants.

Table 5: Board of Directors and management

## Proposed Timeline

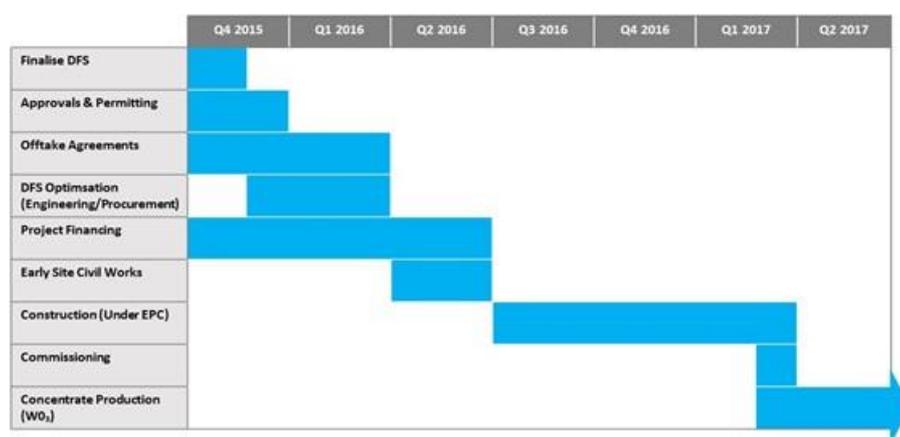


Figure 5: Proposed timeline



Figure 6: Dewatered pit

## Selected Australian and Global Tungsten Project Comparisons

Table 6 illustrates the favourable grade of the Dolphin project resource:

Company	Project	Resources (Mt)	Resource grade (%WO <sub>3</sub> )	Reserves (Mt)	Reserve grade (%WO <sub>3</sub> )	Location
King Island	Dolphin	9.60	0.81	3.14	0.73	Australia
Almonty	Los Santos	4.29	0.32	1.88 <sup>4</sup>	0.28	Spain
Almonty	Wolfram Camp	1.47	0.21	0.23	0.19	Australia
Masan	Nui Phao	96.48	0.16	66.00	0.18	Vietnam
Wolf Minerals	Hemerdon	145.2	0.15	35.7	0.18	UK
Ormonde	Barruecopardo	27.39	0.26	8.69	0.30	Spain
Vital Metals	Watershed	49.43	0.14	21.3	0.15	Australia
Carbine Tungsten	Mt Carbine	47.00 <sup>5</sup>	0.13	18.00	0.14	Australia

Table 6: Selected Australian and Global Tungsten Project Grade Comparisons.

Source: Company announcements. Resources include measured, indicated and inferred. Reserves include Proven and Probable. For specific details, including in relation to any co-products (e.g. Mo, Sn, Bi, Cu, Flourspar), refer respective company websites.

## Contact Details

For more information, contact:

Johann Jacobs  
KIS, Chairman  
Mob: +61 416 125 449  
[Johann.Jacobs@kisltd.com.au](mailto:Johann.Jacobs@kisltd.com.au)

Greg Arandt  
Ironstone Capital, Director  
Mob: +61 452 255 590  
[GArandt@ironstonecapital.com.au](mailto:GArandt@ironstonecapital.com.au)

Lynden Polonsky  
Ironstone Capital, Associate Director  
Mob: +61 438 133 393  
[LPolonsky@ironstonecapital.com.au](mailto:LPolonsky@ironstonecapital.com.au)

<sup>4</sup> Excludes 1.9 Mt of tailings at 0.24% WO<sub>3</sub>.

<sup>5</sup> Excludes 12 Mt stockpile (0.075% WO<sub>3</sub>) & 2 Mt tailings (0.1% WO<sub>3</sub>).