

The Announcements Platform  
ASX Limited

1 October 2014

## **Completion of Optimised Studies in respect of Bankable Feasibility Study WIM150 Mineral Sands Project, Victoria Australian Zircon 80% Owner and Operator**

### **Summary**

Optimised Studies on the Feasibility Study carried out by Australian Zircon NL ("the Company") on the WIM150 Project, in western Victoria have now been completed.

The Company now plans to proceed to finalization of marketing, capital raising and receipt of requisite approvals in respect of the Project.

### ***Bankable Feasibility Study Optimised financial results:***

- AZC 80% interest, assuming 50/50 debt: equity funding.
  - Nett Present Value (10%) **\$657 million**
  - Internal Rate of Return **26.5%.**
  - Gross Operating Margin **59% (life-of-mine average)**
  - Payback period **3.25 years**
- AZC 80% share of construction costs (real 2014, AUD)
  - Base Construction cost **\$338.4 million**
  - Contingency **\$27.1 million**
  - Working capital **\$39.9 million**
- Key Metrics (life of mine average, 100% project)
  - Total Site Operating Costs pa **\$94 million**
  - Total Site Revenue pa **\$233 million**
  - Gross Operating Margin pa **59%**
  - Inflation **2.5%**
  - AUD/USD Exchange Rate **0.875**
  - Royalties (% of Net Market Value) **2.75%**
  - Discount Rate **10%**
- Project Resource, Reserve and Planned Throughput
  - Mineral Resources (Measured, Indicated and Inferred) - **1.6 billion tonnes of 3.7% THM\***
  - Ore Reserves (Proved and Probable) - **552 million tonnes of 4.3% THM**
  - Planned throughput rate - **10 million tonnes annually**

\* THM – total heavy mineral

## WIM150 Project Outline

The WIM150 Project is the subject of Retention Licence 2007 and parts of Exploration Licence 4521 near Horsham in the Wimmera region of western Victoria. Australian Zircon has entered into a Joint-Venture Agreement with 20% Project partner Orient Zirconic Resources (Australia) Pty Ltd to bring the Project into production and a Supply and Offtake Agreement for Orient Zirconic to purchase 37.5% of Australian Zircon's share of production for the life-of-mine

The Project's principal characteristics are:

- **Large and Shallow** - amenable to simple mining and rehabilitation. Flat-lying mineralisation overlain by shallow overburden.
- **Long productive life** - 55 years underwritten by Ore Reserves, 160 years by Mineral Resources.
- **Quality product** suite - WIM150 will produce exceptional quality zircon.
- **Logistics** - Well-located with respect to infrastructure and services.
- **Readily available mining and processing equipment** – Off-the-shelf equipment programmed for each stage of operations.
- **Sovereign regime** - Stable regulatory environment.

## Current Activities

### Project Financing

Australian Zircon appointed Gresham Partners as its Financial Advisors earlier this year. The Company is working closely with Gresham with regard to financing its share of Project construction costs.

### Zircon upgrade testwork.

The thermal section of CSIRO's Process has been successfully trialled at pilot-plant scale on a series of occasions. Discharge characteristics have been determined and the testwork has now been completed.

### Environment and Community Engagement

Studies required for completion of a finalised Environment Effects Statement are ongoing, together with engagement with the relevant Federal, State, and Local government agencies, landholders and the local community. Seasonal surveys for federally listed species of fauna are underway, structured in accordance with Federal Government survey guidelines.

### Marketing

Discussions are underway in relation to placements of the share of Australian Zircon's production which has not already been contracted for sale.

Yours sincerely,

Jeremy D Shervington  
**Chairman**

for and on behalf of  
**Australian Zircon NL**

# Attachment – The WIM150 Project

## 1. Resources and Reserves

Australian Zircon reported to the ASX (26 July 2013) that Proved and Probable Ore Reserves of 551 million tonnes of 4.3% total heavy mineral had been defined at WIM150.

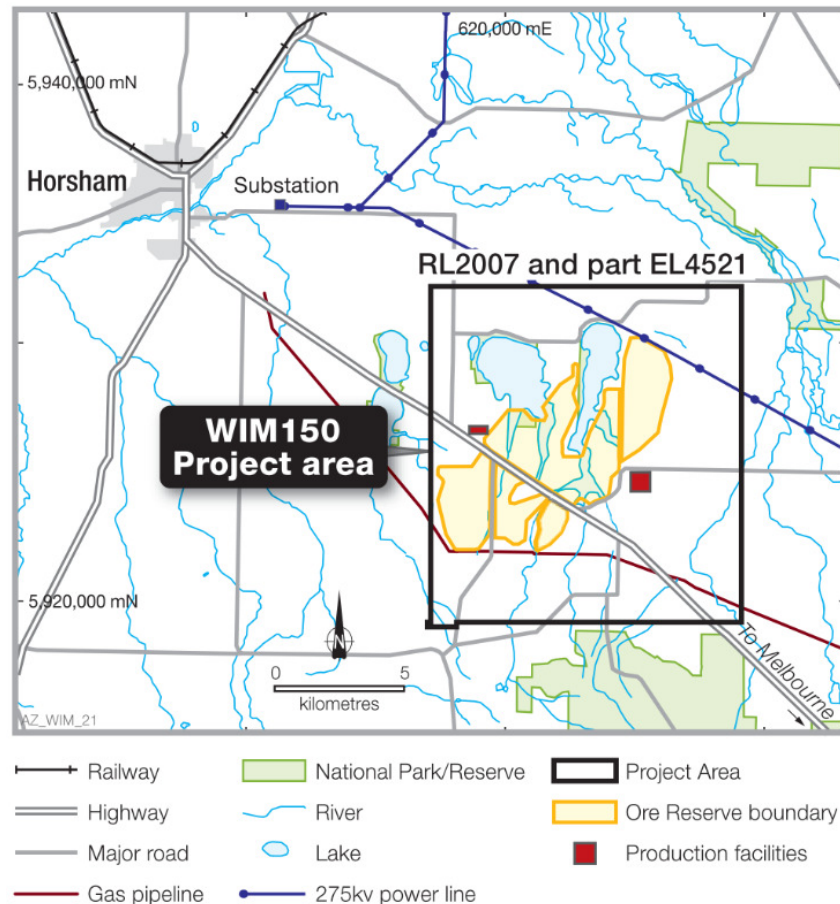
This Ore Reserve is included in a Measured, Indicated and Inferred Mineral Resource base of 1,650 million tonnes of 3.7% total heavy mineral, as reported to the ASX on the 18 June 2013. A summary breakdown of the resources and reserves is located in section 3 of this release.

Both the Ore Reserve and Mineral Resource estimates quoted in this announcement should be read as summaries of the original announcements. Australian Zircon confirms that the data contained in this release complies with the requirements of ASX Listing Rule 5.23.2:

*“The entity confirms in the subsequent public report that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of estimates of mineral resources or ore reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.”*

The Project has an Ore Reserve mine life of 55 years and a Mineral Resource life of more than 160 years at the planned rate of production.





### WIM150 Project location plan

Independent Mining Expert Optiro Pty Limited has determined an attractive Waste/Ore ratio - after removal of soil and subsoil - of **0.5 to 1**.

WIM150 is also well-located with respect to infrastructure. State Electricity Victoria 275,000 volt power, a Gas Pipeline Victoria trunkline, a Grampian Wimmera Mallee Water trunkline, the Melbourne - Adelaide standard gauge railway and the Melbourne - Adelaide Western Highway all pass close to the planned development.

A range of social and industrial amenities, including permanent and temporary accommodation, health care, schooling, skilled labour and engineering facilities are available in the regional centre of Horsham.

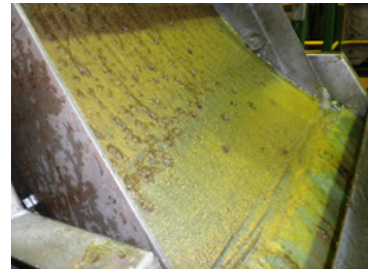
### 2. Mineral Processing and Mineral Product suite

The WIM150 product suite will comprise:

- **Zircon flour**
- **Rare earth mineral concentrate**
- **Titanium products**
  - **T95 (Rutile equivalent)**
  - **T90 (Hi-Ti equivalent)**
  - **T65 (Leucoxene equivalent)**
  - **Sulphatable ilmenites #1 and #2**

Optimisation Studies trialled a mineral processing flowsheet which included the following steps:

- Fine screening of deslimed ore was shown to improve the recovery of valuable heavy minerals to Products.
- Rougher and Cleaner Spirals delivered improved recoveries to Heavy Mineral Concentrate when trialled with pre-screened ore.
- Recovery of heavy minerals in spiral middlings and tail streams was improved by the use of Kelsey Jigs.
- Froth flotation was confirmed to be an effective means of recovering zircon to a raw zircon concentrate.
- Pilot-Plant scale engineering trials of the zircon-upgrade process were successful and are close to completion.





- Froth flotation and gravity clean-up was confirmed to be an effective means of recovering Rare Earth Mineral Concentrate to product.



- Magnetic and conductivity separation was confirmed to be an effective means of recovering **Sulphatable Ilmenite** to product.



- Gravity and conductivity separation were confirmed to be an effective means of separation and recovery of **T95 product** (rutile).



- Gravity and conductivity separation were confirmed to be an effective means of separation and recovery of **T90 product** (HiTi).



- Gravity and conductivity separation were confirmed to be an effective means of separation and recovery of **T65 product** (leucoxene).



### 3. Competent Persons Statement

The current resource model estimates a Mineral Resource of 1,650 Mt at 3.7% total heavy minerals in the 20 µm to 75 µm size fraction and with a 1% total heavy mineral cut off. The Mineral Resource lies within tenement boundaries, and excludes areas with restricted access around selected water bodies and the Western Highway. WIM150's Mineral Resources are tabulated below.

#### WIM150 Mineral Resources

Classification	Million tonnes	% Total Heavy Minerals (-75 +20 µm)	Slimes (-20 µm)	Particle Classification % within -75+20 µm Total Heavy Minerals					
				Zircon	Rutile	Ilmenite	Leucoxene	Monazite *	Xenotime*
St Helens									
Measured	415	4.3	18.0	21.7	11.5	32.2	5.8	2.3	0.41
Indicated	485	4.0	17.0	21.0	11.6	30.8	6.0	2.2	0.40
Inferred	410	2.9	21.1	20.9	11.9	30.9	6.1	2.2	0.39
Subtotal	1,310	3.8	18.6	21.2	11.6	31.3	6.0	2.2	0.40
Danube									
Measured	—	—	—	—	—	—	—	—	—
Indicated	95	4.1	25.6	17.2	11.7	31.7	6.4	1.3	0.26
Inferred	245	3.3	23.1	18.9	11.7	31.4	6.3	1.5	0.30
Subtotal	340	3.6	23.8	18.3	11.7	31.5	6.3	1.5	0.28
Total									
Measured	415	4.3	18.1	21.7	11.5	32.2	5.8	2.3	0.41
Indicated	580	4.0	18.4	20.4	11.6	31.0	6.1	2.0	0.37
Inferred	655	3.1	21.9	20.1	11.8	31.1	6.2	1.9	0.35
Total	1,650	3.7	19.6	20.7	11.7	31.4	6.0	2.1	0.38

\*Note: Rare earth minerals

The information in this Information Memorandum that relates to Mineral Resources, is a summary table of the WIM150 Resource Statement issued to the ASX on 18 June 2013. There has been no subsequent change to this Mineral Resource Statement. The information included in the mineral resource statement is based upon information compiled by Mrs Christine Standing, who is a Member of the Australasian Institute of Mining and Metallurgy, and a member of the Australian Institute of Geoscientists. Mrs Standing is an employee of Optiro Pty Ltd and has sufficient experience in the style of mineralisation and type of deposit under consideration to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian code of Reporting of exploration results, mineral resources and ore reserves.

### Ore Reserves

AZC commissioned Optiro Pty Ltd (**Optiro**) to provide an independent Ore Reserve estimate for the Project and to determine a feasible mining method and mining sequence.

The Ore Reserve estimate was created under the supervision of Andrew Law, a Competent Person as defined in the JORC Code (2012) and was subjected to an economic evaluation.

Measured and Indicated Mineral Resources were converted to Proven and Probable Ore Reserves, subject to mine designs, physical modifying factors, and an economic evaluation. Material excised from the Mineral Resource model to generate the Ore Reserve model includes stand-offs from roads, including the Western Highway and Northern Grampians Road, gas pipeline, water mains, and power line corridor. The Mineral Resource model was clipped to the project footprint. The Ore Reserve has been calculated at a variable cut-off grade.

The current WIM150 Ore Reserve estimate is shown in the table below.

### WIM150 Ore Reserves

Category	Ore Tonnes (Mt)	In Situ HM (Mt)	% THM (-75+20 µm)	HM Mineral Assemblage (%)					
				Zircon	Rutile	Ilmenite	Leucoxene	Monazite*	Xenotime*
Proved	268	12.0	4.5	22.0	11.7	32.7	5.9	2.4	0.4
Probable	283	12.0	4.2	21.3	11.6	30.8	5.9	2.2	0.4
<b>Total</b>	<b>551</b>	<b>24.0</b>	<b>4.3</b>	<b>21.6</b>	<b>11.7</b>	<b>31.7</b>	<b>5.9</b>	<b>2.3</b>	<b>0.4</b>

Source: Australian Zircon NL. \*Note: Rare earth minerals

Notes accompanying the Ore Reserves statement are as follows:

- Ore Reserves are based upon a variable cut-off grade calculated by assessing the revenue of each block.
- Ore Reserves are based on a state royalty of 2.75%.
- Mineral Resources have been reported inclusive of Ore Reserves.
- Total Heavy Minerals is assessed on the +20 µm –75 µm size fraction.
- Total Heavy Minerals grade is reported as a percentage of in situ ore.
- Leucoxene includes altered leucoxene.
- The HM assemblage grades (zircon, ilmenite, and so on) are reported as a percentage of Total Heavy Minerals contained in the ore.
- Tonnes are reported to four significant figures and grades to two significant figures. Discrepancies in summations are due to rounding.
- The Ore Reserve statement was compiled in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC 2012).

The Ore Reserves statement was compiled by Andrew Law of Optiro, Fellow of The Australasian Institute of Mining and Metallurgy. Mr Law has sufficient experience in Ore Reserve estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC 2012).

The information above that relates to Ore Reserves, is a summary table and information released to the ASX on 26 July 2013 entitled 'Ore Reserve Statement'. There has been no subsequent change to this Ore Reserve Statement.