

January 17<sup>th</sup> 2017

ASX Release

Kidman Resources Limited  
ABN 88 143 526 096

## Initial metallurgical tests at Earl Grey Generate Positive Results

### **Corporate Details:**

ASX Code: KDR

### **Issued capital:**

315.9M ordinary shares  
47.45 listed options (KDRO)

### **Substantial Shareholders:**

Capri Holdings (10.5%)  
Acorn Capital (5.88%)

### **Directors:**

#### **Non-Executive Chairman:**

Peter Lester

#### **Managing Director:**

Martin Donohue

#### **Non-Executive Director:**

Brad Evans

#### **Chief Financial Officer (CFO):**

Jason Eveleigh

#### **Company Secretaries:**

Justin Mouchacca  
Melanie Leydin

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### Highlights

- Recoveries of up to 89.5% lithium achieved in first round of metallurgical tests
- Tests show Earl Grey lithium is hosted mainly in spodumene
- Abundant coarse spodumene grain observed in drill core from starter open pit area - assists with upgrading concentrate grades and overall recoveries

Kidman Resources Limited (ASX: KDR) ("Kidman") is pleased to announce that the first round of metallurgical testwork at its world-class Earl Grey lithium deposit in WA has yielded positive results that continue to demonstrate potential for Earl Grey to be developed in the near-term to produce a high quality spodumene concentrate for export markets.

Metallurgical testwork was undertaken on samples from two holes (KEGR031 and KEGR033) at the shallower, southern end of the Earl Grey resource which is anticipated to be mined first. Lithium oxide recoveries of up to 89.5% were recorded, highlighting the excellent potential to produce a highly sought-after lithium oxide concentrate.

The tests also suggests that most of the Earl Grey lithium is hosted in spodumene which typically produces a higher-grade concentrate. Furthermore, abundant coarse spodumene grains were observed increasing the likelihood that lithium minerals can be easily liberated from the waste minerals which in turn improves the economics of increasing the concentrate grade and overall recovery rates.

Kidman Managing Director, Martin Donohue, said "the results provided key evidence that Earl Grey was set to be a world-class lithium supplier to the booming lithium battery industry."

"This first round of metallurgical results goes a long way to ticking another key box at Earl Grey," Mr Donohue said.

"The results show that Kidman's strategy to fast-track production at Earl Grey for a very limited capital outlay, is well on track.

"In light of the strong recoveries and other highly attractive traits identified, we are now rapidly progressing the studies needed to establish that a commercially-desirable concentrate can be produced at the Lake Johnston plant."

Kidman announced in November last year that it had secured an exclusive right, via an option until August 2017, to use Poseidon Nickel's nearby Lake Johnston processing plant to treat ore from Earl Grey (see ASX release dated November 16, 2016).

Kidman's preliminary studies indicate that the required Lake Johnston plant and tailings storage facility modifications would be capable of production in the order of 200,000-300,000 tonnes of spodumene concentrate per year grading approximately 6 per cent Li<sub>2</sub>O.

#### **Details of Metallurgical Testwork Completed**

Holes KEGR031 and KEGR033 (refer to figure 1) were chosen to provide samples representing the south end or shallower section anticipated to be mined first. The shallower segments of both holes, from 43m to 57 m, were put into one composite sample and classified as "Weathered". The deeper segments, from 58m to 81m, made up a second composite classified as "Fresh". At the same time, exploratory tests were done on composite samples, "Longer Term", from deep holes KEGR001 and KEGR004, from depths of 171m to 255m.

The test programme was aimed at providing preliminary information on the processing response of the two different ore types likely to be encountered in the first five years of production and at the same time, testing any likely variation that might occur longer term, as the mine gets deeper. All test work was performed by Nagrom laboratories in Perth.

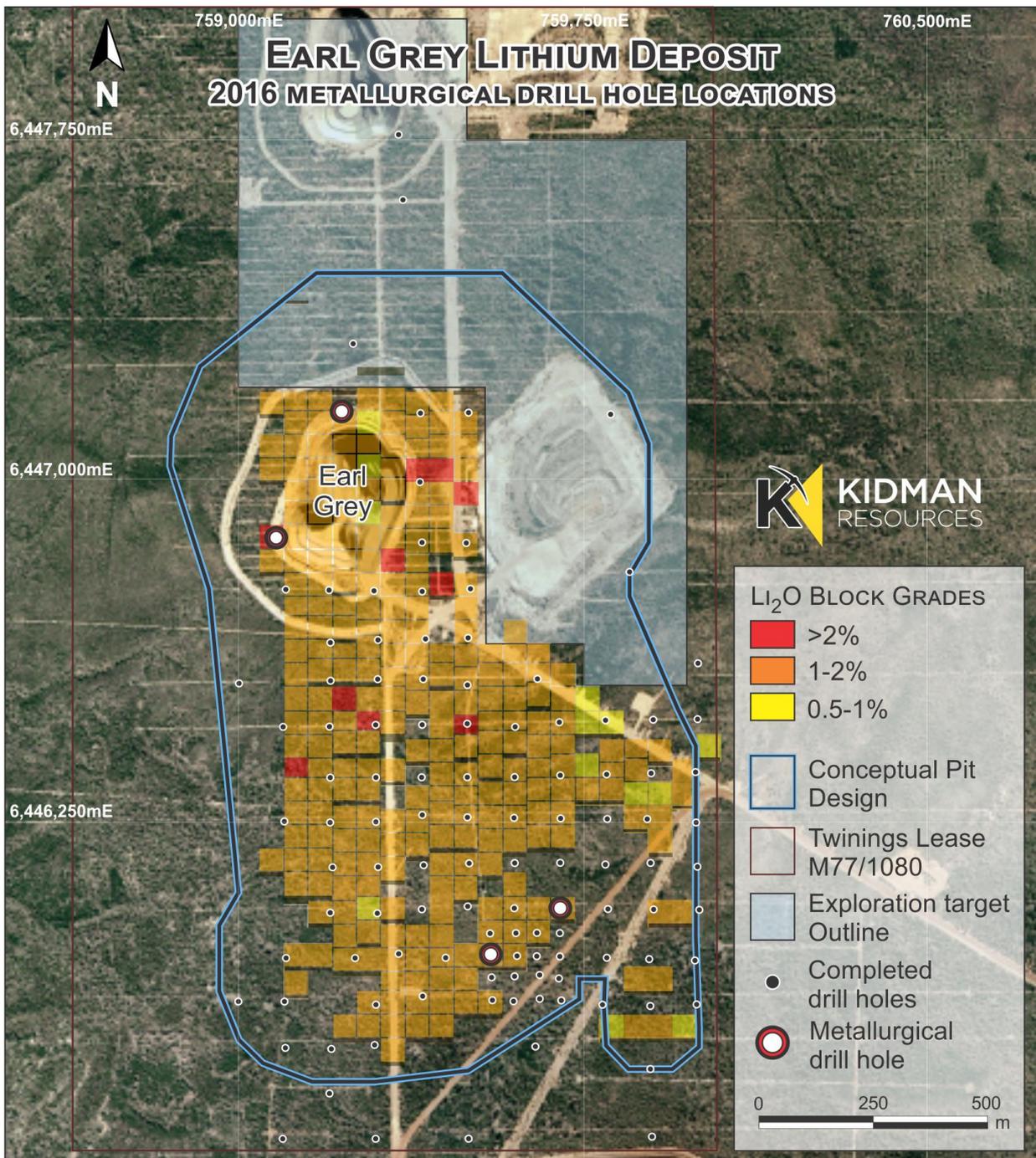


Figure 1: Location of drill holes used for MET testwork

Each composite was characterised using the laboratory scale heavy liquid separation (HLS) technique to determine the density fractionation of the ore, followed by XRD mineralogy of each fraction. Results are shown below.

#### Weathered Composite

	Assay % $\text{Li}_2\text{O}$	Mass Yield %	Lithium Department %	Predominant Lithium Mineralogy by XRD
Head	1.23	100	100	
SG : +2.7	2.21	42	75	Spodumene
SG: 2.5-2.7	0.42	56	19	Not measured
SG: -2.5	3.45	2	6	Petalite

## Fresh Composite

	<b>Assay % Li<sub>2</sub>O</b>	<b>Mass Yield %</b>	<b>Lithium Department %</b>	<b>Predominant Lithium Mineralogy by XRD</b>
Head	1.36	100	100	
SG : +2.7	2.59	38	73	Spodumene
SG : 2.5-2.7	0.32	57	13	Not measured
SG: -2.5	3.96	5	14	Petalite

These results have clearly identified that the dominant lithium mineralogy present in the weathered and fresh samples is spodumene and that 70-75% of the contained lithium may be recovered to a primary concentrate representing ~ 40% of the mass by relatively low cost Dense Medium Separation. Minor amounts of petalite (<5%) were found in the lighter fractions.

Numerous flotation tests under different conditions were performed with the best result on the “Fresh” composite resulting in 89.5% of lithium being recovered to a concentrate representing 56% of the mass. Tests were also done in saline water which produced acceptable recoveries. Kidman believes the acceptable recovery in saline water is important because water treatment can be a significant cost to the operation.

The ore is classified as medium to hard, as measured by the Bond Ball Mill Index (17.7 for “Weathered” and 17.0 for “Fresh”), and finer grinding if required should not be problematic.

## Longer Term Composite

	<b>Assay % Li<sub>2</sub>O</b>	<b>Mass Yield %</b>	<b>Lithium Department %</b>	<b>Predominant Lithium Mineralogy by XRD</b>
Head	2.11	100	100	
SG : +2.7	3.32	17	27	Spodumene
SG: 2.5-2.7	0.76	59	21	Not measured
SG: -2.5	4.48	24	52	Petalite

The core tested from a deeper hole representing longer term ore showed a predominance of petalite lithium mineralogy, which is a lower grade form of lithium. This result highlighted the need to characterise the overall orebody in terms of zonation, predominant mineral species and metallurgical response.

The next series of test work, which is scheduled to begin in February 2017 using core from the current drilling campaign, will focus on producing higher grades from the primary concentrate by finer crushing, magnetic separation and flotation techniques. Currently, a further 20 holes are being drilled and it is planned to submit in excess of 100 segments from those holes for initial characterisation testing before the main test programme starts. This programme will identify those areas of the orebody that will be more economic to process.

## **Kidman Background**

Kidman is a diversified resource company which owns the Mt Holland lithium and gold project near Southern Cross in WA (see ASX Announcement 18 December 2015 for further details of the project). The Company intends to revise the existing gold resource at Mt Holland with a significant RC and Diamond drilling program, followed by an update to the feasibility study undertaken by previous operators. The company is now also drilling to further test the highly prospective Lithium targets within the Mt Holland tenement package and has entered into an MOU to potentially process Lithium ores at the Lake Johnston 1.5Mtpa concentrator owned by Poseidon Nickel.

Kidman also owns the Burbanks Gold Mine near Coolgardie in WA, and on 22 November 2016 announced that it has signed a binding Heads of Agreement with Resources & Energy Group Limited (REZ) to sell the Burbanks Gold Mine to REZ for \$4.5 million.

Kidman also owns advanced exploration projects in the Northern Territory (Home of Bullion – Cu, Au, Pb, Zn, Ag/ Prospect D - Ni, Cu) and New South Wales. In New South Wales the company has the Crowl Creek Project which is host to numerous projects such as Murrays (Au) Blind Calf (Cu, Au) and Three Peaks (Cu, Pb, Ag). The Company also owns the Brown's Reef project in the southern part of the Cobar Basin (Zn, Pb, Ag, and Cu).

For further information on the Company's portfolio of projects please refer to the website at: [www.kidmanresources.com.au](http://www.kidmanresources.com.au)

### **Media:**

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## **Competent Persons Statement**

### *Exploration:*

*The information in this release that relates to sampling techniques and data, exploration results, geological interpretation and exploration targets has been reviewed by Mr L Sawyer M.App.Sc. Mr Sawyer is not an employee of the company, but is employed by Geos Mining as a contract consultant. Mr Sawyer is a member of the Australian Institute of Geoscientists, he has sufficient experience with the style of mineralisation and type of deposit under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 edition of the "Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves" (The JORC Code). Mr Sawyer consents to the inclusion in this report of the contained technical information in the form and context as it appears.*

### *Metallurgy:*

*The information in this release that relates to metallurgy and metallurgical test work has been reviewed by Mr N. O'Brien, FAusIMM, MBA, B. Met Eng.. Mr O'Brien is not an employee of the company, but is employed as a contract consultant. Mr O'Brien is a Fellow of the Australasian Institute of Mining and Metallurgy, he has sufficient experience with the style of processing response and type of deposit under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 edition of the "Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves" (The JORC Code). Mr O'Brien consents to the inclusion in this report of the contained technical information in the form and context as it appears.*

### **Cautionary Statement:**

*Readers should use caution when reviewing the exploration and historical information results presented and ensure that the Modifying Factors described in the 2012 edition of the JORC Code are considered before making an investment decision. Potential quantity and grade is conceptual in nature, that 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.*

*Information in this report may also reflect past exploration results, and Kidman's assessment of exploration completed by past explorers, which has not been updated to comply with the JORC 2012 Code. The company confirms it is not aware of any new information or data which materially affects the information included in this announcement.*