

# LD Project PFS Roadshow May 2018



The largest and longest-life brine SOP Project outside of China



# FORWARD LOOKING STATEMENTS & DISCLAIMER



This document includes forward-looking statements. When used in this document, the words such as "could", "plan", "estimate", "expect", "intend", "may", "potential", "should", and similar expressions are forward-looking statements. Although RWD believes that the expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties, and no assurance can be given that actual results will be consistent with these forward-looking statements.

This Presentation has been prepared by Reward Minerals Ltd ("RWD") for the purpose of providing an overview of its current prospects and development strategy to recipients. This Presentation and its contents are provided to recipients in confidence on the basis that it may not be reproduced or disclosed in whole or in part to any other person, without the written consent of RWD.

This Presentation is provided on the basis that neither the Company nor its respective officers, shareholders, related bodies corporate, partners, affiliates, employees, representatives and advisers, make any representation or warranty (express or implied) as to the accuracy, reliability, relevance or completeness of the material contained in this Presentation and nothing contained in the Presentation is, or may be relied upon, as a promise, representation or warranty, whether as to the past or the future. The Company hereby excludes all warranties that can be excluded by law.

All persons should consider seeking appropriate professional advice in reviewing the Presentation and all other information with respect to the Company and evaluating the business, financial performance and operations of the Company. Neither the provision of the Presentation nor any information contained in the Presentation or subsequently communicated to any person in connection with the Presentation is, or should be taken as, constituting the giving of investment advice to any person.



# **CONTENTS**



- ► PFS Highlights
- Reward Corporate Snapshot
- **► SOP Market Overview**
- Critical Success Factors
- **►LD Project**
- Conclusions



## PFS HIGHLIGHTS<sup>1</sup>



#### **Production:**

- ► Over 400,000 tpa largest brine SOP producer outside of China
- ▶ 27-year LOM, based on extraction of only 6% of current resource

#### Costs:

- ► Capex A\$345M, incl. indirects and owners costs (+/-20% accuracy)
- ► Total Capex A\$451M, incl. contingency and pre-production costs
- ► AISC Opex A\$394/tonne

#### **Economics:**

- ▶ Pre-tax NPV<sub>8%</sub> A\$460M, IRR 18%
- ► LOM Revenue A\$6 billion, EBITDA A\$2.5 billion
- ► Average EBITDA Margin 42%, A\$110M/year
- ► A\$286M in Royalties to the State and the Martu People



# PFS HIGHLIGHTS CONTINUED<sup>1</sup>



#### **Process:**

- Over 40 phases of metallurgical testwork completed
- ERCOSPLAN independent review of mass balance and flowsheet:
  - "State of the art"

#### Timing:

- ➤ 3¼-Year development period
- One year production ramp-up

#### Life extension:

Excellent potential to increase production and extend life from bores on LD

"The LD SOP Project is technically sound and economically robust"



# **REWARD CORPORATE SNAPSHOT**



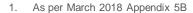
#### Capital Structure 2 May 2018 ASX:RWD

Ordinary Shares on Issue	135.8m
Rights and Options on Issue	4m
Share Price	\$0.21
Undiluted Market Capitalisation	\$28.5m
Short Term Debt	A\$1.0m
Net Cash & Equivalents <sup>1</sup>	~A\$1.7m
Undiluted Enterprise Value	A\$27.8m

#### **Major Shareholders**

Name	Shares (m)	%
Michael Ruane	34.3	25.2
Intermin Resources	6.0	4.4
Top 20 Shareholders	68.8	50.6







# SOP MARKET OVERVIEW



#### SOP is the *premium* Potash fertiliser

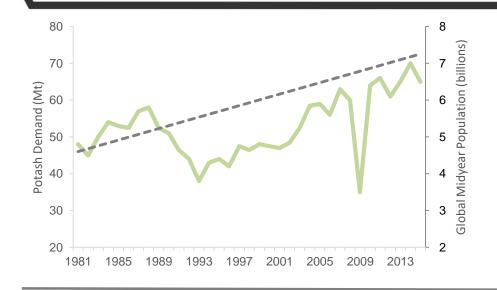
- Sulphate of Potash "SOP" or K₂SO₄ (44.8% K, 55.2% S)
- Provides a chloride free source of potassium and sulphur
- Essential plant macronutrient; increases yields, water retention & disease resistance
- Sulphur also important nutrient, helps produce proteins, amino acids, enzymes and vitamins; aids disease resistance
- ► High value application chloride sensitive crops including vegetables, citrus fruits, coffee and cocoa
- ► Muriate of Potash "MOP", the world's major source of Potassium
- ► MOP: 54% K, 46% CI
- ► SOP consistently trades at a premium to MOP, currently ~US\$270/t



MOP is a volume business, SOP is a value business

# **SOP GROWTH DRIVERS**





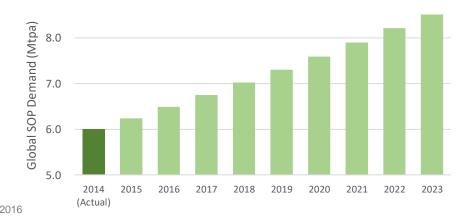
#### Demand is driven by

- Increasing population, decreasing arable land
- Diet influenced by changing demographics
- Concerns over increasing soil salinity
- Need for improved water efficiency
- Indian market could be a game changer

# Arable land per capita is forecast to decrease by 10% per annum...

# 0.40 purpled visited of its 0.30 0.20 0.20 Earth has lost a third of its 0.10 arable land in past 40 years 1970 1980 1990 2000 2010 2020F 2030F 2040F 2050F

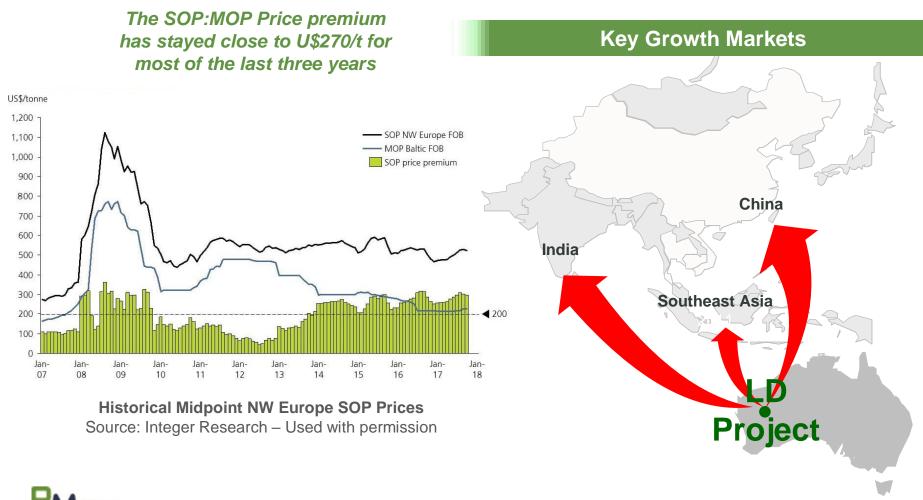
# ... SOP demand is forecast to grow by at least 4% per annum



# **SOP MARKET UPDATE**



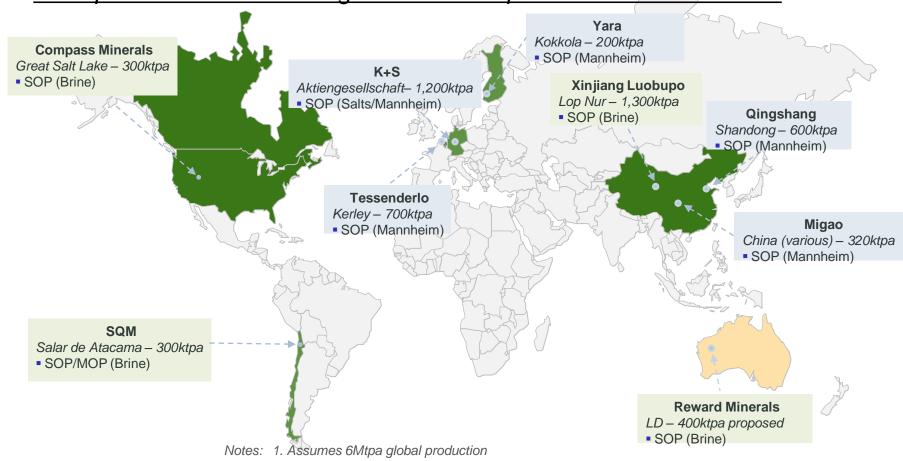
#### SOP is the *premium* Potash fertiliser



# GLOBAL SOP PRODUCERS > 100ktpa



- Over 70% of SOP supply is from high cost Mannheim and K Salts Production
- LD is positioned to be the largest brine SOP producer outside of China





- 2. Represents approximately 82% of total production
- 3: Some 32% sourced from brine production
- 4. Reflects approximately 74% of Mannheim and K Salts production

# BRINE SOP CRITICAL SUCCESS FACTORS



#### Critical Success Factors for Brine-based SOP Operations

Official Duccess Factors for	Dillie-based OOI Operations
<ul> <li>Geology</li> <li>Current producers operate from large, single deposit, long-life operations</li> <li>Simple geology, consistent depositional environment required</li> </ul>	<ul> <li>Operational Environment</li> <li>High evaporation rates all year round</li> <li>Relatively low rainfall (recharge)</li> <li>Seepage</li> </ul>
<ul> <li>Grade and Brine chemistry</li> <li>Grade drives volume and pond size</li> <li>Chemistry – by-products and waste</li> </ul>	<ul> <li>Specific Yield</li> <li>Flow rates drive volume</li> <li>Volume drives trench length/no. of bores</li> </ul>
<ul> <li>Jurisdiction</li> <li>Ultra long life assets need a stable political environment</li> <li>Consistent, transparent and world class regulation</li> </ul>	Logistics  In MOP or SOP, logistics typically make up 20% to 30% of FOB cost
Catchment Area	Social Licence

Complimentary to precipitation when considering recharge

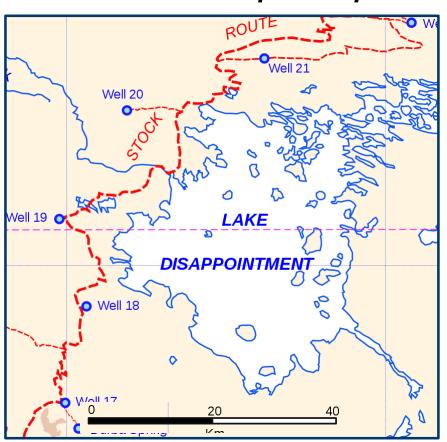
- Community support fundamental
- ILUA Transparent terms essential from an investor perspective

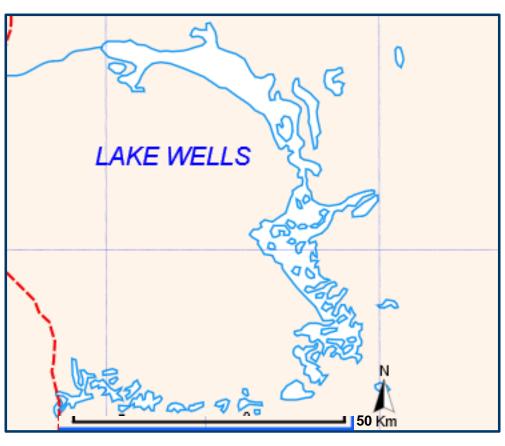


# **GEOLOGY - 1**



# Playa versus palaeochannel basics: A picture paints a thousand words.....





Limited or no operational synergistic benefits from multiple, regionally dispersed deposits



# GEOLOGY – 2



# Playa versus palaeochannel basics: What is the difference?

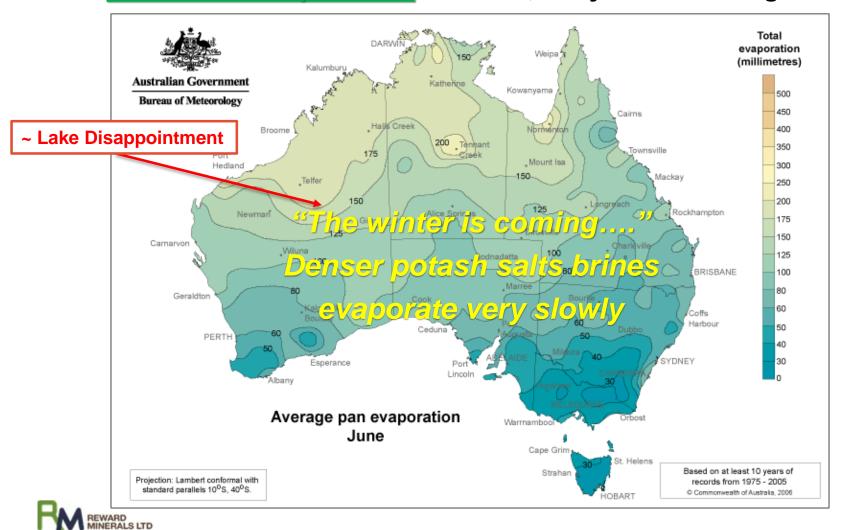
Playas	Palaeochannels						
Large surface area – space is not a constraint on abstraction system design.	Linear, space is a constraint on abstraction system design & therefore environmental risk.						
Low energy depositional environment, uniform lateral geology. Relatively uniform porosity and specific yield over large areas.	Variable energy depositional environment, results in irregular or erratic deposit geometry, porosity and specific yield.						
Greater aquifer area, less likelihood of brine dilution effects.	Narrow channels, increased likelihood of brine dilution effects.						
Uniform resource grade throughout – 'grade control' not a limiting factor on abstraction system design, no need for resource cut-off grades.	Paleochannel geometry variable – high porosity zone continuity can be limited, creating brine pockets of varying grade. May have less scope for fast recharge and grade control is an important factor in abstraction system design, thus higher risk.						



# **OPERATIONAL ENVIRONMENT – 1**



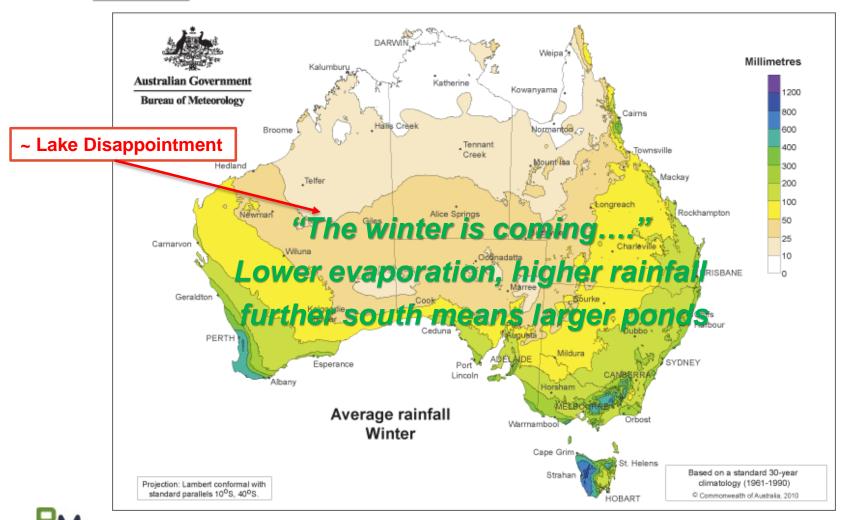
#### Year-round evaporation is critical, not just the average.....



# **OPERATIONAL ENVIRONMENT – 2**



#### Rainfall is useful for recharge, but not welcome in winter.....



#### **GRADE**





Assuming the same operating environment, a 8.25 g/l SOP brine requires a halite evaporation pond area some 160% larger than a 13.4 g/l SOP brine

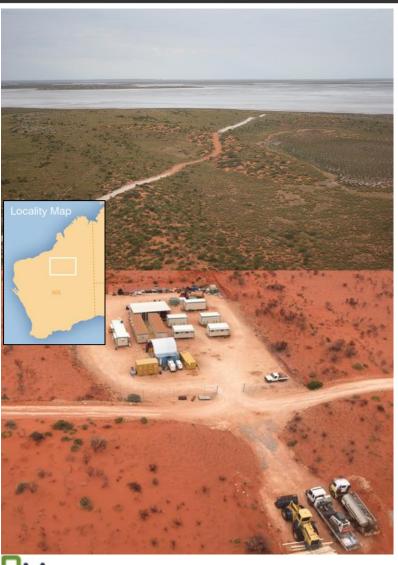
Also, assuming similar seepage rates<sup>1</sup>, an evaporation pond that is 160% larger will also suffer ~60% greater seepage losses, for the same SOP output





# LD SOP PROJECT - INTRODUCTION



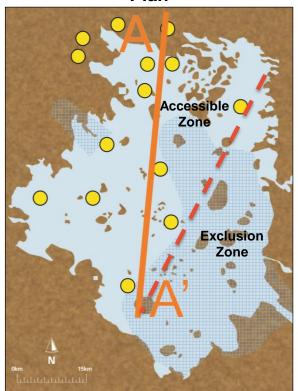


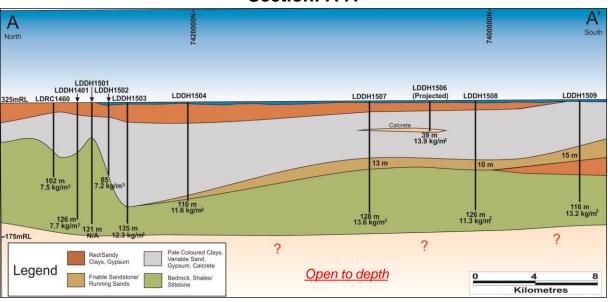
- 100% owned the largest SOP outside of China, offering <u>long life and scalability</u>
- Excellent brine chemistry; the <u>highest in-situ grade</u> SOP resource in Australia
- A playa-style deposit <u>lower resource risk</u>
- Ideal operating environment, low rainfall, high evaporation ~4,000mm per year
- Accessed by existing roads (upgrade required), various haulage and port options available
- Over <u>40 phases</u> of metallurgical testwork completed to date to develop the flowsheet
- <u>Detailed Prefeasibility</u> study completed (+/-20%)
- Environmental Review Document "ERD" under assessment by regulators
- Process water available
- Executed, registered and fully transparent Indigenous Land Use Agreement in place, strong ongoing support from local communities

# A GLOBALLY SIGNIFICANT TIER 1 RESOURCE

# LD's <u>Drainable</u> SOP Resource dwarfs other local resources (Even though its not the largest playa in Australia by area)

Plan Section: A-A





Notes: 1. Total area of LD:1,241km<sup>2</sup>

2. Total area of the Accessible Zone: 749km<sup>2</sup>

Once developed, can operate for decades



# LD - CAPITAL COSTS<sup>1</sup>

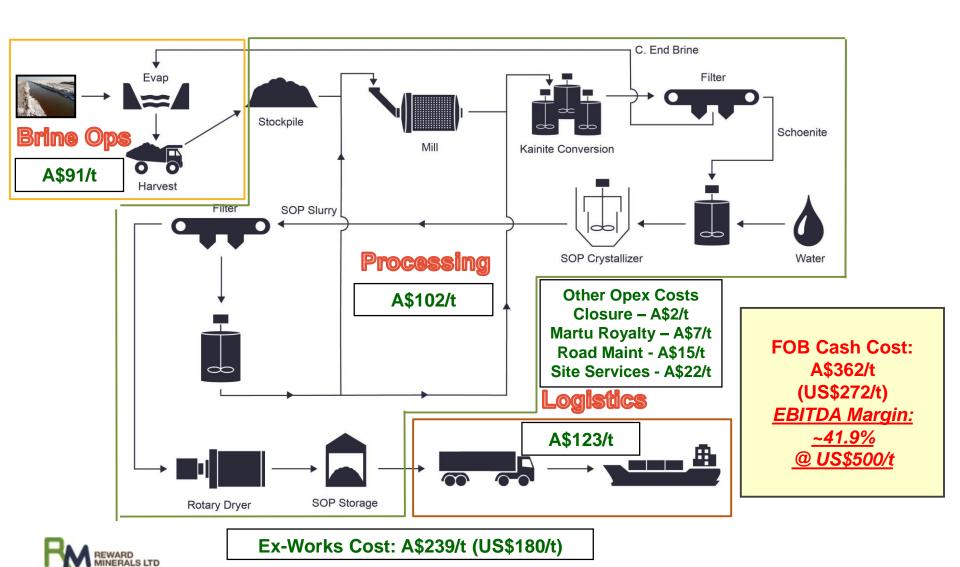


Initial and Sustaining Capital Costs (LOM Real)	AUD M
Production - Trenches and Ponds	57.6
Process Plant	73.2
Infrastructure	108.8
Site Support Temporary Services	2.9
Construction Costs	59.2
Subtotal	301.7
Indirect Costs (EPC, Consultants, Commissioning)	20.0
Owners Costs	23.4
Subtotal	43.4
Total Capital Costs before Contingency	345.1
Contingency	59.9
Total Initial Capital Cost	405.0
Working Capital (Pre-Production Operating Expenses)	45.6
Total Development Capital Cost	450.6



## LD - CASH OPEX COSTS<sup>1</sup>





# LD – CASH COST DETAILED BREAKDOWN<sup>1</sup>



Brook Hunt Cash Costs	Cash Cost (A\$/t SOP)
C1 Cost	
Evaporation Ponds & Harvesting	91
Processing Plant	102
Road Maintenance	15
Site Services & Administration	22
Closure Costs & Rehabilitation	2
Transport Costs	123
Native Title Royalty	7
C1 Costs	362
C2 Cost C1 Costs Initial Capital Depreciation Sustaining Capital Depreciation	362 39 6
C2 Costs	408
C3 Cost	
C2 Costs	408
WA State Royalty	25
C3 Costs	433
All-in-Sustaining Cost (AISC)	
C3 Costs	433
Initial Capital Depreciation	(39)
All-in Sustaining Cost (AISC)	394



# LD - SCHEDULE



ACTIVITY		18	2019					20	2021				2022				2023					
ACTIVITY	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Quarter					Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
Project Assessment and Approval						•																
EPA Assessment and Approval																						
Feasibility Study					4																	
Feasibility Study Assessment and Project Approval for Execution					<u>k</u>																	
Early Engineering Works																						
EPCM Assessment and Award																						
Project Development - Site Establishment						•																
Airstrip																						
Site Access Road																						
Accommodation Camp																						
Project Development - Operational Development										•			$\equiv$									
Evaporation Pond Construction																						
Trench Network Development																						
Process Plant Construction																						
Production													-	•								$\blacksquare$
Brine Pumping to Ponds																						
Crude Potash Salts Harvesting																						
Process Plant Commissioning																						
SOP Shipments							<u> </u>															
Production Ramp-up	*********		**********					*********		•••••		*********					**********					
Full Commercial Production																						
4																						

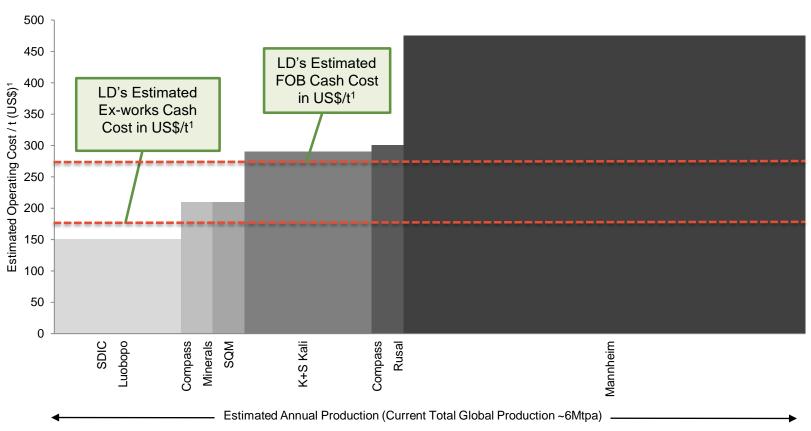




# **EX-WORKS GLOBAL SOP COST CURVE**



Primary playa-style brine SOP deposits have the lowest ex-works production costs... but even including logistics LD compares favourably



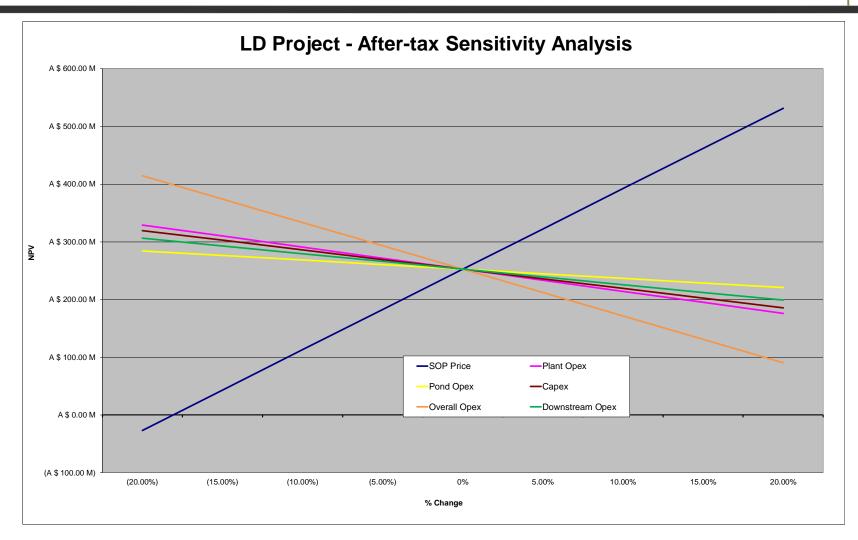


Notes: 1. All figures taken from 2018 PFS Study
Refer to ASX Announcement dated 1 May 2018 for details
AUD converted to USD at 0.75 exchange rate

# LD - SENSITIVITY ANALYSIS

REWARD





Notes: 1. Using a Specific Royalty Rate of 73 cents per tonne improves the Project's after-tax NPV by approximately A\$54 million 2. An A\$10/tonne SOP reduction in logistics costs improves the Project's after-tax NPV by approximately A\$21 million

# **NEXT STEPS**<sup>1</sup>



#### **Funding**

Progress discussions with potential strategic partners

#### **Environmental Assessment**

- Address EPA comments/questions
- Finalise ERD for public review period

#### **Project Enhancements**

- Further R&D can deliver process improvements
- Assess contractor consolidation options
- Investigate alternative logistics solutions
- Continue trench pumping, evaporation and seepage trials

#### **Resource Update**

Hydrogeological model update to feed into resource update



# CONCLUSION



#### The LD Project is Technically Sound

- Conservative PFS conducted to exacting standards (+/-20% accuracy)
- Successful independent process review completed (ERCOSPLAN)

#### ... and Economically Robust

- Pre-tax NPV<sub>8%</sub>: A\$460 M
- EBITDA margin 42%, generates A\$110 M/year
- With the scope to improve economics on multiple fronts

#### ... and at 407,500 tonnes SOP/annum

- It will be the largest brine SOP Project outside of China
- ► The 27-year life extracts only 6% of the current Resource
- Thus has clear potential to increase scale and extend life

Clearly positioned for a significant re-rating...



# **APPENDIX**



# **Soard & Corporate**

# **EXPERIENCED BOARD & MANAGEMENT**



#### Colin McCavana - Non-Executive Director, Chairman

- 30+ years experience in mining and earthmoving industries including the management, acquisition and development of projects in Australia and overseas
- Founder and Managing Director of Haddington Resources Ltd
- Chairman of Northern Minerals Ltd

#### Rod Della Vedova - Non-Executive Director

- Extensive experience in the Solar Salt industry including 11 years as Chief Chemist and 24 years as Process Superintendent for Dampier Salt Ltd (Rio) for Karratha Hedland operations
- Background in large scale commercial production of salt by solar evaporation techniques
- BSc in Chemistry, Post Graduate in Chemical Engineering

#### Michael Ruane - Director

- 30+ years in chemical and metallurgical fields including senior technical advisor and manager at Lake McLeod Potash operation in WA, as well as Manager of mining operations in WA and the Northern Territory
- PhD (Chemistry) MRACI

#### **Greg Cochran – Chief Executive Officer**

- experienced international, C-suite mining executive
- previously MD of Deep Yellow Ltd, CEO of Terramin
- M Sc. Mining Eng. & Mineral Economics, MBA
- FAusIMM, Graduate Member AICD

#### Bianca Taviera - Company Secretary

- an experienced Company Secretary working for a number of ASX Listed Resource companies

#### Daniel Tenardi – Projects Director

- 25+ years mining experience with various organisations including Alcoa, Rio Tinto and BHP from start-up to completion phases
- Extensive mine and project management experience
- BSc in Mathematics, Unrestricted QM Ticket

#### Geoff Browne - Chief Metallurgist

- 40+ years experience in technical mineral processing and water treatment (biological, patented ballasted flocculation, cyanide detoxification) including plant design/operation
- B.App.Sc, Grad Dip (Metallurgy), MAusIMM, PhD (PH)

#### **Bob Kinnell - Chief Geohydrologist**

- geoscience management professional with over 20 years' experience in tier 1 mining, professional services and consulting firms
- extensive experience in water supply, dewatering and brine production in South America, Australia, Asia, Europe and Africa
- BEng (Hons) PGCert MSc FGS MAusIMM

#### **Andy Fuchs – Chemical Engineer**

- Extensive international experience within the resource industry covering studies, detailed design, commissioning and operation reviews for a wide range of commodities
- B.Eng(Chemical)(1st Hon)

#### **Corporate Consultant:**

#### **Dev Ramachandran - Market Specialist**

- senior mining executive with extensive global fertiliser minerals experience



# GLOBALLY SIGNIFICANT TIER 1 RESOURCE



# LD's <u>Drainable</u> SOP Resource dwarfs all Australian deposits (...it has the highest average in-situ grade...)

Hydrostratigraphic Unit	Unit Symbol	Nomir	nal Dimensio	ns (m)	Volume	Area	Assigned Specific Yield Effective Porosity	SOP Brine Grade (kg/m <sup>3</sup> ) <sup>(1)</sup>	Drainable SOP (Mt)	JORC Resource Status
		Тор	Base	Thick.	$(m^3 \times 10^6)$	(m2 x 10 <sup>6</sup> )	(%)	(-3 /		
Upper lake bed sequence	Qhs & Qhl	0.5	2	1.5	1,123.5	749.0	15	13.4	2.26	Indicated
Lower lake bed sequence	Qpl	2	6	4	2,996.0	749.0	13	13.4	5.22	Indicated
Weathered basement	PUw	6	80	74	55,426.0	749.0	12	11.2	74.49	Inferred
Weathered basement (sandy sections)	PUw	80	90	10	6,987.0	698.7	22	11.2	17.2	Inferred
Estimate - Accessible Zone					66,532.5			11.34	99.2	
Upper lake bed sequence (Exclusion zone)	Qhs & Qhl	0.5	2	1.5	738.0	492.0	15	13.4	1.48	Indicated
Lower lake bed sequence (Exclusion zone)	Qpl	2	6	4	1,968.0	492.0	13	13.4	3.43	Indicated
Weathered basement	PUw	6	80	74	36,408.0	492.0	12	11.2	48.93	Inferred
Estimate - Exclusion Zone					39,114.0			11.37	53.8	
Total Estimates					105,646.5			11.35	153.0	

- Notes: 1. Total area of the lake:1,241km<sup>2</sup>
  - 2. Total area of the accessible zone: 749km<sup>2</sup>
  - 3. Total area of the exclusion zone: 492km<sup>2</sup>
  - 4. Figures have been rounded to 2 significant numbers
  - 5. Resource compliant with CIMM and draft AMEC guidelines



LD offers lower resource risk, long life and scalability

# **COMPETENT PERSON STATEMENT**



This information in this report that relates to Resource Estimation and hydrogeology is based on information compiled by Mr Robert Kinnell, a hydrogeologist and Competent Person who is a Member of The Australian Institute of Mining and Metallurgy and a Fellow of the Geological Society of London. Mr Kinnell is employed by Strategic Water Management and is a consultant to Reward Minerals and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Kinnell consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this presentation that relates to Brine and Sediment Assays and Analyses is based on information compiled by Mr Geoff Browne, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Browne is a consultant to Reward Minerals Ltd. Mr Browne has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Browne consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.

#### Notes

Please refer to the assumptions, sensitivities, risk factors and cautionary statements contained in ASX Announcement dated 1 May 2018, titled "PFS Confirms LD Project as a Globally Significant SOP Project" for details disclosed respectively in Table 2 (pages 4-6), Table 3 (pages 7-8) and on pages 12 and 13 of that announcement, as well the details included in the PFS Executive Summary appended thereto, which may adversely impact upon the information and forecasts in this announcement.

Refer to ASX announcement dated 7 February 2017 titled "Lake Disappointment (LD) Project Confirmed as a Globally Significant Tier 1 Sulphate of Potash Deposit" for full details of the Mineral Resource. The Company confirms that it is not aware of any new information or data that materially affects the information included in the 2017 announcement and that all material assumptions and technical parameters underpinning the resource estimate continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings were presented in the original ASX announcement have not been materially modified.



# **NOTES**





Reward Minerals Ltd 159 Stirling Highway Nedlands WA, 6009

(T): +61 8 9386-4699

(W): www.rewardminerals.com