

# REWARD MINERALS LIMITED



Corporate Presentation  
Melbourne & Sydney Roadshow  
December 2017



ASX | RWD  
[www.rewardminerals.com](http://www.rewardminerals.com)



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## Sulphur of Potash ('SOP') is:

- ▶ A premium fertilizer in **short supply** with **strong market growth**
- ▶ A market of some 6Mt per annum worth approximately US\$3.0bn

## Large surficial brine resources:

- ▶ Are **globally scarce**, vary in scale, chemistry, grade and extractability
- ▶ Enable significant operating **cost benefits** over other production methods

## Reward Minerals owns the Lake Disappointment SOP Project in WA:

- ▶ Potentially the world's **largest and one of the highest grade** SOP deposits
- ▶ Located in a **high evaporation** location with **excellent brine chemistry**
- ▶ Will use **established processes and technology** to produce SOP
- ▶ Has an **executed indigenous land use agreement**
- ▶ Comes with **blue sky potential** via other minerals – e.g. halite, magnesia

# CORPORATE SNAPSHOT



## Capital Structure 28 Nov 2017 ASX:RWD

Ordinary Shares on Issue	135.8m
Options on Issue	Nil
Share Price	\$0.25
Undiluted Market Capitalisation	\$47.5m
Estimated Cash & Equivalents <sup>1</sup>	~A\$3.6m
Undiluted Enterprise Value	A\$43.9m

1. As per September Appendix 5B

## Major Shareholders

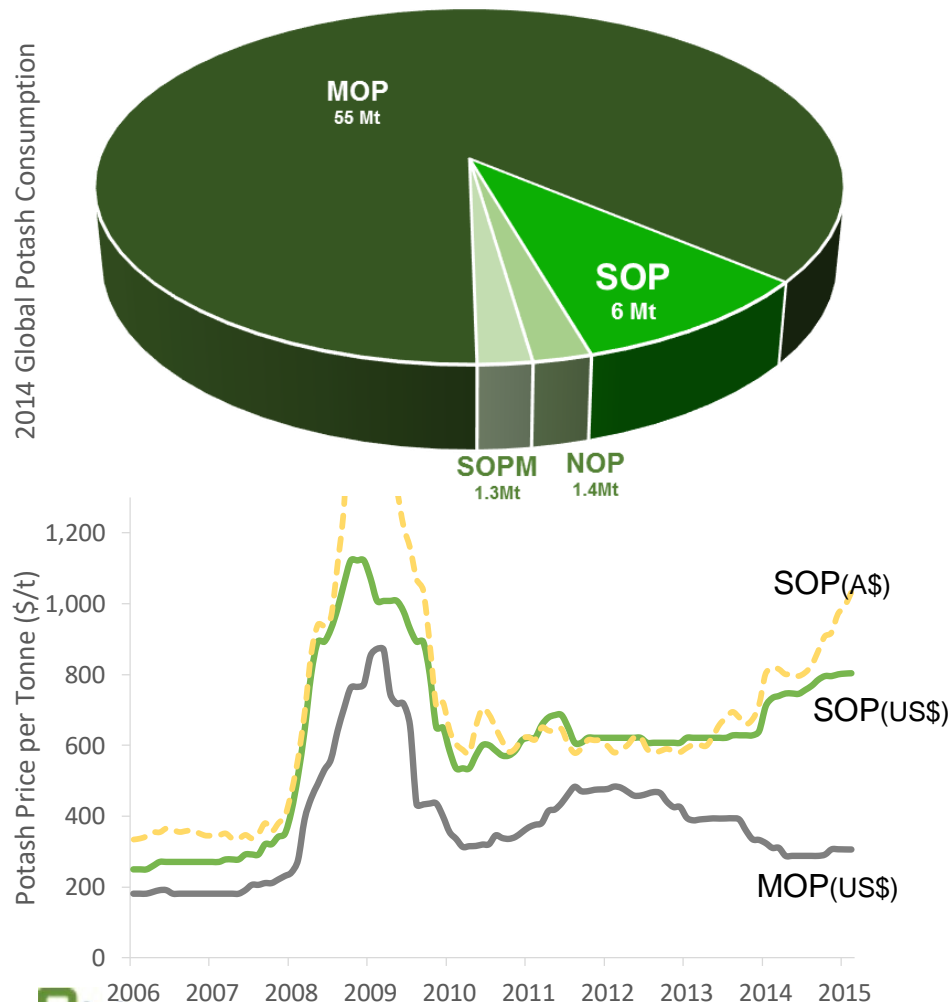
Name	Shares (m)	%
Michael Ruane	39.5	29.2
Intermin Resources	6.0	4.4
Top 20 Shareholders	66.7	49.1



# SOP MARKET OVERVIEW

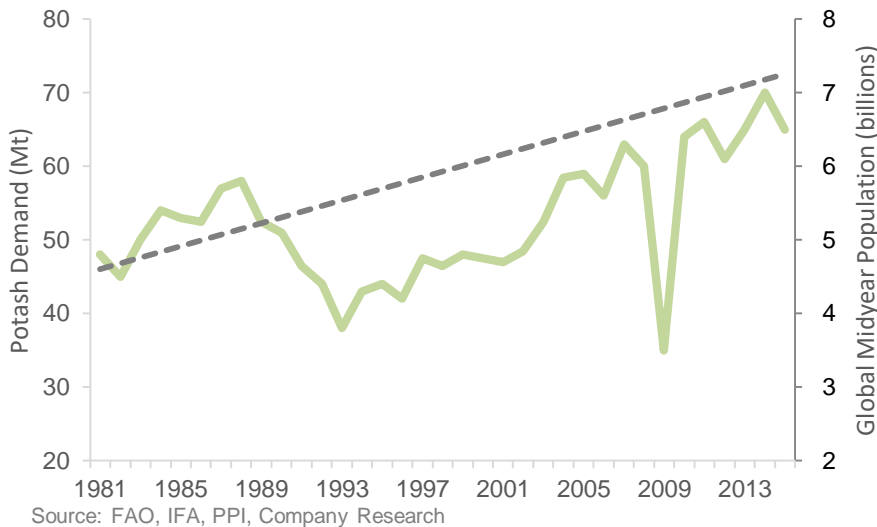


## SOP is the premium Potash fertiliser



- ▶ Sulfate of Potash – “SOP” or  $K_2SO_4$
- ▶ 44.8% Potassium, 55.2% Sulfate (MOP: 54% K, 46% Cl)
- ▶ Provides plants with a chloride free source of potassium and sulphur
- ▶ Potassium is an essential plant macronutrient; increases yields, water retention & disease resistance
- ▶ Sulphur also important nutrient, helps plants produce proteins, amino acids, enzymes and vitamins; aids disease resistance
- ▶ Is used on high value, chloride sensitive crops including vegetables, citrus fruits, coffee and cocoa
- ▶ Trades at a premium price to MOP, currently ~US\$450/t (MOP ~US\$250/t)

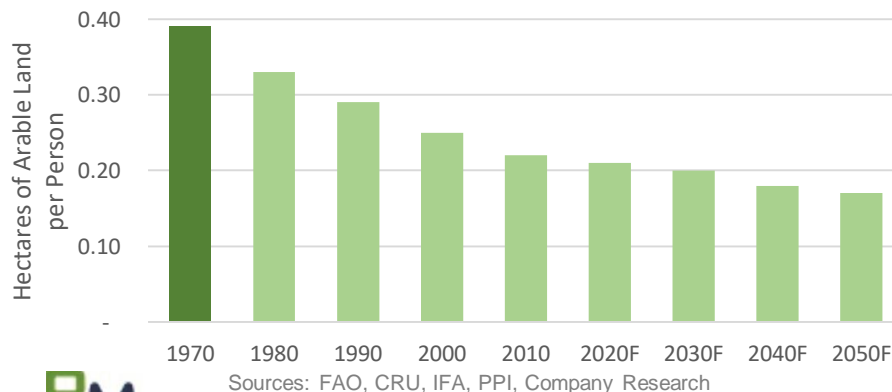
# SOP GROWTH DRIVERS



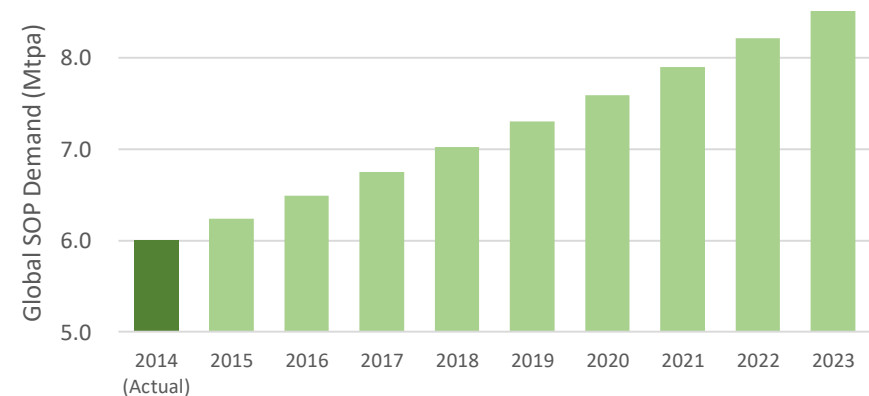
## Demand is driven by

- ▶ 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...**



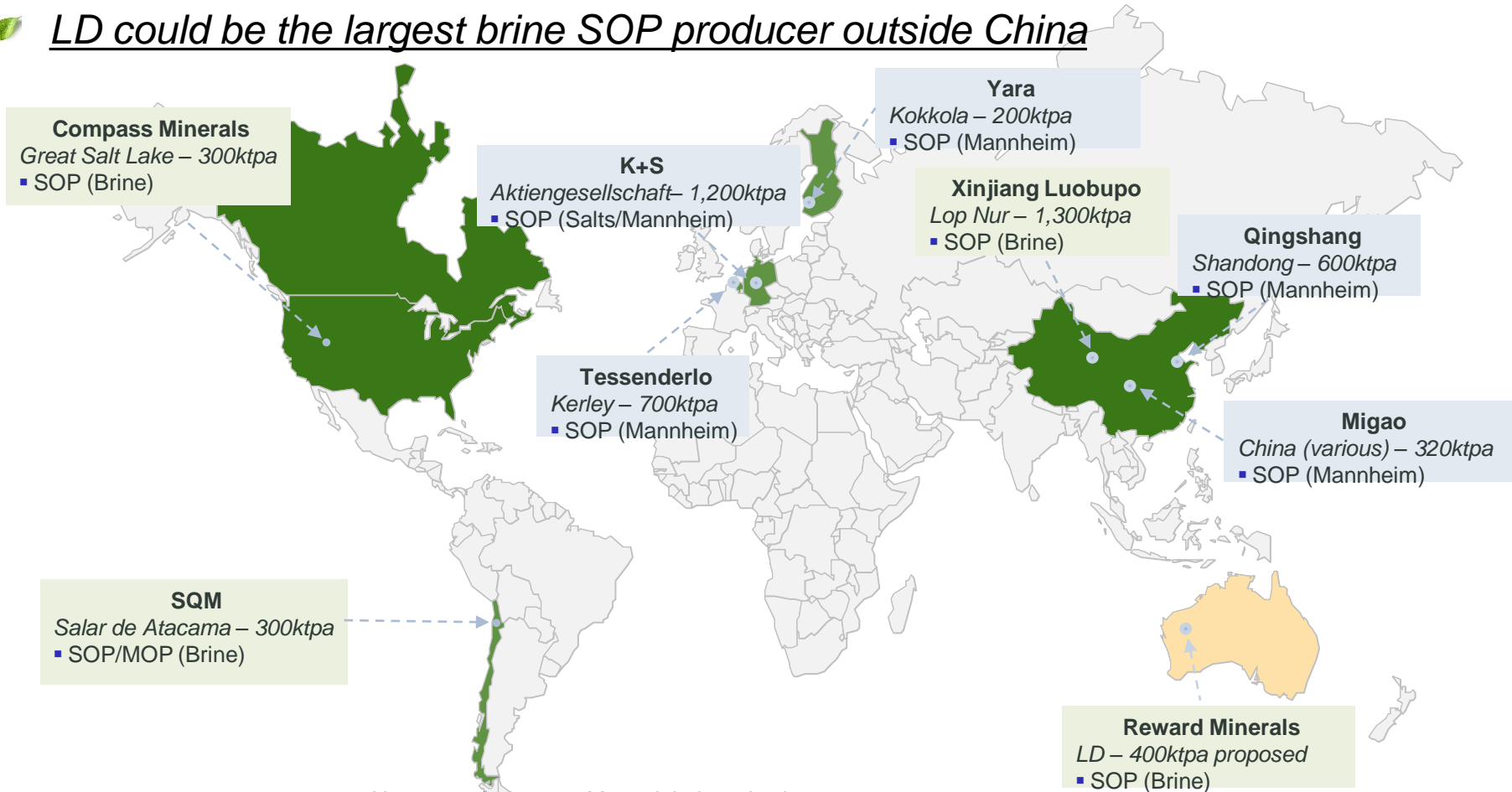
**... SOP demand is forecast to grow by at least 4% per annum**



# GLOBAL SOP PRODUCTION >100ktpa



- Close to 70% of supply is from high cost Mannheim or K Salts Production
- LD could be the largest brine SOP producer outside China

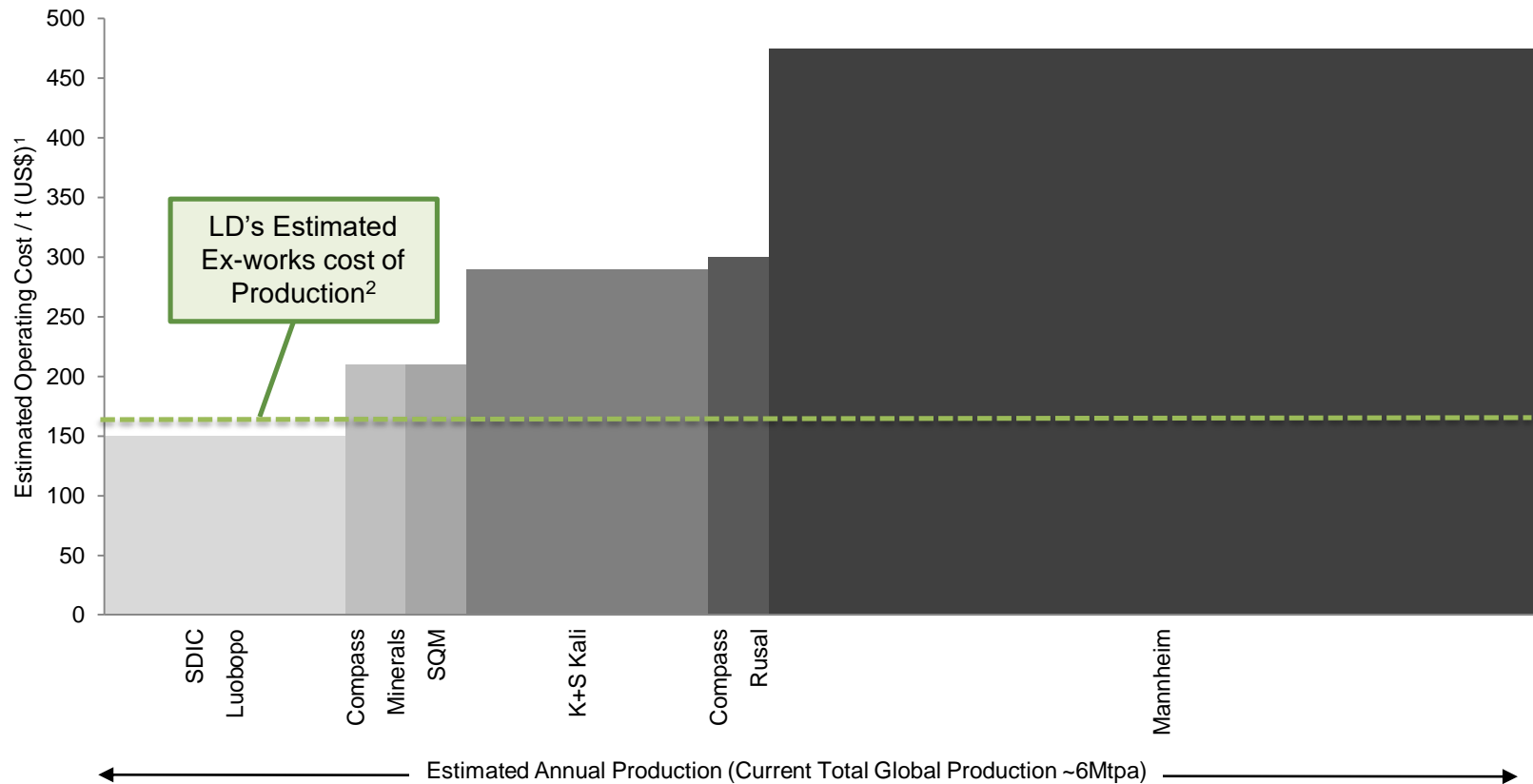


- Notes:
1. Assumes 6Mtpa global production
  2. Represents approximately 82% of total production
  3. Some 32% sourced from brine production
  4. Reflects approximately 74% of Mannheim and K Salts production

# GLOBAL SOP COST CURVE (MINE GATE)



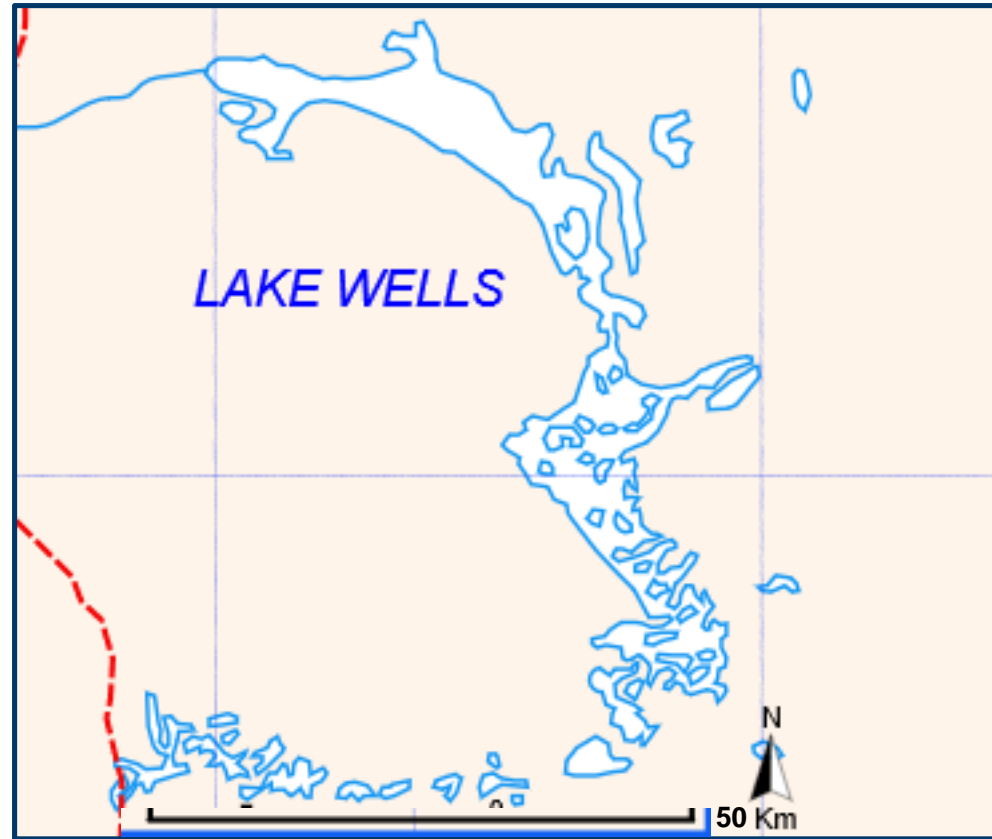
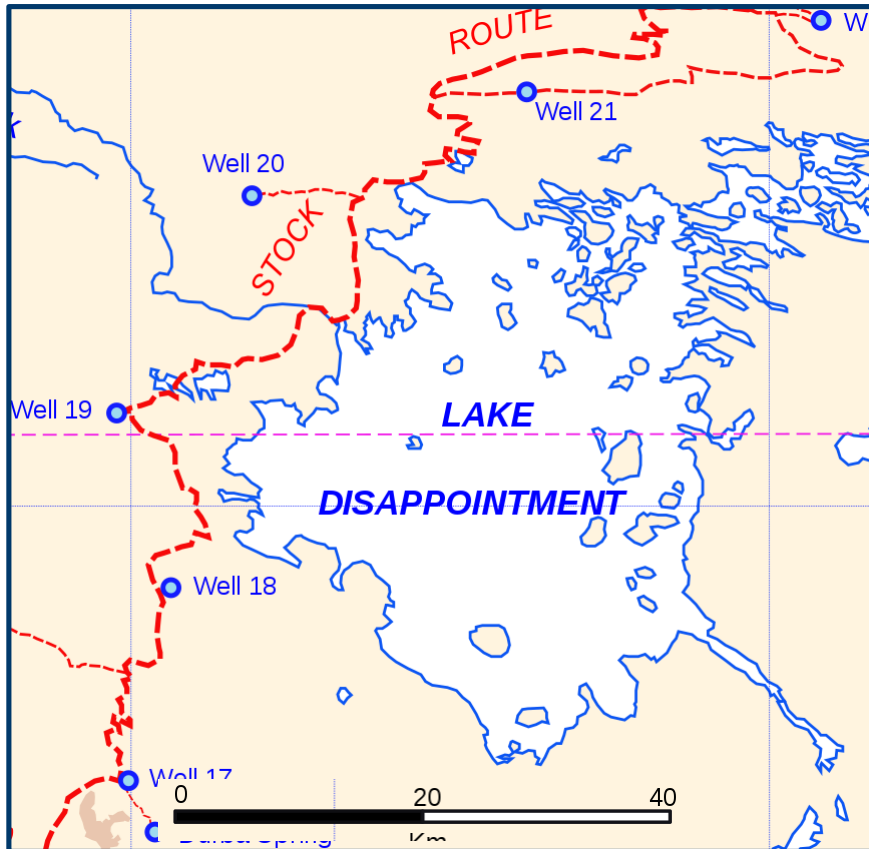
*Primary playa-style brine SOP deposits have the lowest production costs*



# PLAYA AND PALAEOCHANNEL BASICS – 1



*A picture paints a thousand words.....*



Use of the Lake Wells image is purely for the purpose of geological explanation only and is not an opinion of potential projects that may one day be located there.

# PLAYA AND PALAEOCHANNEL BASICS – 2



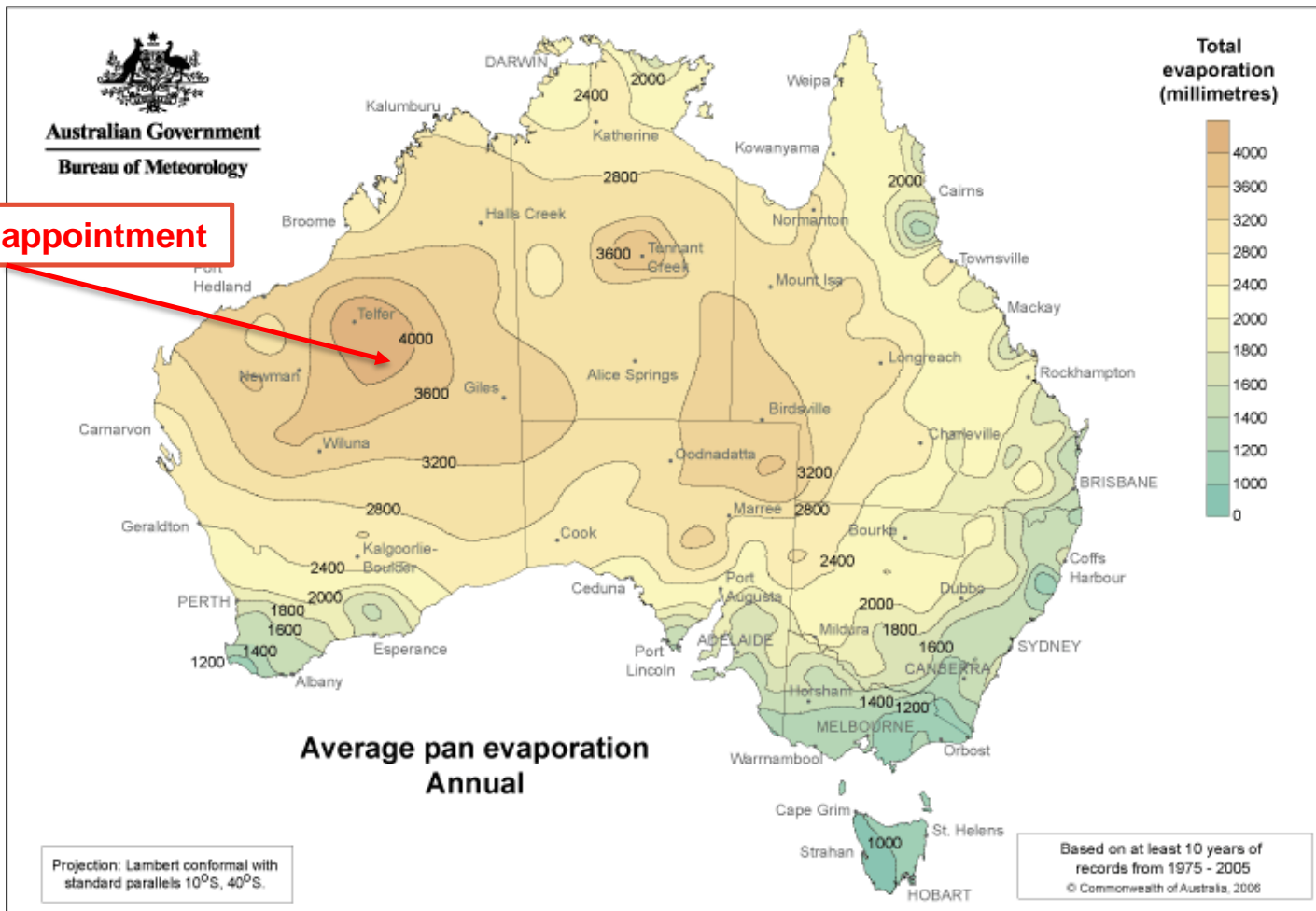
***But here are some words to explain the difference.....***

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, thus more uniform lateral geology. Generates more uniform porosity and specific yield over very 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’ is not a limiting factor on abstraction system design, no need for resource cut-off grade.	Paleochannel geometry is 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.

# BUT ITS NOT JUST ABOUT GEOLOGY...



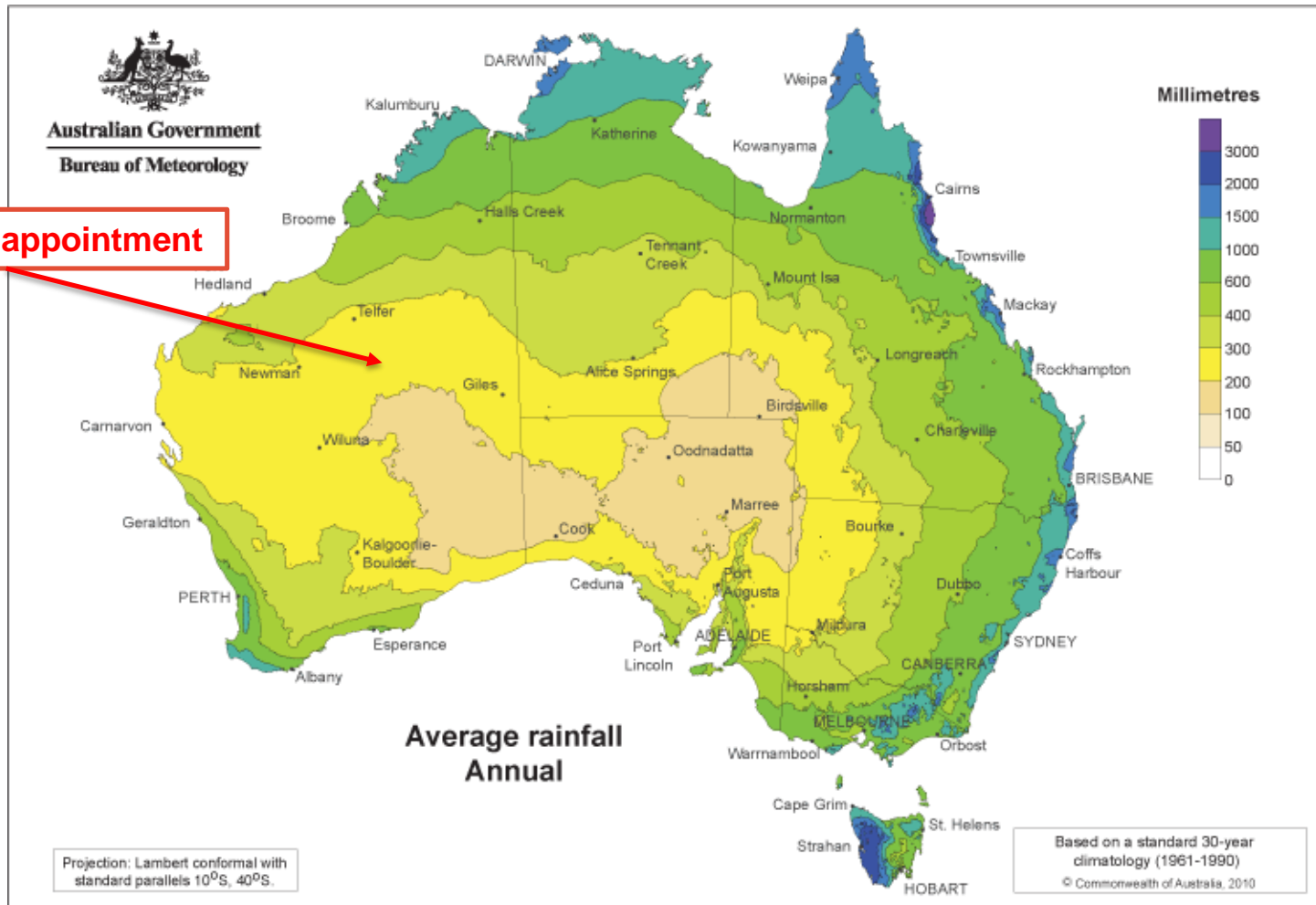
*The operating environment is also key, such as evaporation.....*



# BUT ITS NOT JUST ABOUT GEOLOGY...



*And rainfall.....*



# LD SOP PROJECT - INTRODUCTION

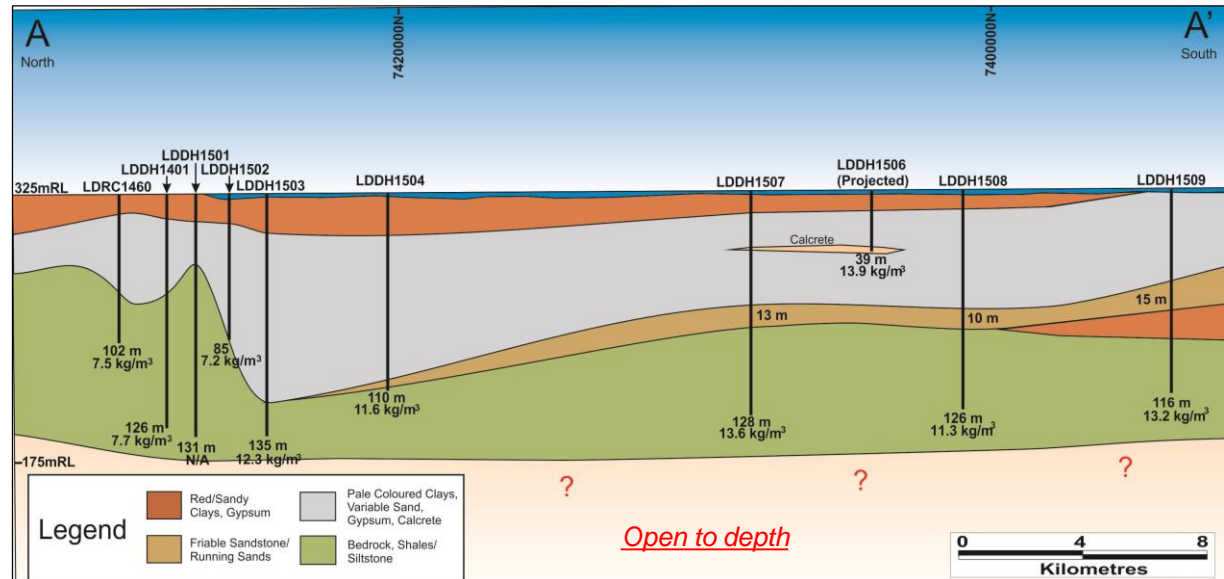
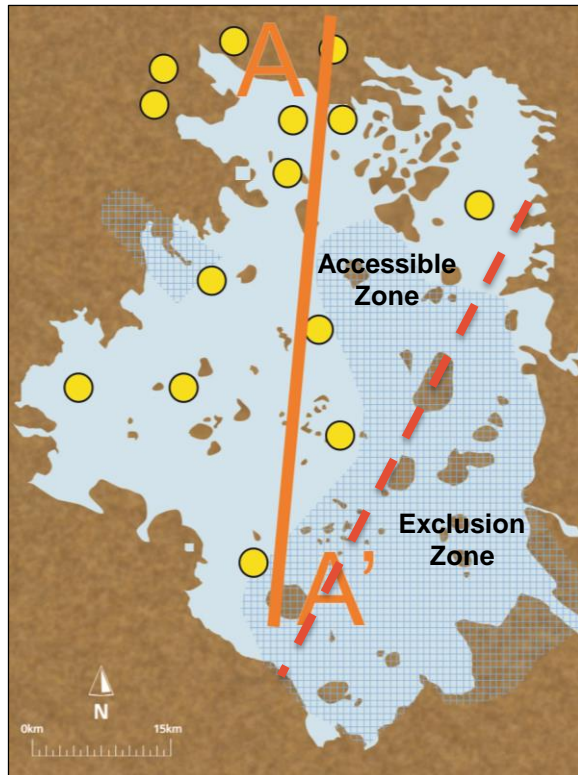


- ▶ 100% owned – the largest SOP resource in Australia, offering long life and scalability
- ▶ Excellent brine chemistry with one of the highest grade resources in Australia
- ▶ A playa\* with extensive resource upside
- ▶ Testwork has demonstrated LD will use established processes
- ▶ Excellent brine SOP production climate, low rainfall, high evaporation ~4,000mm per year
- ▶ Accessed by existing roads (upgrade required), various haulage and port options available
- ▶ Scoping Study complete, trenching and prefeasibility studies underway
- ▶ “PER” (environmental assessment report) nearing completion
- ▶ Process water available
- ▶ Indigenous Land Use Agreement in place, strong ongoing support from local communities

# A GLOBALLY SIGNIFICANT TIER 1 RESOURCE



## LD's Drainable SOP Resource dwarfs other WA resources



- Notes: 1. Total area of the lake: 1,241km<sup>2</sup>  
2. Total area of the exclusion zone: 492km<sup>2</sup>

# A GLOBALLY SIGNIFICANT TIER 1 RESOURCE



## LD's Drainable SOP Resource dwarfs other WA resources

Hydrostratigraphic Unit	Unit Symbol	Nominal Dimensions (m)			Volume (m <sup>3</sup> x 10 <sup>6</sup> )	Area (m <sup>2</sup> x 10 <sup>6</sup> )	Assigned Specific Yield Effective Porosity (%)	SOP Brine Grade (kg/m <sup>3</sup> ) <sup>(1)</sup>	Drainable SOP (Mt)	JORC Resource Status
		Top	Base	Thick.						
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 exclusion zone: 492km<sup>2</sup>  
 3. Total area of the accessible zone: 749km<sup>2</sup>  
 4. Figures have been rounded to 2 significant numbers

LD offers long life and scalability

# A GLOBALLY SIGNIFICANT TIER 1 RESOURCE

## LD's Drainable SOP Resource dwarfs other WA resources

		WA 1	WA 2	WA 3	WA 4	RWD A	RWD E	RWD Total
Drainable SOP Reserves								
Probable	Mt	2.66						
SOP Grade	kg/m <sup>3</sup>	14.212*						
		WA 1	WA 2	WA 3	WA 4	RWD A	RWD B	RWD Total
Drainable SOP Resources								
Indicated	Mt	0.0	12.7	4.3	4.4	7.5	4.9	12.4
Inferred	Mt	0.0	2.1	19.1	13.7	91.7	48.9	140.6
Total	Mt	0.0	14.7	23.2	18.1	99.2	53.8	153.0
SOP Grade	kg/m <sup>3</sup>	8.76	7.90	8.25	13.079*	11.34	11.37	11.35
Approximate Scaled Area	km <sup>2</sup>	456	25	2,700	62	749	492	1,241
Market Capitalisation	\$'M	92.8	28.2	128.0	32.8	47.5		47.5
Resource "Value"	\$/t	#DIV/0!	1.92	5.52	1.58	0.48		0.31

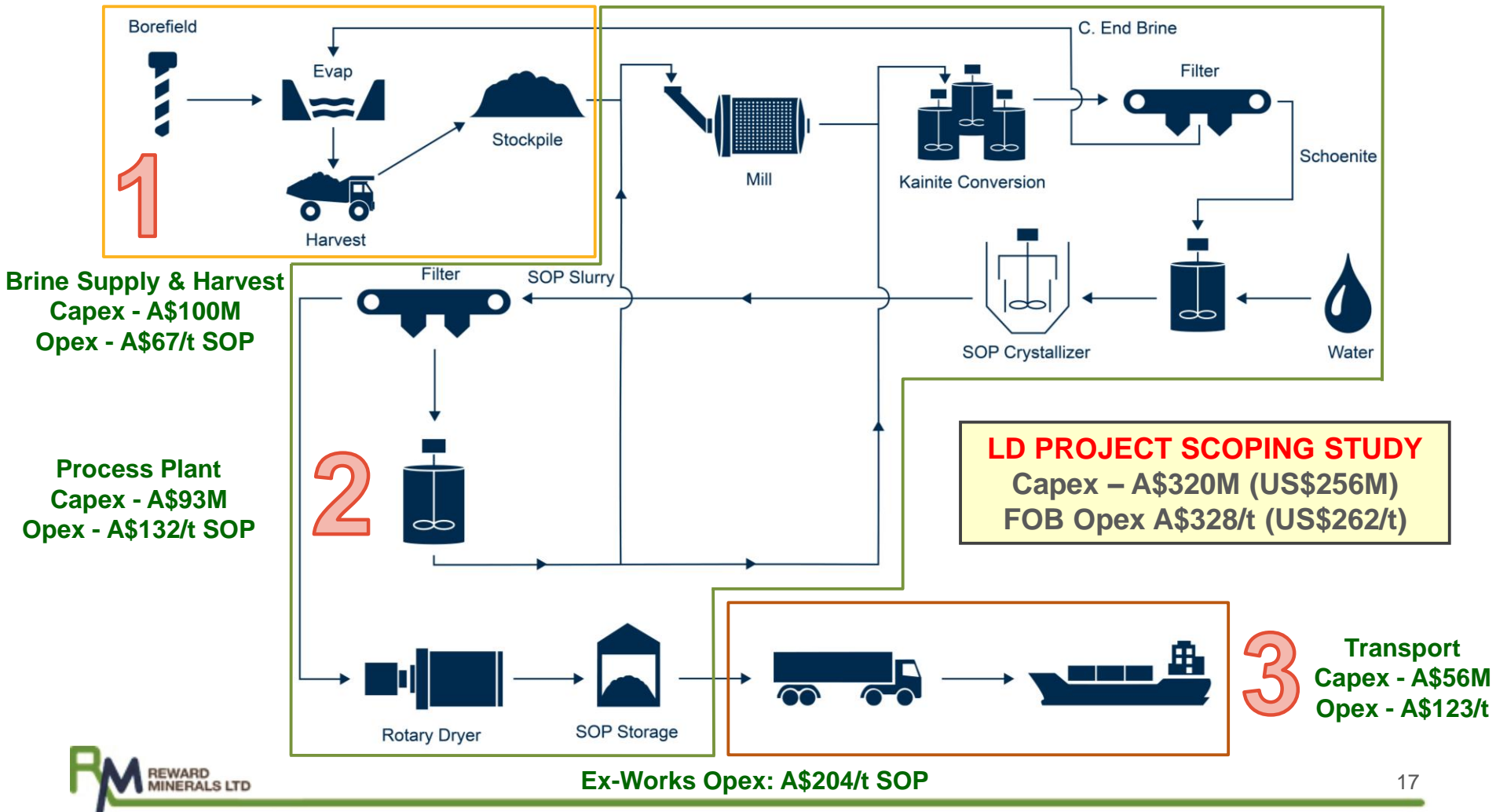
Notes: \* WA 4 is the only company using a cut-off grade, its inherent average grade is possibly lower than LD

- A Drainable Resource is that portion of the resource which is arguably extractable – the so-called “Sy” Specific Yield
  - Approximate Scaled Area has been taken from current resource areas, not exploration lease area

**LD's Drainable SOP Resource is ~ 5 times the size of its largest peer,  
even when only considering the currently Accessible Zone**

# LD – THREE-STAGE PRODUCTION PROCESS

Well-established process - harvested salt goes through a milling, conversion and crystallization process - SOP ready for crop application



# LD – ONGOING TRENCH TRIALS



- Commenced mid-Sept
- One trench pumped continuously
- Rates from 6l/s to 15 l/s
- Steady state ~ 10l/s
- Planned to pump two trenches in parallel



- Abstraction test on first trench extended as only minor drawdown detected in monitoring bores
- Now deepening trench 1 to test clay layer (and possible gypsum structures)
- Sufficient information for enhanced hydrogeological modelling

# LD – STATUS OF PFS AND EPA PROCESS



## PFS

- ▶ Progressing well, CPC Engineering working with RWD
- ▶ Completion early in the New Year
- ▶ Further Evaporation Pond trials underway – seepage trials
- ▶ May inform PFS but not reliant on results

## EPA

- ▶ Thorough environmental assessment has been conducted
- ▶ Detailed fauna and flora studies have been completed
- ▶ Submission to regulators imminent
- ▶ A regulatory and public review period of engagement will follow

# CONCLUSIONS



- ▶ Reward is the **100% owner** of the LD SOP Project which is:
  - ▶ Potentially the world's **largest and one of the highest grade** SOP brine resources
  - ▶ Located in a **low rainfall, high evaporation** region with **excellent brine chemistry**, which allows use of established processes
  - ▶ Subject to a fully **executed indigenous land use agreement**
- ▶ The Company is gathering momentum:
  - ▶ Submission of **public environmental review is imminent**
  - ▶ **Successful** trench pumping and pond **testwork ongoing**
  - ▶ **PFS** will be completed early next year

*Clearly positioned for a significant re-rating...*



# *APPENDICES*

# EXPERIENCED BOARD & MANAGEMENT



Board & Corporate

## **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



Project Development

## **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

# 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.

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