

## LD SOP PROJECT PFS ENHANCEMENTS

### Highlights<sup>1</sup>

- **18.5% reduction in PFS trucking cost leads to significant Project value uplift**
- **Reduction enabled by availability of detailed survey of the existing tracks which provide site access**
- **Pre-tax NPV<sub>8% Real</sub> up by A\$57.4M to A\$517.6M (12.5% increase)**
- **Post-tax NPV<sub>8% Real</sub> up by A\$40.2M to A\$292.8M (15.9% increase)**
- **EBITDA margin up from 41.9% to 44.6% (6.4% increase)**
- **Multiple value improvement opportunities still under investigation that are likely to further enhance Project economics**
- **Ongoing operations modelling likely to lead to higher output and lower costs**

Sulphate of Potash (“SOP”) exploration and development company Reward Minerals Ltd (“Reward” or “the Company”; ASX: RWD) is pleased to announce that it has taken an important first step to improve the overall economics of its advanced stage, 100%-owned LD SOP Project. Recently, the Company completed a class-leading Pre-Feasibility Study (“PFS”) on the LD SOP Project, which is located 340 km east of Newman in north-western Western Australia (refer ASX Announcement dated 1 May 2018 entitled “PFS Confirms LD Project as a Globally Significant SOP Project”).

Previously, Reward announced that the PFS was both highly detailed and conservative and that there would be an ongoing focus to improve capital and operating costs as well as the various operating parameters to enhance the Project’s viability.

An immediate focus for the Company was product logistics as transporting SOP from site to Port Hedland and ship loading made up 34.8% of the Project’s estimated total cash operating cost. Further cost optimisation work has resulted in an 18.5% reduction in the product trucking cost, reducing the overall cost of product logistics costs by 15%, with further savings anticipated.

Reward’s CEO Greg Cochran welcomed the first significant improvement to the PFS commenting: “This is a material outcome and an important step towards making the LD Project even more attractive.”

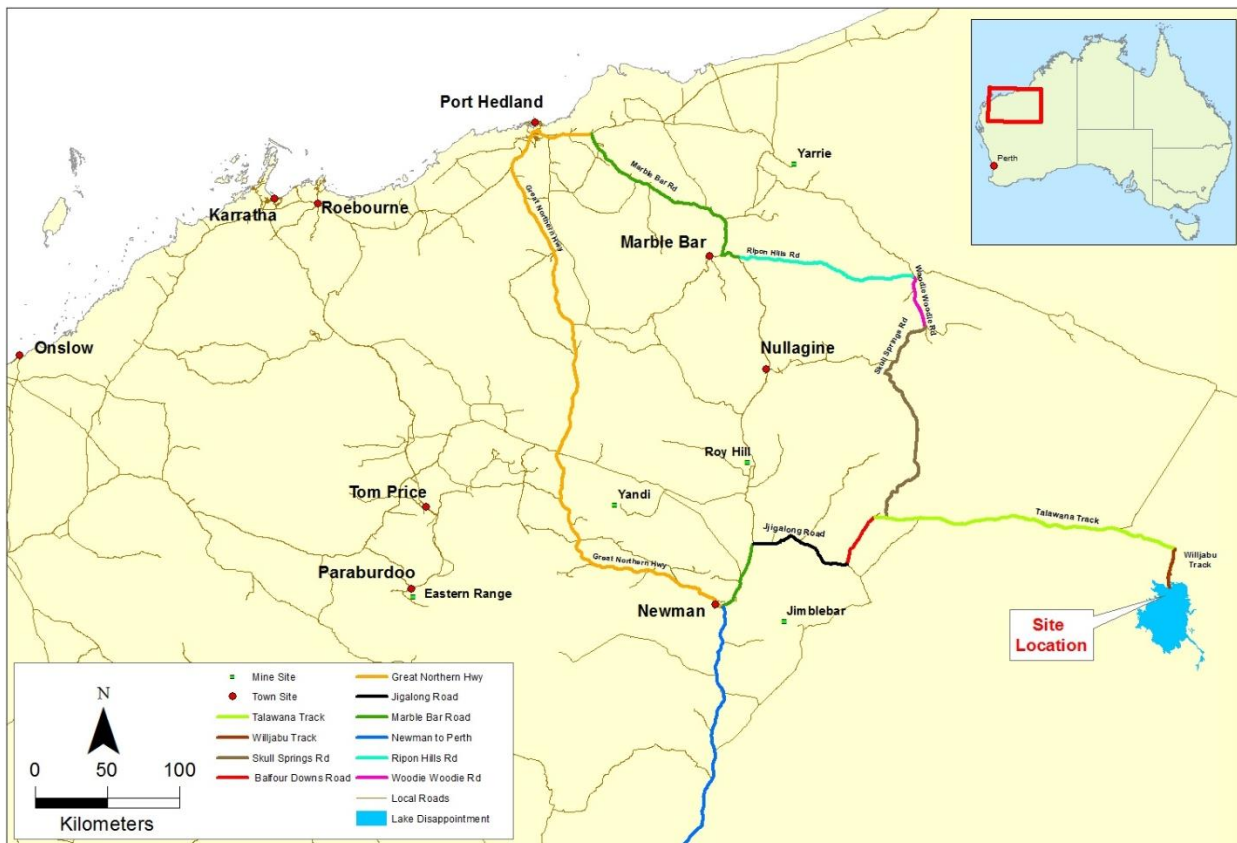
“There are many other opportunities that we are pursuing to ensure that LD’s FOB cash costs reside well within the first quartile of global SOP producers. Importantly, only those opportunities that fit within the PFS’s strict accuracy limits of +/-20% will be incorporated.”

“Whilst we are working on other areas to reduce our costs it is important not to lose sight of the fact that LD benefits from multiple inherent competitive advantages that make the development of a brine operation comparatively low risk. The deposit’s size and consistently high in-situ average grade<sup>2</sup> – the highest in Australia – implies less resource risk, whilst its location provides the industry’s most ideal operating environment with the highest evaporation rate and lowest average rainfall.”

### Improvement in Trucking Costs Explanation

*PFS Product Transportation Cost Assumptions:*

Product transportation costs are made up of two key components, the cost of trucking the SOP product in road trains approximately 850 km from site to a storage shed close to Port Hedland and the re-handle process of loading the product into containers, transporting the containers to the port and discharging into the ship’s hold. The first 355 km of the journey is on the unsealed Willjabu and Talawana Tracks followed by the Jigalong and Balfour Downs Roads. The remaining 511 km is sealed, first to Newman and then along the Great Northern Highway to Port Hedland (Figure 1).



**Figure 1. LD Project – Locality Map**

The logistics solution in the PFS envisaged the use of 95 tonne quad side tipper trucks operating 24 hours a day, equating to approximately 15 trucks leaving site per day at full production. The average one-way trip will typically take a day and therefore a fleet of approximately 30 trucks is estimated. The unit cost of this approach in the PFS was A\$100/tonne SOP.

The trucks deliver the SOP to a 100 m by 30 m storage shed located close to Port Hedland where it is tipped into a bin and feeder, then transfers onto a conveyor and overhead conveyor stacker for storage. SOP will be reclaimed into Qube Rotabox containers by a front-end loader and delivered to the wharf on flatbed trucks at the rate of 14 Rotabox containers per hour with 21 to 25 tonnes of SOP per container. At the wharf the containers are picked up and tipped into the shipping vessel then returned to the storage shed for refilling. In the PFS the cost of the rehandle, through to ship loading (Note 1) was A\$23/tonne SOP, bringing the total cost to A\$123/tonne SOP.

Note 1. The cost of ship loading included all ancillary port-related and ship loading charges:

- Port Hedland wharfage costs
- marine navigation and oil pollution levies
- quarantine pratique and inspections
- pilotage, towage and mooring/unmooring
- lines launch, berthage and tonnage dues
- security and ISPS charges
- port infrastructure/improvement fees
- demurrage allowance

The total FOB cash operating cost from the PFS was A\$353/tonne SOP (on board ship Port Hedland) as summarised in Table 1.

**Table 1. FOB Cash Operating Cost Breakdown**

Operating Cost Category	Unit Cost (A\$/t SOP)	Unit cost (%)
Evaporation Ponds & Harvesting	91	25.8
Process Plant	102	28.9
Product Logistics	123	34.8
Road Maintenance	15	4.3
Site Services/Overheads	22	6.2
<b>Total Unit Operating Cost</b>	<b>353</b>	<b>100</b>

*Product Transportation Cost Improvement.*

Qube Holdings' ("Qube"), a leading provider of integrated logistics solutions, was already responsible for the Project's container transport and ship loading costings and was thus requested to provide an all-inclusive cost estimate from the LD site. Qube was supplied with the critical information which enabled it to provide a +/-15% cost estimate, well within the PFS +/-20% accuracy limits, including the following:

- Production ramp up schedule and projected mine life
- Detailed SOP product specifications (bulk density, size distribution)
- Maximum allowable speeds on the "RAV10" (Restricted Access Vehicle 10) unsealed roads
- Bad weather road closure guidelines – 35-day closure allowance per annum due to possible rain and flooding events, based on the decade-long history Reward has had in operating at site together with the features of the upgraded road design
- Required product quality measures to prevent loss or contamination at all stages of transport and handling
- Delivery destination (the same storage facility as used in the PFS)
- Provision of accommodation, messing, minor maintenance and refuelling provisions at LD

Based on the above (and taking into consideration the information presented in the section below titled: "Additional Information - The "Taming a Monster" Case Study", Qube was able to provide a quote for the trucking component of A\$81.50/tonne SOP, 18.5% lower than the figure used in the PFS. This brought the total product transport cost down to A\$104.50/tonne SOP and reduced the total cash cost from A\$353/tonne to A\$334.50/tonne SOP FOB Port Hedland.

*Impact on Project Economics:*

As stated previously product logistics made up 34.8% of the FOB cash cost in the LD Project PFS thus improvements in this cost area will deliver material benefits. In fact, it was highlighted in the sensitivity section of the PFS Announcement dated 1 May 2018 that a A\$10/tonne reduction in logistics would result in an after-tax NPV improvement of approximately A\$21.7 million. A summary of the Project's revised economics including the new transport cost is presented in Table 2. All other Project parameters used in the PFS remained unchanged.

**Table 2. LD Project – Revised Economics**

Project Financials (Ungeared): Real unless stated	AUD		USD	
	Unit	LOM	Unit	LOM
SOP Spot Price Average (LOM)	USD / t SOP	500	USD / t SOP	500
Exchange Rate (LOM)	AUDUSD	0.75	AUDUSD	0.75
SOP Spot Price Average	AUD / t SOP	666.67	AUD / t SOP	666.67
Initial Capex	AUD M	(450.6)	USD M	(337.9)
Sustaining Capex	AUD M	(68.7)	USD M	(51.6)
Total Capital	AUD M	(519.3)	USD M	(389.5)
FOB Cash Cost (SOP/t basis): Real	AUD / t SOP	335 / t SOP	USD / t SOP	251 / t SOP
All-in-Sustaining Cost (AISC): SOP/t Basis: Real	AUD / t SOP	376 / t SOP	USD / t SOP	282 / t SOP
Cash Cost Margin	%	48.4%	%	48.4%
AISC Margin	%	43.7%	%	43.7%
EBITDA Margin	%	44.6%	%	44.6%
Project NPV (Pre-Tax)	AUD M	517.6	USD M	388.2
Project NPV (Post Tax)	AUD M	292.8	USD M	219.6
Project IRR (Pre-Tax): Real	%	18.8%	%	18.8%
Project IRR (Post Tax): Real	%	14.9%	%	14.9%
Project Payback Period from Production Start	Years	5.7 Yr(s)	Years	5.7 Yr(s)
Discount Rate	%	8.0%	%	8.0%
<b>Per Average Operating Year</b>				
Revenue from Sales of SOP	AUD M	263.7	USD M	197.8
Logistics, Other Offsite Costs / Royalties	AUD M	(54.2)	USD M	(40.6)
Site Operating Expenses (incl Closure)	AUD M	(91.8)	USD M	(68.9)
EBITDA	AUD M	117.7	USD M	88.3

*Additional Information – The “Taming a Monster” Case Study:*

To obtain reliable estimates of the capital cost required to upgrade the existing Talawana and Willjabu Tracks to shire standards Reward commissioned one of the largest drone aerial surveys conducted (at the time). The survey, which covered the 250 km long, 400 m wide corridor encompassing the two tracks, was conducted to the following specifications:

- 3D co-ordinated digital model with data captured in the form of a 1 m x 1 m DSM grid
- positional accuracy of +/-100 mm
- survey controls installed every 5 kilometres
- contoured topographic data included in outputs
- provision of orthomosaic photos to 5 cm resolution over the whole corridor

The survey was completed with drones rather than conventional aerial photography using fixed-wing aircraft although drones also require military-precision planning given the size (100km<sup>2</sup>) and remoteness of the corridor.

The corridor was divided into 2 km flight sections with check points every 20 metres for quality control and each flight covering 1 km in either direction from a central point. Drones captured a total of between 350 and 400 images per 2 km section, achieving the desired ground resolution of 5 cm per pixel, with forward and lateral overlap of 75%. These parameters enabled the survey to achieve maximum accuracy. (Interesting to note the computing power required for this survey – the 350-400 images typically took between one and two hours to process.)

The majority of the points surveyed were typically within +/-50 mm, with some rare spikes at 150 mm to 200 mm. One could argue that terrestrial laser scanning might have achieved more accurate results but would not be able to handle the task due to tree cover in the corridor, and LiDAR would cost considerably more to achieve the same results.

This detailed survey and the subsequent road upgrade design allowed an accurate capital cost estimate to within the PFS confidence limits (+/-20%) and the maintenance requirement over the projected life of mine and ultimately the trucking costs as well.

Examples of the maps generated by the survey are presented in Figures 2 and 3. (Reward also intends to post examples of the “flyovers” on its website, assuming certain current web hosting limitations can be overcome.)



Figure 2. Part of the Willjabu Track Upgrade



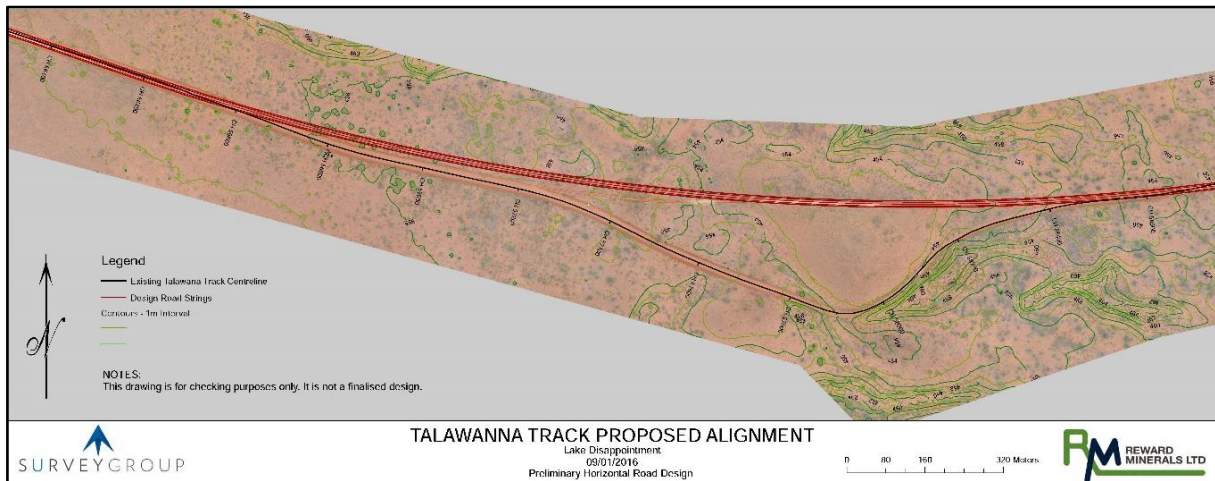


Figure 3. Part of the Talawanna Track Upgrade

### Sensitivity Analysis

A full sensitivity analysis was conducted for the LD Project (measured on the post-tax NPV result) and the results were presented in a graph included in the 1 May 2018 PFS Announcement. Predictably, the Project’s economics were most sensitive to SOP price followed by total operating and then capital cost.

The sensitivity analysis has been updated in the light of the improvement in the cost estimate to truck LD’s SOP product from site to Port Hedland.

The following is a complete list of the variables used in the sensitivity analysis:

- SOP price
- Initial and sustaining capital costs
- Overall operating costs
- Pond operating costs
- Plant, infrastructure and G&A operating costs
- Logistics costs (product freight and handling).

As to be expected, there was no material change in the ranking of the various sensitivity parameters. However, the analysis did once again highlight the impact of different State royalty rate assumptions on the Project’s estimated economic returns.

This issue was addressed to some degree in the LDP SOP Project PFS Announcement but Reward believes the situation warrants further explanation. The fledgling WA SOP industry is applying different State royalty rate assumptions to their various projects as the WA Mining Act and Mining Regulations are open to interpretation on the matter. Whilst Reward adopted a 3.75% ad valorem royalty rate its peers typically used a fixed rate of 73 cents/tonne SOP.

This disparity in approach has been dealt with in more detail in the following section.

*State Royalty Assessment:*

Reward has decided to present two different price sensitivity analyses in this announcement to avoid the confusion that has arisen over State royalties in this sector, one showing an ad valorem royalty and the other, a fixed rate royalty (Tables 3 and 4 respectively). The Martu royalty of 1.25% (levied at mine gate), which is in accordance with Reward's Indigenous Land Use Agreement with the Martu, is also included in the LD financial model.

It is important to note that despite adopting the 3.75% royalty in its modelling Reward remains firmly of the opinion that if an ad valorem rate is applicable to SOP then it should be 2.5% levied at mine gate. After all, the SOP produced would be in a fully refined state and in addition, aspiring SOP producers should not be penalised as a result of the remote location of these projects by paying an ad valorem royalty levied on a FOB basis.

**Table 3. LD Project Sensitivity Analysis**  
**3.75% Ad Valorem Royalty**

Project Financials (Ungeared): Real unless stated	Unit	LOM	LOM	LOM	LOM
SOP Spot Price Average (LOM)	USD / t SOP	450.00	500.00	550.00	600.00
Exchange Rate (LOM)	AUDUSD	0.75	0.75	0.75	0.75
SOP Spot Price Average	AUD / t SOP	600.00	666.67	733.33	800.00
FOB Cash Cost (SOP/t basis): Real	AUD / t SOP	334 / t SOP	335 / t SOP	336 / t SOP	337 / t SOP
All-in-Sustaining Cost (AISC): SOP/t Basis: Real	AUD / t SOP	372 / t SOP	376 / t SOP	379 / t SOP	382 / t SOP
Cash Cost Margin	%	42.8%	48.4%	53.0%	56.8%
AISC Margin	%	38.0%	43.7%	48.3%	52.2%
EBITDA Margin	%	39.0%	44.6%	49.2%	53.0%
Project NPV (Pre-Tax)	AUD M	318.39	517.61	716.84	916.07
Project NPV (Post Tax)	AUD M	153.25	292.83	432.29	571.72
Project IRR (Pre-Tax): Real	%	15.1%	18.8%	22.1%	25.1%
Project IRR (Post Tax): Real	%	11.9%	14.9%	17.6%	20.0%
Project Payback Period from Production Start	Years	6.84 Yr(s)	5.69 Yr(s)	4.91 Yr(s)	4.36 Yr(s)

**Table 4. LD Project Sensitivity Analysis**  
**A\$0.73/tonne Fixed Rate Royalty**

Project Financials (Ungeared): Real unless stated	Unit	LOM	LOM	LOM	LOM
SOP Spot Price Average (LOM)	USD / t SOP	450.00	500.00	550.00	600.00
Exchange Rate (LOM)	AUDUSD	0.75	0.75	0.75	0.75
SOP Spot Price Average	AUD / t SOP	600.00	666.67	733.33	800.00
FOB Cash Cost (SOP/t basis): Real	AUD / t SOP	334 / t SOP	335 / t SOP	336 / t SOP	337 / t SOP
All-in-Sustaining Cost (AISC): SOP/t Basis: Real	AUD / t SOP	350 / t SOP	351 / t SOP	352 / t SOP	353 / t SOP
Cash Cost Margin	%	42.8%	48.4%	53.0%	56.8%
AISC Margin	%	41.6%	47.3%	52.0%	55.9%
EBITDA Margin	%	42.7%	48.3%	52.9%	56.7%
Project NPV (Pre-Tax)	AUD M	387.35	594.44	801.53	1,008.62
Project NPV (Post Tax)	AUD M	201.59	346.62	491.56	636.46
Project IRR (Pre-Tax): Real	%	16.5%	20.1%	23.4%	26.5%
Project IRR (Post Tax): Real	%	12.9%	15.9%	18.6%	21.1%
Project Payback Period from Production Start	Years	6.38 Yr(s)	5.35 Yr(s)	4.66 Yr(s)	4.16 Yr(s)

### Potential for Further Improvement:

Reward identified numerous opportunities to reduce the LD Project's cost structure in the PFS. Some of these are re-iterated below (whilst others not mentioned but previously listed still remain valid). Additionally, there is scope to improve the project operationally and two of these opportunities have been addressed below.

#### *Logistics*

Reward is of the opinion that another round of competitive tenders at the time of the Definitive Feasibility Study may well bring further cost improvements to the trucking component of the product logistics costs. There is also scope to improve the port handling costs and alternatives are currently being assessed.

#### *Crude Potash and Halite Harvesting*

The Company is working with various consultants on the design and costing of an effective crude potash wet harvesting system. Scale of duty and cutter head design have been advanced and Reward is assessing tenders for dredge design and product handling solutions up to the battery limit of the plant stockpile.

#### *Potential Operational Improvements*

As was highlighted in the LD Project PFS Announcement made on 1 May 2018 and subsequently in various Company presentations, Reward's operational assumptions for the PFS were conservative, particularly in two key areas – recovered grade and flow rates.

In the shallow sections of LD's compliant resource, the deposit grade is estimated at 13.4 kg/m<sup>3</sup> SOP (the highest average in-situ grade in Australia). Reward has abstracted millions of litres of brine from its trial trenches on the surface of the playa over the years and has consistently experienced grades of 12 kg/m<sup>3</sup> to 13 kg/m<sup>3</sup> SOP. Despite these reliable and outstanding results an abstracted grade of 10 kg/m<sup>3</sup> SOP was used as the average grade over the ~22-year productive life of the operation in the PFS.

Reward believes that there is a high likelihood that the average abstracted grade will be in excess of 12 kg/m<sup>3</sup> SOP, meaning that either less brine needs to be pumped for the same output, or alternatively production can be increased by approximately 20%. Such an increase would require incrementally higher capital for the plant and other ancillaries but no changes to the trenching and evaporation pond layout. The next phase of hydrological modelling should enable the Company to demonstrate this thesis.

Increased output achieved with incrementally higher capital will have a marked positive impact on unit costs, margins and therefore overall project returns.

In addition to grade it is possible that the assumed trench flow rates are also conservative, though this remains unquantified until the next phase of hydrological modelling. Once again higher flow rates could enable a higher production rate or a reduction in the length of trenches required to generate the same output. (Trench length is however not a key driver of capital and operating costs for the LD Project.)



### Next Steps:

Reward will continue to improve the economics of the LD brine SOP Project by focusing on the opportunities it has identified to reduce costs and improve the operations. Additionally, the Company will complete a resource upgrade (together with more sophisticated hydrological modelling), continue the work it is conducting at site (trench abstraction tests and evaporation pond trials) as well as on further process optimisation. Reward believes that its ongoing research and development activities will enhance the process flowsheet and possibly also allow the production of alternative value-add by-products.

*For further information please contact:*

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### Notes

1. Please refer to the assumptions, sensitivities, risk factors and cautionary statements disclosed respectively in Table 2 (pages 4-6), Table 3 (pages 7-8) and on pages 12 and 13 of Reward's ASX release dated 1 May 2018 entitled "PFS confirms LD Project as a globally significant SOP Project, as well the details included in the PFS Executive Summary appended thereto, which may adversely impact upon the information and forecasts in this announcement.

Apart from the improvement in trucking cost presented in this release all other material assumptions and technical parameters underpinning the PFS continue to apply and have not materially changed. The Company confirms that the form and context in which the results of the PFS were presented in the original ASX announcement have not been materially modified.

2. 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.

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### Competent Persons 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 Australasian 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 report that relates to Brine and Sediment Assays and Analyses is based on information compiled by Dr Geoff Browne, of SBL Browne Pty Ltd, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. SBL Browne Pty Ltd provides consulting services to Reward Minerals. Dr 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'. Dr Browne consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## About Reward

Reward Minerals Ltd (Reward) is a potash-focussed exploration and development company listed on the Australian Securities Exchange (ASX Code: RWD) with a portfolio of advanced exploration projects in Australia hosting significant sulphate of potassium (SOP) resources. The Company's tenements cover approximately 10,000 km<sup>2</sup> containing a series of highly prospective playa-style lakes and palaeovalleys known to host substantial volumes of high density potassium rich brines.

Reward's flagship project is its **100% owned LD SOP Project**, located 340 km east of Newman in the Little Sandy Desert of north-western Western Australia. The LD Project consists of a tenement package that covers over 3,000 km<sup>2</sup> which hosts an Indicated and Inferred *extractable* Mineral Resource of 153 Mt of SOP grading approximately 11.3 kg/m<sup>3</sup> of SOP brine in sediments from surface to a depth of approximately 90 m. The Project has a registered Indigenous Land Use Agreement with the Martu people, the traditional owners of the land, as well as a granted Mining Lease and associated Miscellaneous Licence. A Pre-Feasibility Study for the LD Project was completed at the end April 2018 and the Project's Environmental Impact Assessment is under adjudication by the EPA.

## Board and Executive

### Board

**Chairman:** Colin McCavana

**Executive Director:** Michael Ruane

**Non-Executive Director:** Rod Della Vedova

### Senior Management

**Chief Executive Officer:** Greg Cochran

**Projects Director:** Daniel Tenardi

**Company Secretary:** Bianca Taveira

See website at: [www.rewardminerals.com](http://www.rewardminerals.com)

