

# QUARTERLY REPORT FOR THE PERIOD ENDING 30 SEPTEMBER 2017

### 27 October 2017

ASX CODE RWD

SHARE PRICE \$0.20

**SHARES ON ISSUE** 135,760,396

MARKET CAPITALISATION \$27.15M (undiluted)

#### **DIRECTORS & MANAGEMENT**

Colin McCavana Chairman

Michael Ruane

Managing Director

Rod Della Vedova

Non-Executive Director

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Projects Director

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## **KEY PROJECT**

Lake Disappointment Project

## **HEAD OFFICE**

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# **Highlights**

- Sustainable process water resource of suitable quality for a full-scale LD SOP operation has been confirmed.
- Hydrological Impact Assessment reports for the abstraction of 3.4 Gl/annum from the Process Water Borefields have been submitted to the Department of Water and Environmental Regulation (DWER) for approval.
- A Hydrological Impact Assessment report has also been lodged with the DWER for a Licence to extract 63 Gl/annum of brine from LD for SOP recovery operations.
- Seepage and evaporation trials have commenced on two new, recently completed pilot evaporation ponds on LD.
- Long term brine extraction trials for Resource Model calibration and trench design are underway on two 1km long x 2.5 metre deep trenches on LD.
- Environmental Submission documentation nearing completion.

## Corporate

Reward incurred expenditure of \$1.35 million during the quarter. Cash on hand at the end of the period was approximately \$3.35 million.

## **LD SOP Project**

Activities during the period focussed on Environmental Approval submissions, DWER licencing applications, pilot evaporation pond construction and brine trenching and testing at LD.

## Resource Model Development - Brine Trench Design

The current mineral resource estimate for the LD SOP Project was updated at the beginning of 2017, confirming LD's status as a global Tier 1 SOP resource. Key elements of the indicated and inferred resource, which was reported in a Reward ASX release dated 7 February 2017, include:

- a Drainable (extractable) Resource of 153 Mt of SOP in LD brine averaging 11.35 kg SOP/m³ of brine; and
- a shallow (0-6 metres) Drainable Resource of 7.48 Mt SOP in brine grading 13.4 kg SOP/m³ brine recoverable by surface trenching.

The development plan for the Project assumes that brine will be abstracted from shallow trenches on the playa for at least the first 10 years of operation. To enhance the hydrogeological model and ensure good calibration of the brine drawdown characteristics it was decided to conduct a number of variable rate flow tests over a period of three months.

To this end two 1km long trenches approximately 450 metres apart were constructed on LD during the quarter (Figures 1 and 2) and the first test, to pump for a continuous 33-day period at various flow rates from Trench 1, commenced on 13 September. To date close to 20 million litres<sup>(1)</sup> of brine has been pumped at rates up to 8 l/s with a 0.2m drawdown observed in the trench and negligible drawdown observed in the lake bed beyond 10 metres from the trench edge; in effect the test has reached steady state. The flow rate will be more than doubled to "stress" the system and assess drawdown under those conditions. The results to date have provided valuable information on the hydraulic conductivity of the playa as well as providing sound calibration for the current resource model.

Figure 1 Brine Extraction Trenches on LD



Figure 2 Brine Extraction Trench - Close up, September 2017



Following a short period of recovery the final test will commence and both trenches will be pumped simultaneously at a flow rate of up to 15L/s each. This test will provide information on the superposition effect on the drawdown between the two trenches and provide essential data on brine trench length and spacing parameters for abstraction of the project's annual brine requirement. It is anticipated that in excess of 100 million litres<sup>(2)</sup> of brine will have been pumped from these two surface trenches by the time the test concludes<sup>(3)</sup>.

#### Notes:

- 1. As reported in the December 2016 quarterly Reward previously excavated 16 trenches of varying widths and lengths to test surface brine supply flow rates and resulting cones of depression. In this first test excellent average flow rates of 159m³ per hour per kilometre of trench were achieved and the cones of depression were typically 50 m either side of any given trench. It was estimated that approximately 45 million litres of brine was pumped from these trenches during that particular test.
- 2. These volumes exclude the substantial amounts of brine that Reward has historically pumped to complete its extensive metallurgical testwork programmes and its trial evaporation ponds.
- 3. Reward has a unique operating advantage at LD in that it can rely on cost effective trench brine supply for at least the first ten years of operation. Whilst it has pumped significant quantities of brine from various wells on LD for hydrogeological, resource modelling and assessment purposes there has been no need to accumulate volume statistics from these potential longer-term sources at this stage of the project.

## Pilot Evaporation Ponds - Seepage and Evaporation Trials

During the reporting period the Company completed the construction of two 50 x 40m pilot evaporation ponds designed for further evaporation and seepage trials.

Pond 1 has been flooded with brine and seepage and evaporation monitoring has commenced (Figures 3 and 4).

Use of Pond 2 (Figure 4) will rely on the outcome of seepage data from Pond 1; i.e. whether or not membrane lining or other measures will be required to achieve acceptable seepage parameters in the evaporation ponds. Clearly, on-lake evaporation ponds offer the distinct advantage of not triggering environmental concerns that would cause operational stoppages should vertical seepage occur.

Whilst the pond area is underlain by a dense clay layer at 0.8 to1 metre below surface isolated vertical seepage vents may exist which would contribute to significant seepage losses if not addressed, resulting in lower recoveries and higher operating costs. Once the seepage issue is addressed, the pilot ponds will be used to generate a significant quantity of Potash Salts for SOP recovery tests to further enhance confidence in the proposed flowsheet design and current mass balance assumptions.

Figure 3 LD Pilot Evaporation Ponds – September 2017



Figure 4 LD Pilot Evaporation Ponds – September 2017



## **Project Process Water Supply**

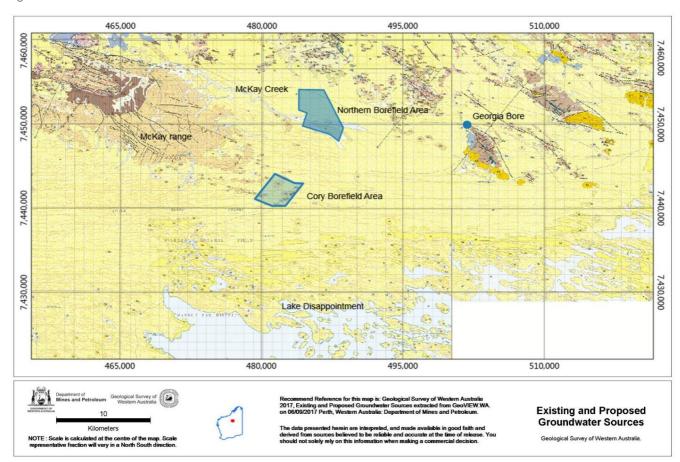
The LD Project scoping study indicated that a process water supply of up to 3.4 Gl/annum would be required to produce 400,000 tonnes per annum of SOP. Exploration for this process water supply commenced in mid-2016 and two prospective areas to the north of LD were identified. These were subsequently named the Cory Borefield and the Northern Borefield, some 16km and 29km north respectively of the planned location of the LD process plant (Figure 5).

Drilling and test pumping continued in both prospect areas until the end of June 2017. The exploration programme demonstrated that a sustainable yield of good quality process water (<3,000 mg/l TDS) was available from the two bore fields, specifically:

- 1.5 Gl/annum from the Cory Borefield, and
- 2 Gl/annum from the Northern Borefield.

As a result of the successful programme H2 level Hydrogeological Impact Assessment reports were completed by Reward's independent hydrogeologist and Licence application documents for the two borefields were submitted to DWER for approval in September 2017.

Figure 5 Relative Location of the Process Water Borefields in relation to LD







## Groundwater Licence Application – Brine Extraction

During the quarter the hydrogeological assessment required for a groundwater licence to abstract up to 63 Gl/annum of brine from LD was completed. This work, which included the development of a sophisticated numerical model to understand the impact of abstracting the required amount of brine from LD, incorporated all the previous results from the drilling and test work conducted over the years.

The assessment and modelling was conducted in accordance with the Department of Water Operation Policy 5.12 (Department of Water, 2009) and provided a comprehensive understanding of the playa resource.

The numerical model was developed by Reward's independent hydrogeological consultant Global Groundwater and was based on the conceptual hydrogeological model originally developed by Strategic Water Management and Global Groundwater using previously reported hydraulic parameters.

The output from the model (Figure 7, page 8) demonstrated that after 10 years of pumping drawdown would likely be in the order of 0.3m at the edge of the lake, assuming zero recharge over the period. When recharge is taken into account drawdown was estimated to be less than the annual fluctuation in brine levels due to rainfall events.

The successful completion of the model enabled Reward to lodge the required H3 level Assessment Report with DWER and to apply for a licence to extract 63 Gl/annum of brine from LD.

The lodgement of this assessment is also a pre-requisite to the submission of the LD Environmental Scoping Document to the Environmental Protection Authority (EPA) for LD Project environmental approval.

## On Lake Well Pumping

While LD's SOP operations will be based on shallow trench brine supply for the foreseeable future, a substantial portion of the Company's longer-term resource base is contained in sediments below the reach of the shallow trench system. LD's JORC-compliant Indicated and Inferred Drainable SOP resource estimate is primarily based on brine extraction from LD sediment (cores) under industry accepted laboratory techniques. The current trench test work programme will improve the level of definition of the resource estimate; however for the longer-term resource the drainability of brine from LD sediments requires pump tests from (cased) wells located on the playa. The tests will determine the aquifer characteristics of the playa sediments and the sustainable pumping rates from the bores.

Reward completed four 200mm cased wells late in 2016 but was unable to test pump these due to a rare, serious flooding event at LD in January 2017. The program was recently resumed with the first stage airlift pumping of wells LDBH1601-1604 commencing in September. The airlift program will clean out and develop the wells and provide an indication of potential yields. The equipment used is shown in Figure 8. The program is due for completion in the current quarter and will be followed by pumping trials using variable speed electric submersible pumps. It is expected that these will provide a reasonable assessment of brine extraction rates from the respective wells over a substantial area across LD.

## Project Environmental Approval Submissions

The Environmental Scoping Document for the LD SOP Project is in the final stages of preparation. Reviews of the various technical reports required to accompany the submission are reaching conclusion and the summary report is being drafted. The Company expects to make its submission to the EPA during the present quarter.

## Project Prefeasibility Study (PFS)

The PFS for the LD Project was delayed due to a change in engineering contractor and the finalisation of the pilot evaporation pond seepage trials currently in progress.

Finalisation of the evaporation pond construction techniques and pond performance parameters are required for more accurate costing of the pond system which is a major cost centre for the LD Project.

A number of construction techniques have been tested or remain under assessment. Results are expected to be available during this quarter to inform the PFS. In the meantime, the remaining PFS design, schedule and cost estimates are being reviewed prior to finalisation.

Figure 7 Geohydrological numerical model output - 10 Years of brine abstraction with zero recharge





Global Groundwater Ref \\\1257g\\Maps\Model3650DaysK250.WOR (Drawn R. Nixon 15 Mar 1

## 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 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 report that relates to Metallurgical Flowsheet Design and Analyses is based on information compiled by Dr Geoff Browne, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Dr Browne is a consultant to Reward Minerals Ltd. Dr Browne has sufficient experience that is relevant 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.

Michael Ruane Director on behalf of the Board

# Tenement Holdings as at 30 September 2017

Tenement	Status	RWD Ownership at Quarter End	% Interest Acquired During the Quarter	% Interest Disposed During the Quarter
Lake Disappointment, Western Australia				
E45/2801	Granted	100%	-	-
E45/2802	Granted	100%	-	-
E45/2803	Granted	100%	-	-
E45/3285	Granted	100%	-	-
E45/3286	Granted	100%	-	-
E45/4090	Granted	100%	-	-
E45/4121	Granted	100%	-	-
E69/2156	Granted	100%	-	-
E69/2157	Granted	100%	-	-
E69/2158	Granted	100%	-	-
E69/2159	Granted	100%	-	-
E69/2902	Granted	0%	-	100%
E69/3275	Granted	100%	-	-
E69/3276	Granted	100%	-	-
E69/3277	Granted	0%	-	100%
L45/302	Granted	100%	-	-
M45/1227	Granted	100%	-	-
LA46/128	Application	100%	-	-
Dora West, Western Australia				
E45/3246	Granted	100%	-	-
E45/4292	Granted	100%	-	-
ELA45/4321	Application	100%	-	-
ELA45/4488	Application	100%	-	-