



## **ASX/TSX ANNOUNCEMENT**

*Quarterly Report of Operations for the  
Period Ended 31 December 2018*



*The only ASX listed company producing high grade, high value  
lithium chemicals for global battery and technical markets*

# DECEMBER QUARTER 2018 KEY HIGHLIGHTS<sup>1</sup>

## OLAROS LITHIUM FACILITY (ORE 66.5%)<sup>2</sup>

### December quarter

- Production was up 65% quarter on quarter (QoQ) to 3,782 tonnes of lithium carbonate, the second best quarter of production at Olaroz achieved to date with sales up 41% to 3,019 tonnes. Quarterly sales revenue was US\$32 million, down 20% on the previous corresponding period (PCP) with a realised average price achieved of US\$10,587/tonne on a free on board basis (FOB)<sup>3</sup>
- Cash costs for the quarter (on cost of goods sold basis)<sup>4</sup> were US\$3,974/tonne, down 14% QoQ and marginally up on PCP excluding the recently announced export tax of US\$882/t
- Gross cash margins (excluding export tax) of US\$6,613/tonne were down 34% QoQ and down 13% on PCP due to the lower average price received
- Orocobre signed three pivotal agreements with joint venture partner Toyota Tsusho Corporation (TTC) - a new Olaroz Shareholders Agreement, Sales and Marketing Agreement and Orocobre Management Agreement (for management of the Olaroz Joint Venture).

## LITHIUM GROWTH PROJECTS

- Orocobre, TTC and JV boards have given approval to the Final Investment Decision (FID) for the Stage 2 Expansion of the Olaroz Lithium Facility. The Stage 2 Expansion will increase lithium carbonate production capacity by approximately 25,000 tonnes per annum (tpa) bringing total Olaroz production capacity to approximately 42,500 tpa. Stage 2 will produce technical grade (>99.0% Li<sub>2</sub>CO<sub>3</sub>) lithium carbonate, part of which will be utilised as feedstock for the proposed Naraha Lithium Hydroxide Plant to be built in Japan
- Construction of key items for the Stage 2 Expansion such as ponds, roads and camp upgrades commenced in Q4 FY18 and is advancing
- Negotiations on the EPC contract for the proposed Naraha Lithium Hydroxide Plant are advancing rapidly between TTC as operator and Veolia the preferred EPC contractor. Several key issues remain outstanding including capital expenditure revision, operation cost revision, final construction schedule and final EPC terms. The EPC contract and FID is expected to be finalised during this quarter with commissioning of the plant expected in 2H CY20.

## BORAX ARGENTINA

- Overall sales volume in the December quarter was up 14% on the September quarter to 10,741 tonnes with sales revenue up by a slightly lower amount as the average price per tonne achieved was marginally below the September quarter due to a change in sales/product mix
- Market conditions have not changed significantly over the quarter
- The Tincalayu Expansion Project feasibility study is under internal review.

<sup>1</sup> All figures presented in this report are unaudited

<sup>2</sup> All figures 100% Olaroz Project basis

<sup>3</sup> Orocobre report price as "FOB" (Free On Board) which excludes additional insurance and freight charges included in "CIF" (Cost, Insurance and Freight or delivered to destination port) pricing. The key difference between an FOB and CIF agreement is the point at which responsibility and liability transfer from seller to buyer. The Company's pricing is also net of TTC commissions but excludes export taxes. FOB prices are used by the company to provide clarity on the sales revenue that flows back to SDJ, the joint venture company in Argentina

<sup>4</sup> Excludes royalties, export tax and corporate costs

<sup>5</sup> September 2018 quarter export taxes are calculated only over the period for which the tax applied



## CORPORATE

- Orocobre corporate had available cash of US\$284 million after expenditure mainly related to expansion activities, Naraha Lithium Hydroxide Plant basic engineering, corporate expenses and Cauchari JV expenditure being partially offset by interest income. Including SDJ and Borax cash and project debt, net group cash is US\$216.7 million
- Mr Martín Pérez de Solay will formally commence his duties as Managing Director and Chief Executive Officer (CEO) on 18 January 2018 following the retirement of Richard Seville from the position. Richard Seville will continue with Orocobre as a non-executive Director
- The Orocobre 2018 Annual General Meeting was held on Friday 23 November with all resolutions successfully passed as ordinary resolutions following a poll at the meeting.



*Orocobre Limited 2018 Annual General Meeting*

## CAUCHARI JOINT VENTURE

### **(ADVANTAGE LITHIUM OPERATOR 75% / OROCOBRE 25%)**

- During the December quarter the joint venture partners released a Phase 3 drilling program update regarding the completion of brine sampling of diamond core holes CAU28, CAU29 in the NW Sector and CAU19, CAU22, CAU25 and CAU27 in the SE Sector of the Cauchari JV property. The Phase 3 infill drilling and resource conversion program aims to deliver an estimate of Measured and Indicated Resources during this quarter
- GHD was selected as the successful engineering firm to undertake a Feasibility Study for all aspects of the Cauchari project. The Feasibility Study will provide an appropriate engineering design to produce a Class 3 cost estimate consistent with American Association of Cost Engineers (AACE) principles to build a standalone lithium plant producing 20 thousand tonnes per annum (ktpa) of Lithium Carbonate Equivalent
- The Feasibility Study is planned for completion in Q2 CY19.

# OLAROS LITHIUM FACILITY

[Click here for more information on Olaroz](#)

The Olaroz Lithium Facility is located in the Jujuy province of Argentina. Together with partners, TTC and Jujuy Energia y Minería Sociedad del Estado (JEMSE), Orocobre is now operating the first large scale brine-based lithium chemicals facility to be commissioned in approximately 20 years.

Olaroz produces high quality lithium carbonate chemicals for both the battery and industrial markets. It is the only brine-based operation in the world with an integrated purification circuit.

The Olaroz Lithium Facility joint venture is operated through Argentine subsidiary Sales de Jujuy S.A. (SDJ). The effective equity interests are: Orocobre 66.5%, TTC 25.0% and JEMSE 8.5%.

## PRODUCTION, SALES AND OPERATIONAL UPDATE

### PRODUCTION AND SALES

Production for the December quarter was the second highest achieved to date at 3,782 tonnes, up 65% from 2,293 tonnes in the September quarter. When compared to the same period in 2017, production is down 4% however this is principally due to restraining production to build up brine depths in the last three ponds in the system that provide feedstock to the plant. This will reduce exposure to rain events during the summer period.

Sales were 3,019 tonnes of lithium carbonate with a realised average price of US\$10,587/tonne on a FOB basis and total sales revenue of US\$32 million. Operating costs (on a cost of goods sold basis, excluding export tax) were US\$3,974/tonne down 14% QoQ and marginally higher than the December 2017 quarter.

Costs were positively impacted with lower consumption rates of reagents and increased production rates which more than offset an increase in ARS denominated costs as the peso strengthened during the quarter.

December quarter product pricing was below that of the September quarter due to soft market conditions in China having a direct impact on shorter term contracts in China including lithium hydroxide manufacturers. There was also an indirect impact due to a number of customers outside China with downstream exposure to the Chinese market experiencing market/commercial pressure.

Under new joint marketing arrangements between TTC and Orocobre it is intended to increase the proportion of long-term contract arrangements. Market development activities in 2019 will focus on the supply to additional battery customers and high value industrial markets with the objective of minimising sales to lithium hydroxide manufacturers.

Gross cash margins (excluding export tax) of 62% for the quarter were US\$6,613/tonne, down 34% QoQ and 13% PCP.

Metric	December quarter 2018	September quarter 2018	Change QoQ (%)	PCP (Dec. FY17)	Change PCP (%)
Production (tonnes)	3,782	2,293	65%	3,937	-4%
Sales (tonnes)	3,019	2,144	41%	3,460	-13%
Average price received (US\$/tonne) <sup>3</sup>	10,587	14,699	-28%	11,550	-8%
Cost of sales (US\$/tonne) <sup>4</sup>	3,974	4,640	-14%	3,946	1%
Revenue (US\$M)	32	32	1%	40	-20%
Gross cash margin (US\$/tonne)	6,613	10,059	-34%	7,604	-13%
Gross cash margin (%)	62%	68%	-9%	66%	-3%
Export tax (US\$/tonne) <sup>5</sup>	882	89			

## OPERATIONAL UPDATE

Production in the December quarter increased with higher seasonal evaporation rates. Inventory build in harvest ponds continued with the construction of more harvest and evaporation ponds which will support production through lower evaporation rate periods during winter.

Salt harvesting from harvestable ponds (the final eight ponds in the system) continued during the December quarter. Five of the eight harvest ponds have now been cleared of harvestable salts, two are being harvested and one will be completed next winter. The construction of additional pond area negated any potential negative impact from the salt harvesting.

The harvesting process occurs approximately every three years and involves the removal of the majority of salt which has precipitated through the evaporation process.

## CARBON DIOXIDE RECOVERY

Carbon dioxide is used at the Olaroz Lithium Facility in the production of battery grade lithium carbonate. It is currently sourced from near Buenos Aires, Cordoba and Mendoza (transported up to 1,800 kilometres by truck), making it a significant component of total reagent costs.

A carbon dioxide recovery circuit built by ASCO has now been installed and successfully commissioned. Total CO<sub>2</sub> recovery is estimated at 55%, above initial study estimates of 50%. Capital expenditure on this project was less than US\$2 million.

## FUTURE PRODUCTION AND GUIDANCE

As previously stated ([see ASX June Quarter Report dated 31 July 2018](#)), Orocobre expects full year production (FY19) will be higher than that achieved in FY18.

## FINAL INVESTMENT DECISION FOR GROWTH PROJECTS

Orocobre, TTC and JV boards have given approval to the FID for the Stage 2 Expansion of the Olaroz Lithium Facility. The Stage 2 Expansion will increase lithium carbonate production capacity by approximately 25,000 tpa bringing total Olaroz production capacity to approximately 42,500 tpa. Stage 2 will produce technical grade (>99.0% Li<sub>2</sub>CO<sub>3</sub>) lithium carbonate, part of which will be utilised as feedstock for the proposed Naraha Lithium Hydroxide Plant to be built in Japan.

Negotiations on the EPC contract for the proposed Naraha Lithium Hydroxide Plant are advancing rapidly between TTC as operator and Veolia the preferred EPC contractor. Several key issues remain outstanding including capital expenditure revision, operation cost revision, final construction schedule and final EPC terms. The EPC contract and FID is expected to be finalised during this quarter with commissioning of the plant expected in 2H CY20.

## STAGE 2 EXPANSION AT OLAROZ

The Stage 2 Expansion of Olaroz is fully funded with cash and proposed debt funding arrangements.

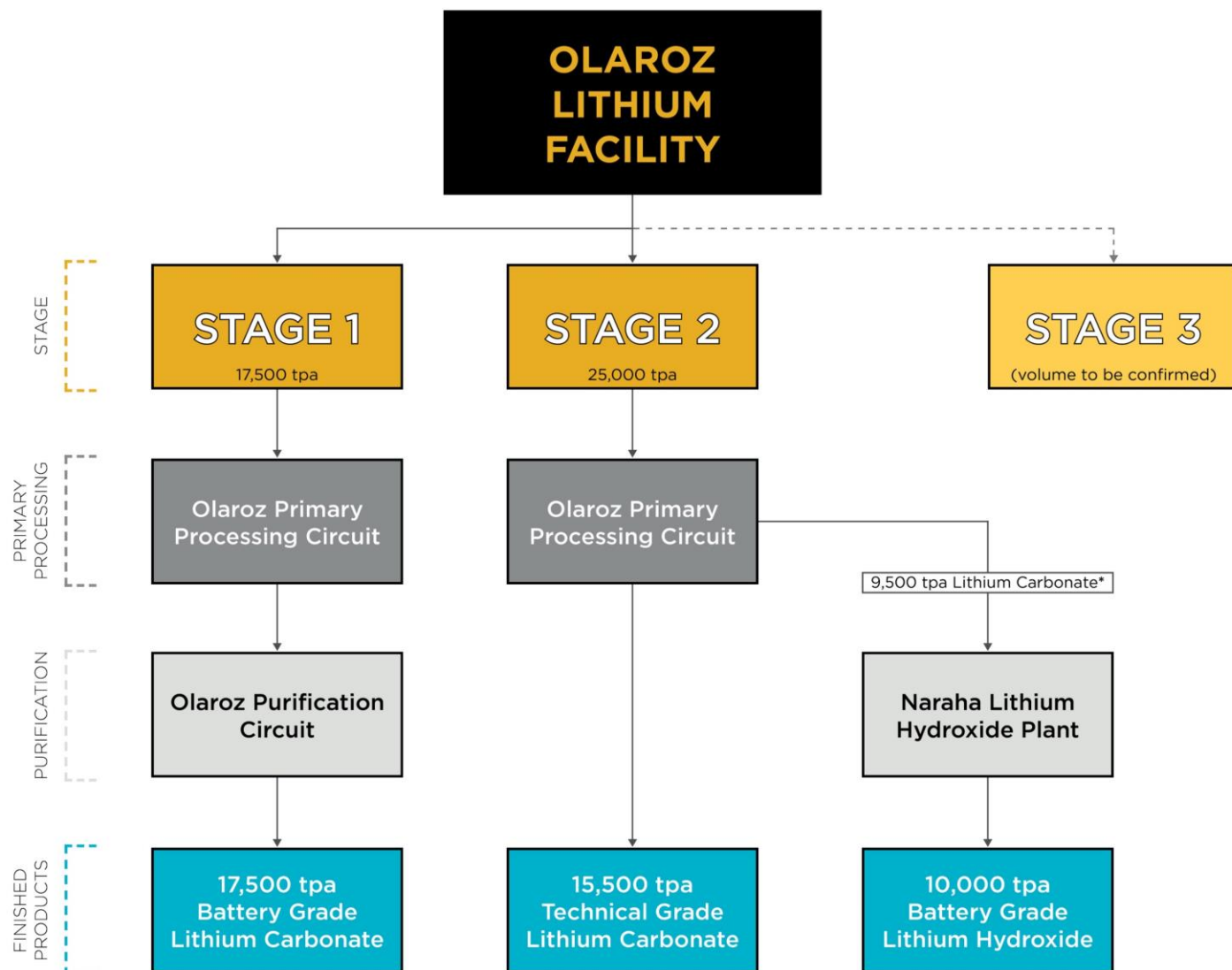
## PROGRESS TO DATE

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Construction of key items for the Stage 2 Expansion such as production boreholes, secondary liming plant, ponds, roads and camp upgrades commenced in Q4 FY18. The revised total capital expenditure for Stage 2 is expected to be US\$295 million including a US\$25 million contingency. This estimate excludes the proposed crystalliser/evaporator project which would operate for both Stage 1 and Stage 2 on which studies are currently being undertaken. The expected cost of this project is approximately US\$15 million and will be subject to normal joint venture capital approval processes.

Upon achievement of full production rates, the product distribution post Stage 2 is expected to be:

1. 17,500 tpa of battery grade lithium carbonate
2. 9,500 tpa of technical grade lithium carbonate as feedstock for 10,000 tpa battery grade LiOH production at Naraha Lithium Hydroxide Plant
3. 15,500 tpa of technical grade lithium carbonate



\* 9,500 tpa of Lithium Carbonate will convert to 10,000 tpa Lithium Hydroxide

#### Orocobre's proposed production profile

As at 31 December US\$19 million has been spent on the first phase of expansion activities including the construction of new roads, vegetation clearing, construction of new evaporation and harvest ponds, secondary liming plant, eight boreholes and the expansion of existing site infrastructure and camp accommodation. New camp accommodation facilities, capable of housing 100 beds and new catering facilities are currently under construction and are expected to be completed in Q3 FY19.

Five new harvest ponds (17A, 17B, 18A, 18B & 16B) have been completed and are being filled with concentrated brine, replacing pond area that is temporarily unavailable due to salt harvesting activities as discussed earlier. Two new evaporation ponds (15A & 15B) were also completed during the December quarter. Vegetation clearing and construction of two new evaporation ponds has commenced (14C & 20A). A further three harvest ponds, brine reservoir storage pond (TK 1100) and brine transfer ducts are currently under construction.

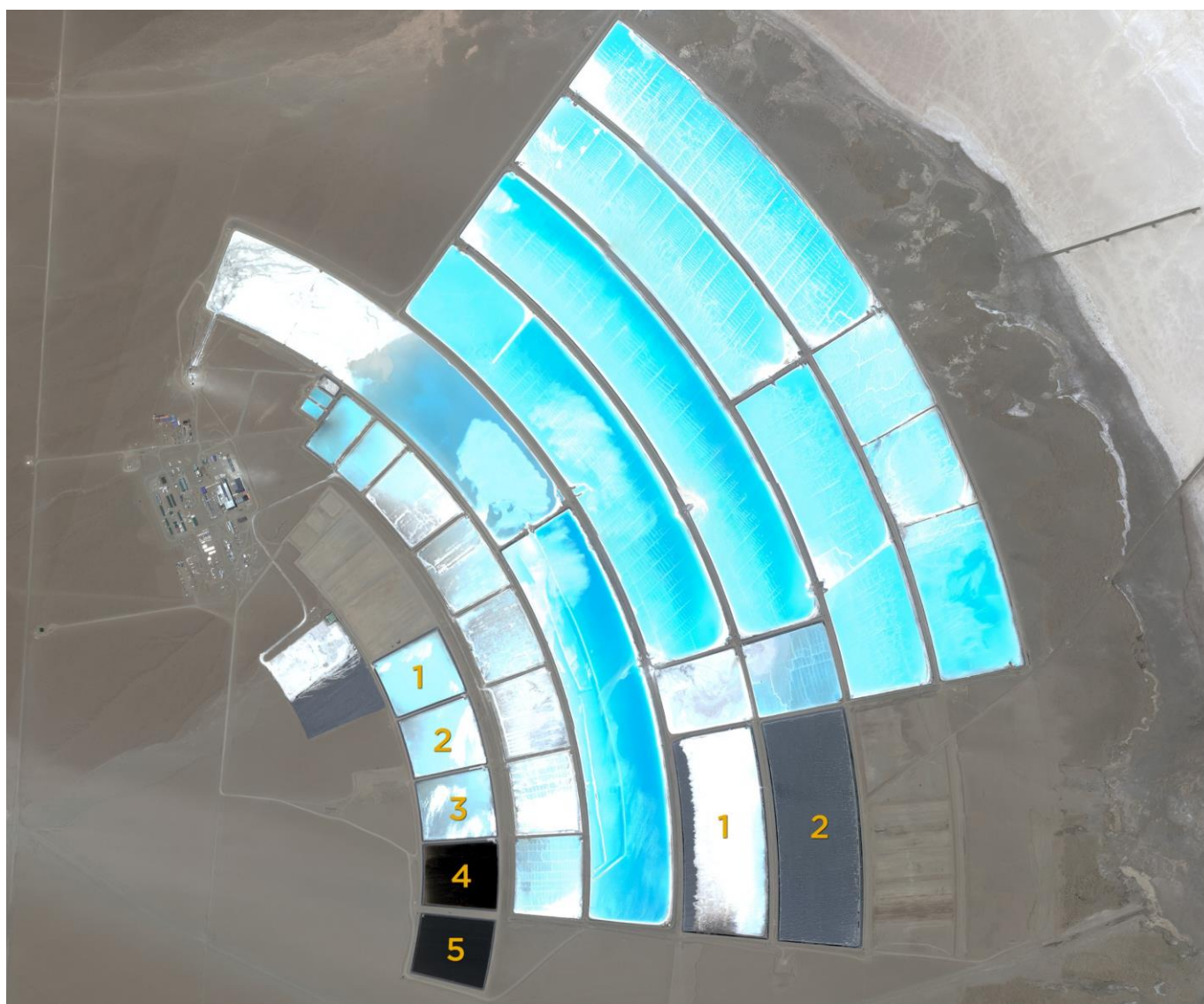


During the quarter construction of a new reactor began at the existing primary liming plant. This reactor will enable the primary liming plant to process a higher flow rate of brine before the Stage 2 liming plant is built permitting brine stocks to be increased and facilitating the rapid filling of Stage 2 ponds, as well as a mobile secondary liming plant that would be installed by late February.

Construction of major equipment for the Stage 2 primary liming plant commenced during the quarter and is progressing well with key items being awarded to a local companies. The Stage 2 liming plant is expected to be completed in Q3 FY19.

**Key project milestones include:**

Milestone	Timing (CY)
Final joint venture approvals	2H 2018
Drilling of wells	2018 – 1H 2019
Construction of ponds	2H 2018 – 2H 2019
Construction of lithium carbonate plant	1H 2019 – 1H 2020
Plant commissioning	2H 2020



*Five new harvest ponds and two new evaporation ponds are now operational at Olaroz*

# NARAH A LITHIUM HYDROXIDE PLANT

## SCOPE

Orocobre and TTC plan to build a 10,000 tpa lithium hydroxide plant in Naraha, Japan. The proposed location is well situated near potential customers which reduces the common risks of caking and degradation of quality when lithium hydroxide is transported and exposed to humidity.

The process will utilise primary grade lithium carbonate sourced from Olaroz and locally sourced Japanese lime.

Operating costs (excluding lithium carbonate feedstock) for the lithium hydroxide plant remain at approximately US\$1,500/tonne.

## MARKET AND SALES

### LITHIUM MARKET

While 2018 marked another year of healthy growth for the lithium market averaging ~20% growth year on year, concerns grew during the December quarter as to the impact of China's economic and market conditions. As the quarter progressed it became apparent that China's market softness was beginning to impact the greater lithium market, highlighted by a pronounced shift in trade flows. Steady growth in Chinese lithium product exports in the earlier months of CY18 accelerated throughout the December quarter as large Chinese converters targeted the markets of Japan and South Korea (China & Chile customs data). Japan and South Korea also experienced an increased volume of imports from Chile while the volume exported from Chile to China decreased. Increased competition in the seaborne market from well-established Chinese suppliers began to pressure carbonate prices in the December quarter. Meanwhile, China's spot carbonate prices remained subdued, finding a floor during the quarter but failing to deliver the anticipated seasonal lift (Asian Metals).

The change to China's Electric Vehicle (EV) policy early in CY18 continued to impact demand from the Chinese market as the battery chain has taken longer than expected to adjust operations and build technical capabilities required to produce cathodes and batteries that qualified for higher subsidy levels. Additionally, the lack of transparency and guidance from Chinese regulators regarding future EV policy direction has contributed to cautious buying behaviour amongst customers. Further weighing on these market-related factors are China's broader macro-economic issues having a range of direct and indirect impacts on the market, including lower car manufacturing, industrial production and limited access to debt.

Further upstream, domestic suppliers in China were not immune to the country's economic issues, as additional Chinese brine supply from the Qinghai region continued to be offered at reduced prices to stimulate subdued domestic demand and alleviate financial pressure on these producers. The Chinese Government's tighter regulation on access to debt was reported to have impacted at least one conversion plants' expansion plans and contributed to project delays amongst smaller, new conversion plants. Nevertheless, larger incumbent conversion plants have progressed expansion projects while growing output from existing operations, supported by improved volume and quality of feedstock supply from Australian hard rock.

Orocobre views current conditions as a short-term correction following three to four years of high growth that resulted in market prices reaching levels two to three times (or more) greater than the historical average. Long term fundamentals remain strong and are underpinned by battery manufacturer's plans with 68 lithium ion mega-factories currently in the pipeline delivering 1,450 GWh capacity and a potential 22 million EV's by 2028 (Benchmark Minerals). Furthermore, strong growth potential was exhibited by the energy storage sector with total global energy storage additions more than doubling during 2018 to 9 GWh and is forecast to grow ~80% in 2019 (Bloomberg New Energy Finance). Accordingly, Orocobre maintains long-term demand forecasts in line with the consensus of incumbent producers in the range of 18% to 20% CAGR between 2018 and 2025.

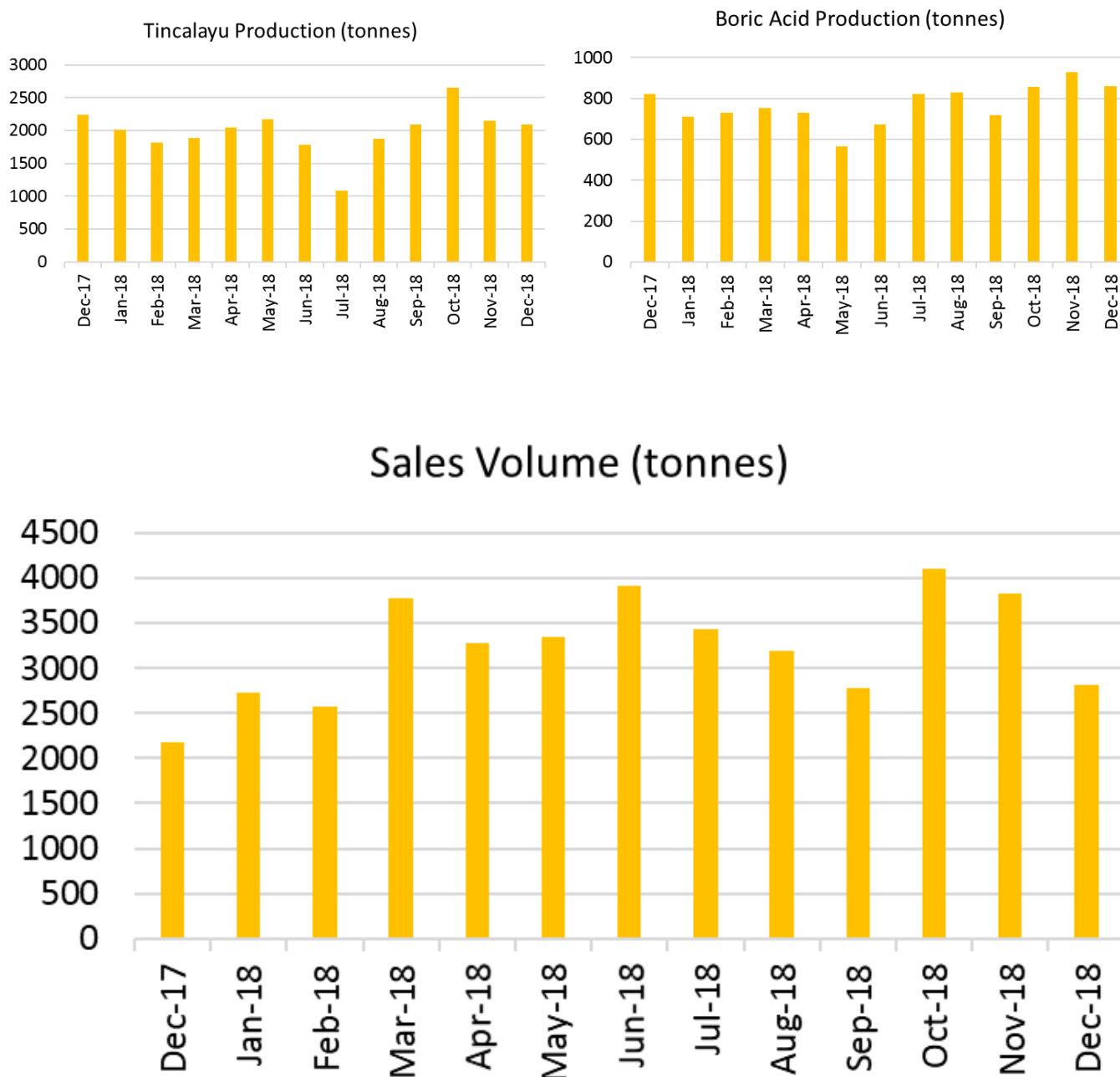


# BORAX ARGENTINA

Borax Argentina S.A. (Borax Argentina) continues to demonstrate improved year on year sales performance. Business development projects are being progressed and will remain a key area of focus in 2019. The business has demonstrated continuous improvement on cost reduction and unit costs continue to be controlled at, or near record lows. Despite recent strengthening of the peso, unit costs have benefited from devaluation of the peso over 2018.

## OPERATIONS

During the December quarter the Boric acid plant achieved record production levels while overall operations continue to improve with careful management of costs. A number of sales scheduled for December were postponed to 2019 due to credit control restrictions requiring some customers to make advance payments.



## COMBINED PRODUCT SALES VOLUME BY QUARTER

Previous Year Quarters		Recent Quarters	
March 2017	9,672	March 2018	9,079
June 2017	11,398	June 2018	10,590
September 2017	8,543	September 2018	9,407
December 2017	8,341	December 2018	10,741

## TINCALAYU EXPANSION STUDY

The feasibility study on an expansion of the Tincalayu refined borates operation is currently under internal review. Approvals have been received for a new gas pipeline to supply the expanded plant and initial cost estimates are under review.

## MARKET CONDITIONS

During the December quarter market conditions remain unchanged with some volatility in Argentina due to the devaluation of the peso and the pre and post presidential election in Brazil. Following the renegotiation of the agreement with the International Monetary Fund (IMF) the AR\$/US\$ exchange rate has stabilised. Interest rates in Argentina are currently high which is a deterrent for business to borrow to fund expansion, therefore market growth in Argentina has slowed.

Brazil recently (October 28, 2018) elected a new president, Jair Bolsonaro, for a four-year term. The outlook for the Brazil economy is that growth will gain momentum in 2019 supported by improvements in the labour market. Recovering credit and greater policy certainty as the new administration takes office will buttress the recovery<sup>1</sup>. OECD figures for September quarter deliveries of fertilizer in Brazil indicate a recovery from the problems caused by the truck drivers' strike. The uncertainty surrounding the impact on freight costs as a result of the strike had a negative impact on the market.

Market prices continue to remain in the trough of the price cycle, so the focus continues to be on optimising the product mix to improve profitability, deliver new products, develop markets and customers and further expansion of sound value propositions for customers.

<sup>1</sup> Source: Organisation for Economic Co-operation and Development (OECD)

# SAFETY AND COMMUNITY

## SAFETY MILESTONES

Unfortunately, an incident occurred at Olaroz during December resulting in a Lost Time Injury (LTI) being recorded. The person has now returned to work on full duties. As of 31 December, operations had achieved 16 days without an LTI.

Safety Leadership workshops are being conducted as part of an ongoing safety culture program at SDJ. New incident reporting and management software was adopted during the December quarter, enabling greater visibility of and accountability for safety performance at each level of the organisation.

At Borax, as of 31 December the Sijes mine achieved over 1,113 days without an LTI, Tincalayu achieved over 522 days without an LTI and Campo Quijano had achieved more than 205 days without an LTI.



*Tincalayu Mine located in Salar del Hombre Muerto, Salta, Argentina*

## SHARED VALUE PROGRAM AND COMMUNITY

During the December quarter many community engagement initiatives continued across the focus areas of the Company's Shared Value program. Meetings have been held with the commissions of eight communities to collaboratively determine specific development projects to be carried out in the coming year. Such projects include improvements to educational facilities, community halls, and sporting facilities and the delivery of various manufacturing workshops.

**Education** classes have continued with 27 students undertaking courses in Technology, Ethics and Citizenship, Language, Biology, History and Geography during the quarter. We were proud to see five students complete their secondary studies and final exams in November.

During the December quarter specialist welders were recruited for specific work on the Olaroz Music Hall. By the end of the quarter the entire structure was 100% complete.



**Transparency** initiatives through the December quarter largely focused on the biennial update of SDJ's Environmental Impact Assessment (EIA). Four workshops were held in October, in which 40 residents and 20 students of the Olaroz school participated. The first workshop was held with members of the local Commission for Indigenous Peoples, the second and third engaged the general public, with the fourth being open to community members residing in close proximity to our operations. The official presentation for community consultation was conducted mid-December.

In addition to the EIA workshops, meetings were held with the Commission for Olaroz to discuss topics of interest to Olaroz contractor companies working in the expansion, and to reach agreements and define commitments moving forward. Workshops were also held in the primary and secondary schools of the Olaroz and Coranzuli communities to demonstrate SDJ's lithium production process via a 3D video presentation which is available on the Orocobre website (click to view the presentation [\[English\]](#) [\[Spanish\]](#)).



*Olaroz school students viewing SDJ's lithium production process 3D video presentation*

**Empowerment** programs continued through the quarter with our microcredit program nearing the end of its 12-month term. We continued to visit and support the entrepreneurs and community members to evaluate the effectiveness of the program. At this stage, 100% of the funds have been repaid. Of the 24 proposed projects, 18 are operational and we continue to support those that are not yet underway. The first stage of training has been carried out by external consultant IN Group, with business strategy and implementation to follow.

**Production and Natural Resources** programs to strengthen local artisanal production were progressed during the quarter. The problems of physical space for the fibre spinning project in Huancar were resolved and we were able to define a location for the installation of equipment. Two workshops were held during November:

- 1) Theoretical training in the spinning process: emphasising the classification system of artisanal yarns taking into account thickness, torsion, and regularity factors;
- 2) Monitoring the methodology of classification of artisanal threads: activities for the manufacture of the equipment for the spinning plant began. Two spinning-wheels were delivered, courtesy of SDJ, and the commercial name and logo

were also defined. The first meeting with a thread buyer was conducted in December with initial delivery of merchandise agreed for late January.

The eco-bricks pilot projects were completed during the quarter, with two greenhouses completed and fruit and vegetables planted in a temperature-controlled environment. There is great interest from the participating communities to continue this project on a much larger scale. We are now evaluating and defining the scope for future construction, with all data and findings from the pilot projects being used to inform future developments.

#### **Health - Ascent of Mount Tuzgle**

During December SDJ employees together with contractors and local community members undertook an ascent of the Tuzgle Volcano, a dormant stratovolcano with an elevation of 5,486m above sea level located near the Puesto Sey community (Susques, Jujuy Province). Mount Tuzgle was selected as the ideal site given its cultural significance: a sacred mountain with archaeological ruins at the summit and a multitude of historical tales that could be shared by residents of Puesto Sey as part of the day's activities.

In preparation for the ascent, participants based at the Olaroz Lithium Facility were encouraged to make use of the onsite gym facilities and/or go for extended walks in the area, to build physical fitness at altitude. Participants from the San Salvador de Jujuy office were encouraged to exercise locally and make regular trips to site and to the Puna to become acclimatised to the higher altitudes.

The climb was a success with most participants reaching the summit. All the more rewarding was the employee donation campaign which accompanied the ascent and saw school supplies donated by SDJ employees presented to the local primary school in the indigenous community of Puesto Sey.



*Sales de Jujuy staff on the summit of Mount Tuzgle – a dormant stratovolcano located in Jujuy Province, Argentina*



# ADVANTAGE LITHIUM

Advantage Lithium Corp (TSV:AAL) manages a portfolio of high-quality assets in Argentina, including the Cauchari joint venture in which Orocobre holds a 25% interest. Orocobre also holds approximately 33.5% of the issued shares of AAL following participation in a private placement by Advantage in July.

## CAUCHARI JV PROJECT

The Cauchari Project is located in Jujuy province in NW Argentina.

Advantage Lithium has completed further drilling with the aim to upgrade the Cauchari Inferred Resource to a higher category (Indicated or Measured Resource) which will provide the basis for a Feasibility Study.

AAL applied a rigorous process to identify and select suitable partners to assist in the development of its Cauchari project. In that process, GHD were selected from other pre-qualified global engineering firms as the best fit for Cauchari development plans.

The appointment of GHD follows the release by AAL of a Preliminary Economic Assessment (PEA) and positive results from the Phase III resource conversion program. The Feasibility Study will provide an appropriate engineering design to produce a Class 3 cost estimate consistent with American Association of Cost Engineers (AACE) principles to build a standalone lithium plant producing 20 ktpa of Lithium Carbonate Equivalent with first production in Q3 CY21 and full post ramp-up production in 2023.

A report on this work will be prepared in accordance with NI43-101 standards of disclosure and is scheduled for completion in Q2 CY19. The company and consultants completed the Environmental Impact Assessment (EIA), undertook consultation with local communities and submitted the report to the Jujuy Government in December 2018.

### APPOINTMENT OF KEY STAFF

During the quarter AAL made a number of key staff appointments for the Cauchari JV project, including a full-time Chief Financial Officer (CFO), locally based Project Manager, Environmental Services Manager, Senior Project Scheduler and Site Manager.

These appointments are key to Advantage Lithium achieving Cauchari JV project milestones as they move into the Feasibility Study and project execution phases.

### PHASE 3 DRILL PROGRAM

The Phase 3 drilling program is now completed, culminating in 30 day pumping tests on main production targets in the NW Sector and the SE Sector deep sand units. The results from this will feed into an updated resource estimate which is targeted in Q3 FY19 and expected to bring Cauchari's resources into the Measured and Indicated categories

On 28 November the joint venture partners released a Phase 3 drilling program update regarding the completion of brine sampling of diamond core holes CAU28, CAU29 in the NW Sector and CAU19, CAU22, CAU25 and CAU27 in the SE Sector of the Cauchari JV property. Subsequent to the end of the quarter a further market update was provided detailing the completion of the Phase 3 drilling program.

Drill sampling results at CAU28 and CAU29 extend the June 2018 resource area some 5 km further to the south and increase the area for the update of the NW Sector resource by approximately 20%. Drilling at CAU25 and CAU27 was completed along the eastern edge of the SE Sector at depths of 427 and 473 m respectively and intersected a sequence with some sandy material interbedded with halite and clay units.

CAU19 was completed in the southwest of the SE Sector to a depth of 519.5 m. This hole intersected the deep sand unit from 434 m to 519.5 m (a thickness of >85 m), with sandy units continuing at the end of the hole. CAU19 is close to the southern boundary of the property and confirms the extension of the deep sand unit into this area.



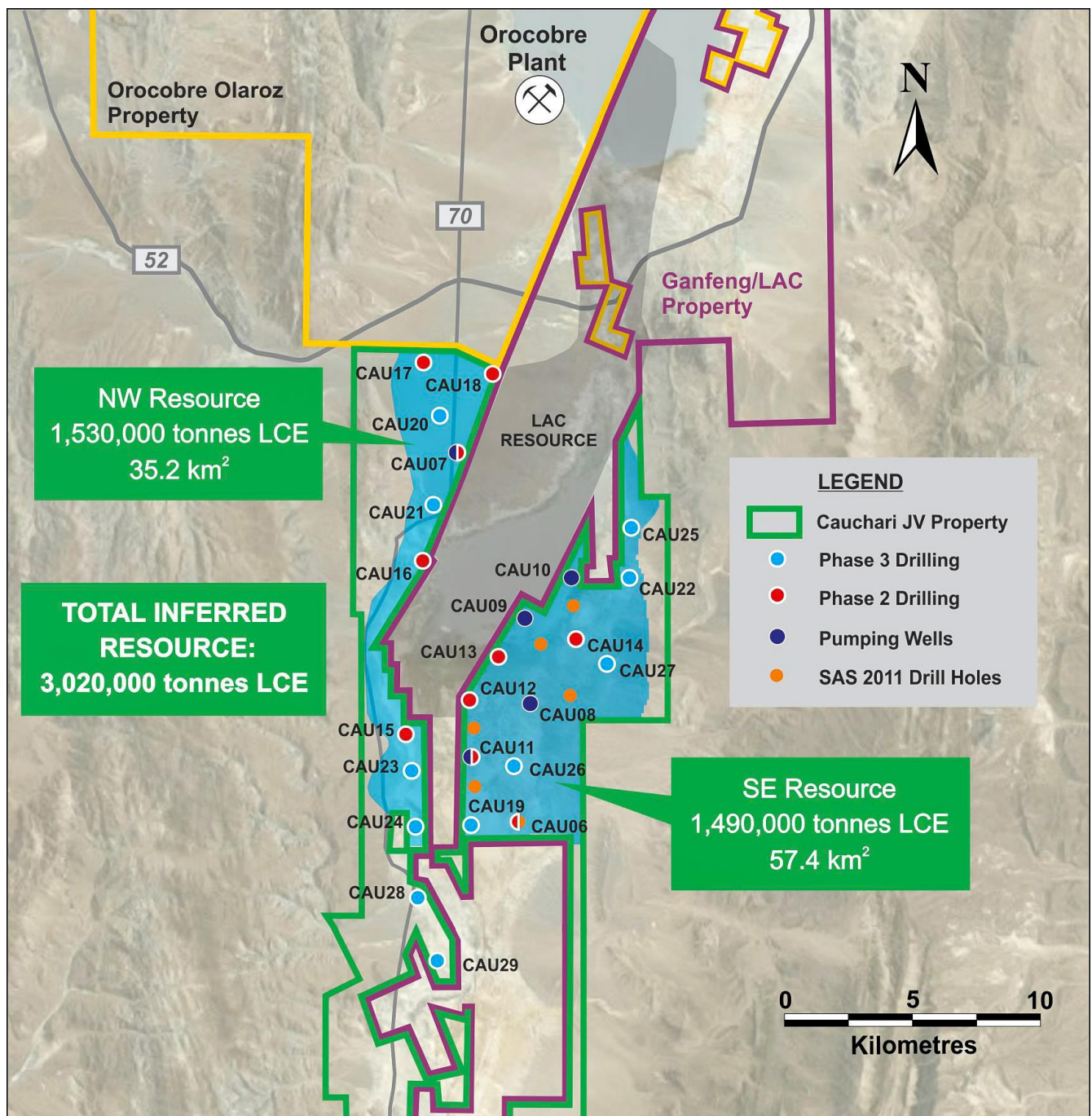
## PUMPING TESTS

During the quarter the 30 day constant rate pumping test to simulate long-term production was completed on test production well CAU11 in the SE Sector. This followed completion of a variable rate test to confirm the pumping rate for the constant rate test.

Brine concentrations were monitored throughout the test, in addition to water levels in the pumping well and a network of surrounding observation wells. The 30 day constant rate pumping test has commenced on well CAU07 in the NW Sector. Brine samples are being collected at regular intervals during the test and complete analyses are expected by the end of January 2019.

The tests will provide additional information on aquifer characteristics as an input to the three-dimensional groundwater model that is being developed to estimate lithium reserves and to develop a production schedule for the project.

**Location of drill holes mentioned in this report, showing the existing inferred resource area (blue) & historical drill holes**



# CORPORATE AND ADMINISTRATION

## FINANCE

### VAT

VAT refunds of approximately US\$0.6 million were received during the quarter. Approximately US\$2.1 million of returns were lodged and are expected to be received next quarter.

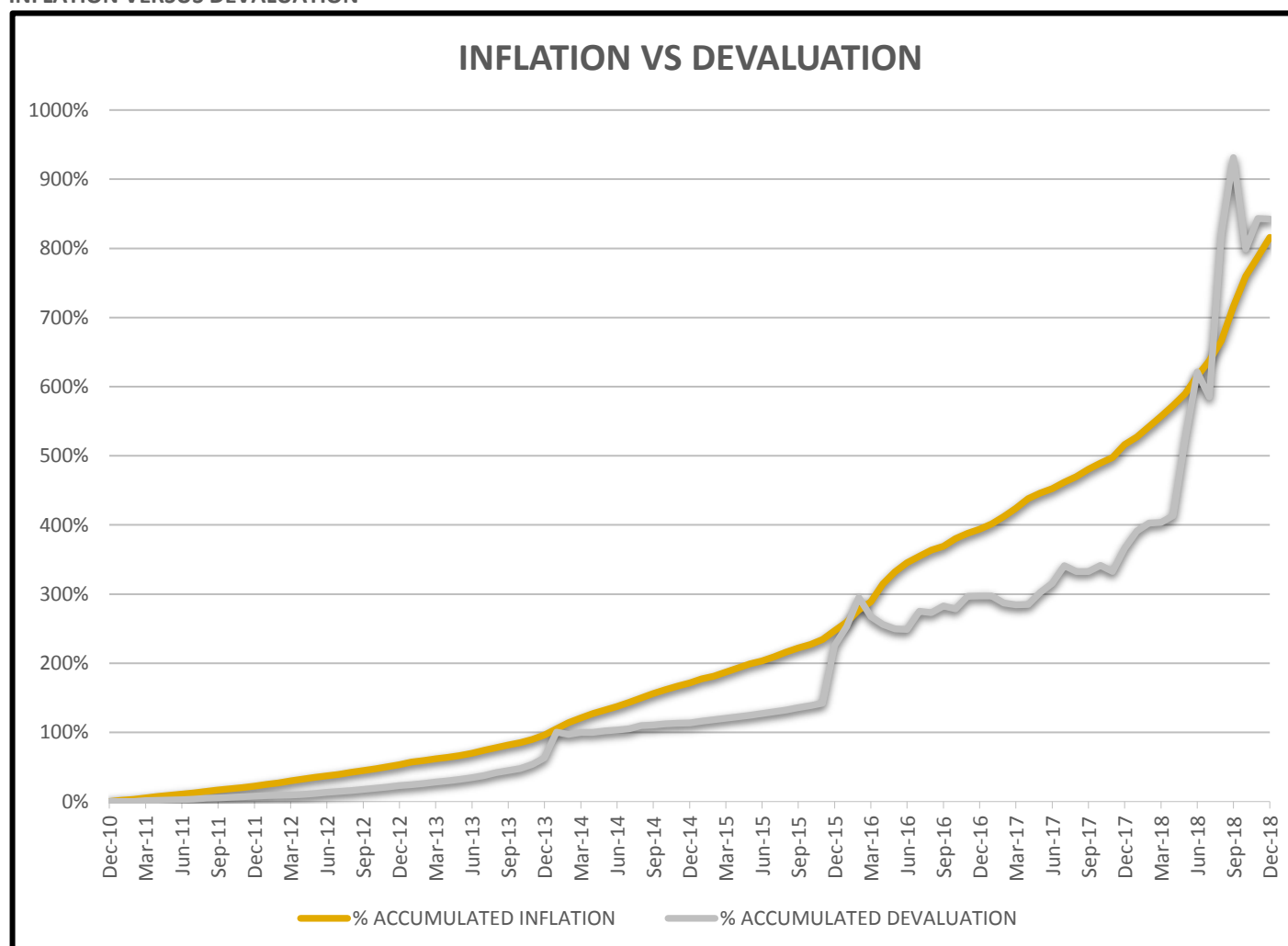
### CASH BALANCE

As at 31 December 2018, Orocobre corporate had available cash of US\$284 million. The US\$24.7 million cash reduction from the prior quarter was the result of a US\$21 million shareholders loan made to the SDJ joint venture to fund Olaroz expansion activities, US\$3 million in corporate costs, US\$1.5 million in Cauchari JV expenditure, US\$0.6 million funding to Borax, US\$0.5 million strategic property purchases and US\$0.1 million of forex losses.

This expenditure was partially offset by US\$1.6 million interest income and US\$0.4 million raised from issuance of 123,343 shares to TTC under the terms of the Share Subscription Agreement dated 16 January 2018 allowing TTC to maintain their 15% shareholding.

Including SDJ and Borax cash and project debt, net group cash at 31 December 2018 is US\$216.7 million, down from US\$221.7 million at 30 September 2018.

### INFLATION VERSUS DEVALUATION



The AR\$/US\$ exchange rate strengthened by 9% during the quarter with government intervention on interest rates and other measures. At 30 September 2018 the rate was AR\$41.25/US\$ and this strengthened to AR\$37.70 at 31 December 2018 whilst inflation for the same period was 16%. When looking at the accumulated 12-month period from 1 January 2018 to 31 December 2018, devaluation of the AR\$ against the US\$ was 102% versus inflation of approximately 49%. This resulted in balancing US\$ costs for ARS peso denominated expenses for the period considering the delayed response in devaluation vs inflation over the preceding year. As a result, costs were lower for Borax Argentina and to a lesser extent, SDJ. Over time, inflation and devaluation generally cancel each other out.

## OTHER MATTERS

### OROCOBRE SIGNS AGREEMENTS WITH TTC

Orocobre has signed three pivotal agreements with joint venture partner Toyota Tsusho Corporation (TTC). Members of the Orocobre Executive Management team visited TTC's head office in Tokyo, Japan in December to finalise and sign a new Olaroz Shareholders Agreement, Sales and Marketing Agreement and Orocobre Management Agreement (for management of the Olaroz Joint Venture).

The new Olaroz Shareholders Agreement formalises changes to the joint venture that will allow Orocobre to consolidate earnings from Olaroz in reported statutory accounts. Orocobre accounts will be consolidated from 1 January 2019.

As previously advised ([see ASX Release dated 28 November 2018](#)) Orocobre and TTC agreed on a new joint marketing arrangement for production from both Stage 1 and 2 where the joint venture partners will work together to set the strategic direction of customer arrangements and commercial terms. As exclusive sales agent, TTC remains responsible for logistical and contractual arrangements with customers and execution of the agreed sales strategy.

A new Orocobre Management Agreement has been established for the ongoing management of the Olaroz Joint Venture by Orocobre. Under this new agreement, Orocobre will be paid a management fee of 1.5% of gross revenue reported by the Olaroz Joint Venture from 1 July 2019.

During the visit incoming Orocobre Managing Director/CEO Martín Pérez de Solay met with TTC Board and senior Management team members as well as key personnel from Japan Oil, Gas and Metals National Corporation (JOGMEC).

### NEW OROCOBRE MD/CEO

Mr Martín Pérez de Solay will formally commence his duties as Managing Director and CEO on 18 January 2019 following the retirement of Richard Seville from the position. Richard Seville will continue with Orocobre as a Non-Executive Director

During the December quarter Mr Pérez de Solay spent time at Orocobre's corporate head office in Brisbane, Australia to attend the Orocobre 2018 Annual General Meeting and meet with TTC representatives to discuss the Olaroz Stage 2 Expansion and Naraha Lithium Hydroxide Plant.

Mr Pérez de Solay's initial focus is on the established strategy of optimising the operating performance of the Olaroz Joint Venture, delivering the Company's growth plans for the Olaroz Stage 2 Expansion and Naraha Lithium Hydroxide Plant in Japan.

### 2018 ANNUAL GENERAL MEETING

The Orocobre 2018 Annual General Meeting was held on Friday 23 November with all resolutions successfully passed as ordinary resolutions following a poll at the meeting. Full details of the votes cast are as follows:

Resolution	For	Against	Abstain
1. Adoption of the Directors' Remuneration Report	119,312,028 96.81%	3,927,354 3.19%	466,543
2. Re-election of Mr. Robert Hubbard as a Director	126,050,743 97.10%	3,764,771 2.90%	196,056
3. Re-election of Mr. Federico Nicholson as a Director	127,695,374 98.37%	2,119,811 1.63%	196,385
4. Confirmation of appointment of Mr. Masaharu Katayama as a Director	126,982,793 97.83%	2,821,748 2.17%	207,029
5. Approval of Employee Performance Rights and Options Plan	102,828,394 83.41%	20,447,656 16.59%	815,154



## ISSUE OF SHARES TO TOYOTA TSUSHO

Following the recent issue of shares to Orocobre management pursuant to the vesting of Performance Rights, TTC exercised its rights under the Subscription Agreement on 3 December to maintain its shareholding and has subscribed for 123,343 shares at an issue price of A\$3.93.

Under the terms of the Share Subscription Agreement dated 16 January 2018 between TTC and Orocobre, TTC holds a right to maintain a 15% shareholding in Orocobre for a period of two years.

The issue price for these shares was calculated in accordance with the Volume Weighted Average Price (VWAP) formula in the Subscription Agreement.



*Orocobre's incoming Managing Director/CEO Martín Pérez de Solay, together with current Managing Director/CEO Richard Seville meeting with Orocobre management and TTC representatives*

## FOR FURTHER INFORMATION PLEASE CONTACT:

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# ABOUT OROCOBRE LIMITED

Orocobre Limited is listed on the Australian Securities Exchange and Toronto Stock Exchange (ASX:ORE) (TSX:ORL) and is building a substantial Argentinian-based industrial chemicals and minerals company through the construction and operation of its portfolio of lithium, potash and boron projects and facilities in the Puna region of northern Argentina. The Company has built, in partnership with Toyota Tsusho Corporation and JEMSE, the first large-scale, greenfield brine-based lithium project in approximately 20 years at the Salar de Olaroz with planned production of 42,500 tpa of low-cost lithium carbonate.

The Olaroz Lithium Facility has a low environmental footprint because of the following aspects of the process:

- The process is designed to have a high processing recovery of lithium. With its low unit costs, the process will result in low cut-off grades, which will maximise resource recovery.
- The process route is designed with a zero liquid discharge design. Waste products are stored in permanent impoundments (the lined evaporation ponds). At the end of the project life the ponds will be capped and returned to a similar profile following soil placement and planting of original vegetation types.
- Brine is extracted from wells with minimum impact on freshwater resources outside the salar. Because the lithium is in sedimentary aquifers with relatively low permeability, drawdowns are limited to the salar itself. This is different from halite hosted deposits such as Salar de Atacama, Salar de Hombre Muerto and Salar de Rincon where the halite bodies have very high near surface permeability and the drawdown cones can impact on water resources around the Salar affecting the local environment.
- Energy used to concentrate the lithium in the brine is solar energy. The carbon footprint is lower than other processes.
- The technology developed has a very low maximum fresh water consumption of <20 l/s, which is low by industry standards. This fresh water is produced by reverse osmosis from non-potable brackish water.
- Sales de Jujuy S.A. is also committed to the ten principles of the sustainable development framework as developed by The International Council on Mining and Metals. The Company has an active and well-funded “Shared Value” program aimed at the long-term development of the local people.

In accordance with its Community Policy, Orocobre continues to empower its communities through capacity building initiatives, and to encourage and facilitate direct and indirect community involvement in its activities. Priority in employment and procurement is given to the local communities of Olaroz, Huancar, Puesto Sey, Pastos Chicos, Susques, Catua, Jama, El Toro, Coranzuli and San Juan, all of which receive the necessary education, training, development and support through Orocobre’s Shared Value program.

## TECHNICAL INFORMATION, COMPETENT PERSONS’ AND QUALIFIED PERSONS STATEMENTS

The Company is not in possession of any new information or data relating to historical estimates that materially impacts on the reliability of the estimates or the Company’s ability to verify the historical estimates as mineral resources, in accordance with the JORC Code. The supporting information provided in the initial market announcement on 21/08/12 continues to apply and has not materially changed. Additional information relating to the Company’s Olaroz Lithium Facility is available on the Company’s website in “Technical Report – Salar de Olaroz Lithium-Potash Project, Argentina” dated May 13, 2011 which was prepared by John Houston, Consulting Hydrogeologist, together with Mike Gunn, Consulting Processing Engineer, in accordance with NI 43-101.

The information in this report that relates to exploration reporting at the Cauchari JV project has been prepared by Mr Murray Brooker. Murray Brooker is a geologist and hydrogeologist and is a Member of the Australian Institute of Geoscientists. Mr Brooker is an employee of Hydrominex Geoscience Pty Ltd and is independent of Orocobre. Murray has sufficient relevant experience 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. He is also a “Qualified Person” as defined in NI 43-101. Murray Brooker consents to the inclusion in this announcement of this information in the form and context in which it appears.

## CAUTION REGARDING FORWARD-LOOKING INFORMATION

Forward-looking information may include, but is not limited to, the successful ramp-up of the Olaroz Project, and the timing thereof; the design production rate for lithium carbonate at the Olaroz Project; the expected brine grade at the Olaroz Project; the Olaroz Project's future financial and operating performance, including production, rates of return, operating costs, capital costs and cash flows; the comparison of such expected costs to expected global operating costs; the ongoing working relationship between Orocobre and the Provinces of Jujuy and Salta in Argentina; the on-going working relationship between Orocobre and the Olaroz Project's financiers, being Mizuho Bank and JOGMEC and the satisfaction of lending covenants; the future financial and operating performance of the Company, its affiliates and related bodies corporate, including Borax Argentina S.A. (Borax Argentina); the estimation and realisation of mineral resources at the Company's projects; the viability, recoverability and processing of such resources; timing of future exploration of the Company's projects; timing and receipt of approvals, consents and permits under applicable legislation; trends in Argentina relating to the role of government in the economy (and particularly its role and participation in mining projects); adequacy of financial resources, forecasts relating to the lithium, boron and potash markets; potential operating synergies between the Cauchari Project and the Olaroz Project; the potential processing of brines from the Cauchari Project and the incremental capital cost of such processing, expansion, growth and optimisation of Borax Argentina's operations; the integration of Borax Argentina's operations with those of Orocobre and any synergies relating thereto and other matters related to the development of the Company's projects and the timing of the foregoing matters.

Forward-looking statements are based on current expectations and beliefs and, by their nature, are subject to a number of known and unknown risks and uncertainties that could cause the actual results, performances and achievements to differ materially from any expected future results, performances or achievements expressed or implied by such forward-looking statements, including but not limited to, the risk of further changes in government regulations, policies or legislation; that further funding may be required, but unavailable, for the ongoing development of the Company's projects; fluctuations or decreases in commodity prices; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with development of the Olaroz Project; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Olaroz Project or the Company's other projects; exceptional or prolonged adverse weather conditions; risks associated with investment in publicly listed companies, such as the Company; risks associated with general economic conditions; the risk that the historical estimates for Borax Argentina's properties that were prepared by Rio Tinto, Borax Argentina and/or their respective consultants (including the size and grade of the resources) are incorrect in any material respect; the inability to efficiently integrate the operations of Borax Argentina with those of Orocobre; as well as those factors disclosed in the Company's Annual Report for the financial year ended 30 June 2018 and Sustainability Report 2017 available on the ASX website and at [www.sedar.com](http://www.sedar.com).

The Company believes that the assumptions and expectations reflected in such forward-looking information are reasonable. Assumptions have been made regarding, among other things: the timely receipt of required approvals and completion of agreements on reasonable terms and conditions; the ability of the Company to obtain financing as and when required and on reasonable terms and conditions; the prices of lithium, potash and borates; market demand for products and the ability of the Company to operate in a safe, efficient and effective manner. Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. There can be no assurance that forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, except in accordance with applicable securities laws.