



30 January 2017

# ASX/TSX ANNOUNCEMENT

Quarterly Report of Operations  
for the Period Ended 31 December 2016

# HIGHLIGHTS

## OLARAZ LITHIUM FACILITY (ORE 66.5%)

- December quarter production increased 17% QoQ to 3,529 tonnes\* in line with previous guidance
- December quarter sales revenue of US\$27.0 million\* on sales of 2,995 tonnes was affected by a strike at Antofagasta Port and delays related to customs clearance over Christmas. Half year sales revenue was US\$60.5 million
- Cash operating costs were down 1% QoQ to US\$3,530/tonne resulting in gross cash margins of US\$5,477/tonne
- Average FOB price received for the December quarter was US\$9,007/tonne, down 3.5% on the September quarter with deferral of some higher priced shipments into 2017 and delivery into lower priced legacy contracts
- Construction of a 10,000 tonne per annum battery grade lithium hydroxide plant will be expedited following completion of initial site visits in Japan. Three proposals have been received for an “off the shelf” design to be constructed on a turn key basis
- The scoping study for the Olaroz Stage 2 expansion has been completed. The preferred option is for an additional 17,500 tonnes per annum lithium carbonate equivalent (LCE) at a capital cost of US\$190 million (including US\$25 million contingency)
- The Company expects continuing tight market dynamics in lithium markets with new supply becoming available later than forecast

\* all figures 100% Olaroz Project basis

## BORAX ARGENTINA

- Sales volume in the quarter was 8,767 tonnes, down on the previous quarter due to the delayed dispatch of a large volume customer order for hydroboracite. This order is scheduled for dispatch in the March quarter
- Modifications to the Campo Quijano boric acid plant were completed during July and commissioning is ongoing. Ramp up has been slower than forecast and has resulted in lower production
- Expansion studies continued in the December quarter for an increase in production at Tincalayu with a scope of 100-120,000 tonnes per annum borax decahydrate equivalent production and development of a circa 25,000 tonne integrated boric acid plant. The gas pipeline required for the expanded capacity has now received regulatory approval

## CORPORATE

- Orocobre will divest a number of lithium brine exploration projects which are currently held through Orocobre’s 85% owned Argentine subsidiary South American Salars SA (**SAS**) to Canada’s Advantage Lithium Corp. (TSXV:AAL) (**Advantage Lithium**) for US\$30 million of AAL shares (54.5 million), an additional three million warrants and continuing direct interest (plus royalty) in the Cauchari Project
- Orocobre has a strong cash position of US\$30 million at the end of the quarter, excluding restricted cash on hand (i.e. cash committed to Standby Letters of Credit (SBLC))

# OLAROS LITHIUM FACILITY

[For more information on Olaroz please click here](#)

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

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

## PRODUCTION, SALES AND GUIDANCE

Production for the quarter was a record 3,529 tonnes up 17% on the September quarter. Sales revenue was US\$27.0 million on sales of 2,995 tonnes with some shipments scheduled for December being delayed to early in the March quarter by a strike at Antofagasta Port and delays related to customs clearance over Christmas. Cash operating costs improved by 1% QoQ to US\$3,530/tonne resulting in gross cash margins of US\$5,477/tonne.

Sales de Jujuy S.A. remains strongly operating cashflow positive.

Metric	December quarter	September quarter	Change QoQ (%)
Production (tonnes)	3,529	3,013	17%
Sales (tonnes)	2,995	3,593	-17%
Average price received (US\$/tonne)	9,007	9,335	-4%
Cost of production (US\$/tonne) <sup>1</sup>	3,530	3,579	-1%
Revenue (US\$M)	27.0	33.5	-19%
Gross cash margin (US\$/tonne)	5,477	5,756	-5%
Gross cash margin (%)	61%	62%	-1%

1. Excludes royalties and head office costs

The operation continues to achieve consistently good performance in the primary circuit. Improvement activities during the quarter have continued on the purification circuit.

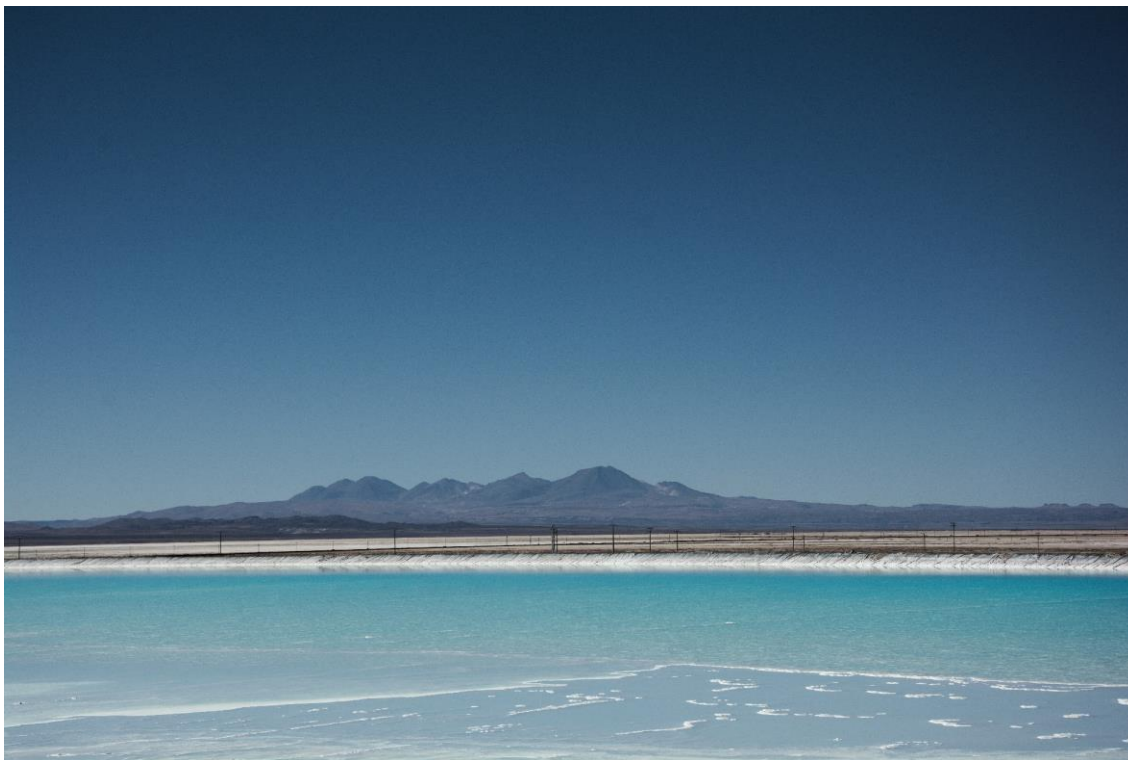
A cyclone bank has been added to the purification circuit to augment the thickener capacity and increase throughput. This project will continue commissioning throughout the quarter.

Orocobre continues to actively manage the business to produce the best possible economic outcome while considering long term strategic objectives. The optimisation of operating cashflow takes into account the significant profit margin that is currently available in the industrial market and the ability to operate the primary circuit (industrial product) at higher production rates.

The company will provide further production guidance during the quarter.

## BRINE INVENTORY

At the end of the quarter, brine inventory was approximately 40,300 tonnes of lithium carbonate equivalent.



*Brine ponds at Olaroz Lithium Facility*

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## SALES ORDERS

During the December quarter, commercial shipments of lithium carbonate continued to be dispatched from the Olaroz Lithium Facility with growing geographic diversity from Asia, Europe and the USA. Lithium carbonate meeting the specifications of battery/technical and industrial markets was sold into a wide range of applications within the chemical manufacturing, industrial and battery sectors.

The December quarter sales price was US\$9,007/tonne FOB<sup>1</sup> on sales of 2,995 tonnes. While our base of battery market and high specification technical market customers continues to grow, the Company's weighted sales price was impacted by legacy contracts agreed during the early part of 2016 with terms that span beyond just one quarter. To meet our contractual commitments, the Company prioritised these orders which will allow for a higher average contract value in 2017.

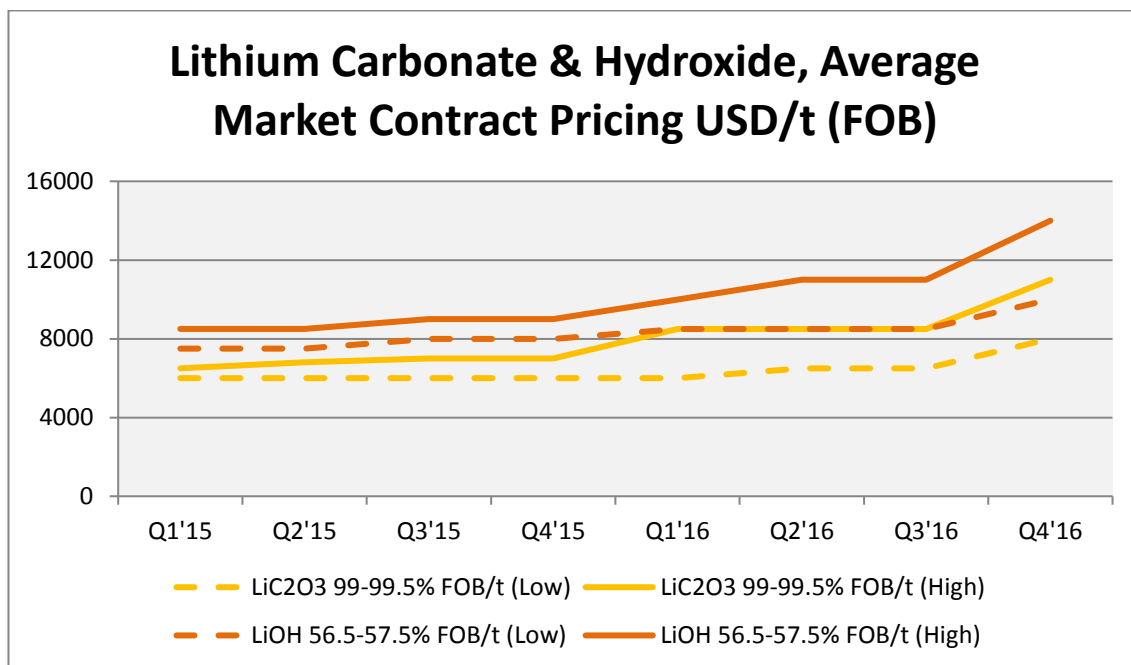
The price received in the December quarter was also impacted by contracts that were negotiated and delivered by Toyota Tsusho Corporation based on the weaker pricing and demand that occurred in China related to uncertainty created by the electric vehicle subsidy policy reviews. Additionally, some higher priced shipments scheduled for late December have been delayed into 2017 due to delays from a strike at Antofagasta port and customs clearance over Christmas.

Strong contract pricing has been achieved thus far for both industrial and battery/technical market product to be delivered during 2017, and the Company maintains the strategy to offer a mix of short and long-term contracts to support a sustainable customer base for the future. The Company expects pricing for the March quarter to be higher than the December quarter.



## SHORT-TERM LITHIUM MARKET OUTLOOK

It is the Company's view that short-term market fundamentals remain strong, similar to those experienced during H2 2016. The chart below illustrates that average quarterly contract prices within the market have increased consistently during CY2016.



Source: Industrial Minerals, Roskill, GTIS

The Chinese Government EV subsidy policy resulted in significant growth throughout the lithium battery manufacturing supply chain. Over 230 suppliers of battery cells and 315 producers of battery packs were reportedly operating in China during Q2'16 (source: Automotive News China).

The Chinese government announced an adjusted policy late in 2016 and the Company believes that the adjusted policy will support consolidation as smaller players will be disadvantaged by more stringent battery design requirements including higher energy discharge rate, increased duration, a greater energy density threshold, and more robust safety measures. Due diligence requirements will also be more thorough before permits are granted and subsidies are paid.

Nonetheless, the Chinese government maintains the target of achieving five million EV units on the road by 2020, up from an estimated 500,000 in 2016. Chinese consumers are increasingly shifting from a preference for PHEVs in past years to full EV's as large manufacturers improve the range of EV models. In 2016, BYD began offering an EV version of its best selling PHEV model Q and recorded sales of 5,000 units in Q3 making it the fourth best selling EV globally. Furthermore, BYD will no longer offer its PHEV version of its Song SUV instead only manufacturing the full EV version (Source: Lux Research).

In terms of lithium consumption, the absolute effect of China's industry reform is positive and will support continued growth. Outside of China, key markets including the USA and Europe continue to gain government support for EV production with 100% EV fleet targets remaining in place for European countries such as Norway.

Traditional end-use markets such as glass, ceramics and portable devices are also forecast to grow at well above GDP rates supporting baseload demand.

## LITHIUM HYDROXIDE PLANT IN JAPAN

Construction of a 10,000 tonne per annum battery grade lithium hydroxide plant will be expedited following completion of initial site visits in Japan. Three engineering firms (Svenson, GEA and Veolia) have submitted proposals to construct the plant which will be based on a proven, off the shelf design and constructed on a turn key basis.

The project is being fast tracked to meet growing demand which is not being fully met with constrained feedstock supply to existing hydroxide plants. At least 50% of estimated capital costs are expected to be provided by the Japanese government in support of their world class battery industry.

## EXPANSION STUDY FOR OLAROS

A number of different expansion options were assessed focusing on the production of both lithium carbonate and lithium hydroxide using either conventional and non-conventional technologies and combinations of technologies with different rates of production. The Stage 2 expansion strategy has considered product market conditions, processing risk, capital costs and potential returns.

The key results of the studies were:

- There are key strategic advantages to add lithium hydroxide to the Orocobre product range to feed the growing demand in the battery sector
- The preferred location for a lithium hydroxide plant is Japan in order to be close to, or integrated with, cathode manufacturers servicing the growing electric vehicle sector
- Only existing conventional processing technologies will be used in the expansion. All unconventional technologies reviewed carried a significant level of process risk and were not seen to hold any commercial advantage over conventional technologies
- Stage 2 at Olaroz is expected to be fully funded by project debt and internal project cashflows

Olaroz Stage 2 will entail the construction of a 17,500 tpa lithium carbonate production facility adjacent to the Stage 1 operations at Salar de Olaroz, in northern Argentina. The expansion is expected to include both Primary and Purification circuits capable of producing battery grade lithium carbonate.

### Capital Requirements

The Stage 2 capital cost is estimated to be US\$190 million including a US\$25 million contingency for construction of a 17,500 tonne lithium carbonate facility.

If a lithium hydroxide plant is constructed in Japan, the approximate capital cost will be US\$30 million before any government incentives.

It is expected that the funding of both developments will involve project debt (circa 70%) and operating cashflow from Stage 1.

Orocobre does not anticipate the need to raise equity capital to finance either the Stage 2 expansion or lithium hydroxide plant.

### Operating Costs

Stage 2 operating costs for lithium carbonate production are expected to be US\$2,500 per tonne.

### Timing

The process to obtain the necessary permits and approvals for Stage 2 has commenced and will run concurrently with engineering and design work.

Orocobre and its joint venture partners expect to reach a final investment decision by mid-2017. Stage 2 commissioning is planned to commence in late 2018/early 2019, which aligns with a projected undersupply of lithium chemicals in global markets.

## ADVANTAGE LITHIUM TRANSACTION

In November 2016, Orocobre announced that it will divest a number of lithium brine exploration projects which are currently held through Orocobre's 85% owned Argentine subsidiary South American Salars SA (**SAS**) to Canada's Advantage Lithium Corp. (TSXV:AAL) (**Advantage Lithium**).

Under the revised terms of a Letter of Intent (**LOI**) executed by the parties, Advantage Lithium will issue 54,500,000 common shares and 3,000,000 warrantas valued at approximately US\$30.5 million in consideration for the acquisition of the exploration projects.

Advantage Lithium has completed an equity financing of US\$20,000,000 at an issue price of C\$0.75. The funds will allow Advantage Lithium to rapidly advance the exploration projects in the northern provinces of Argentina. Orocobre's shareholding in Advantage Lithium represents approximately 35% of the shares on issue after completion of the capital raising.

Orocobre did not participate in the equity financing.

Following execution of a Definitive Agreement, anticipated to be finalised shortly, Orocobre will be entitled to appoint two nominees to the Board of Directors of Advantage Lithium, which on completion will comprise six Board members.

The LOI with Advantage Lithium includes exploration projects with a total area of approximately 85,000 hectares in the northern Argentine provinces of Jujuy, Salta and Catamarca in Argentina's lithium triangle.

Orocobre and Advantage Lithium will enter a 50/50 joint venture for the more advanced Cauchari Project. Advantage Lithium will earn a further 25% interest in this property by the expenditure of US\$5 million over three years or completion of an NI 43-101 compliant feasibility study in that period.

Property	State	Area (ha)	Interest
Cauchari	Jujuy	27,771	*50%
Incahuasi	Salta	9,843	100%
Antofalla	Salta	10,653	100%
Guayatoyoc	Jujuy	21,276	100%
Other applications pending		~ 16,000	100%

\* Advantage Lithium will have an initial 50% interest that can be increased to 75% (see paragraph below)

As detailed in the 24 November 2016 ASX/TSX announcement headed "*Orocobre partners with Advantage Lithium – Technical Details of Cauchari Flagship Lithium Asset*" the Cauchari project hosts a near-surface, inferred resource containing approximately 470,000 tonnes lithium carbonate equivalent (**LCE**) (230 million cubic meters of brine at average grades of 380 mg/L lithium). Lying beneath the inferred resource is a large exploration target of between 0.25 million tonnes and 5.6 million tonnes of lithium carbonate equivalent based on a range of porosity and grade possibilities to between 220 metres and 450 metres depth.

Orocobre will retain a 1% gross royalty on production from the Cauchari properties, and will have rights of first refusal on future brine production.

The Cauchari project is located 20 kilometres south of Olaroz and adjacent to the development project of Lithium Americas Corp and SQM. The newly created Joint Venture between Orocobre and Advantage Lithium will benefit from its proximity to the Olaroz Lithium Facility and from the Joint Venture's ability to access the experience of Orocobre in lithium project development.

# BORAX ARGENTINA

The focus this financial year (FY17) is to increase production rates and reduce unit costs following the optimisation projects at Tincalayu and Campo Quijano and improve efficiencies, build suitable inventory levels, improve response times, delivery performance and reinforce Borax's value proposition as the producer integral to a customer's security of supply strategy.

## OPERATIONS

A total volume of 8,767 tonnes of combined product was sold during the quarter. There were no tonnes of tincal ore sold this quarter.

Sales during the quarter were impacted by the delayed dispatch of a large volume customer order for hydroboracite. This order is scheduled for dispatch during the March quarter.

## COMBINED PRODUCT SALES VOLUME BY QUARTER\*

Previous Year Quarters		Recent Quarters	
March 2015	8,981	March 2016	8,006
June 2015	9,558	June 2016	9,274
September 2015	8,124	September 2016	11,940
December 2015	10,078	December 2016	8,767

\*Combined product sales volumes include borax chemicals, boric acid and boron minerals and does not include sale of tincal ore of 2,061 tonnes in June 2015 quarter.

## PRODUCTION IMPROVEMENT PROJECTS COMPLETED

Modifications of the boric acid plant at Campo Quijano were completed in July and the plant has been in ramp up and optimisation mode during the quarter. Production rates of 30 tonnes per day have recently been achieved and the focus now moves to improving plant stability and operating practice to deliver these production rates on a consistent basis.

When fully ramped up, the modifications at both Tincalayu and Camp Quijano are expected to result in improved unit costs at both facilities.



## **TINCALAYU EXPANSION STUDY**

A study commenced in Q2 CY2016 to evaluate a potential expansion of the Tincalayu refined borates operation from its current production capacity of 30,000 to 100-120,000 tonnes per annum and an integrated 25,000 tonne boric acid plant.

It is anticipated that the potential expansion will further enhance efficiencies in the production of refined borates at Tincalayu and contribute to improved manufacturing unit costs. Approvals have been received for a new gas pipeline to supply the expanded plant and initial cost estimates are under review.

The feasibility study will be completed during the current half year.



*Borax operations at Sijes*

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## **MARKET CONDITIONS**

Borax Argentina continues a geographic and product diversification strategy to protect the business from localised economic and market cycles, and find profitable niche markets. In addition to its traditional markets in South America, the Company now has a geographically and market diverse range of customers.

# CORPORATE AND ADMINISTRATION

During November, the Orocobre Board held a two day meeting in Buenos Aires with the Brisbane executive management team and local operational management. The meeting provided an important opportunity for deep engagement on company operations and overall business strategy. This continues the Board's commitment to bi-annual face to face meetings which bring together Directors and management from North America, Australia and Argentina.

## FINANCE

Unrestricted cash on hand (i.e. cash not committed to Standby Letters of Credit (SBLC)) at the end of the quarter was US\$30 million. Reduction of corporate cash from 30 September to 31 December is mainly due to recurring corporate costs and expenses incurred at Borax Argentina relating to Tincalayu Feasibility Studies and Boric Acid plant capex.

The AR\$ remained stable during the quarter maintaining an average of AR\$15.5/US\$ and closing at AR\$15.9/US\$. The AR\$ devalued 3.9% during the quarter.

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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 17,500 tonnes per annum of low-cost battery grade 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. All 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.
- 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.

The Company continues to follow the community and shared value policy to successfully work with suppliers and the employment bureau to focus on the hiring of local people from the communities of Olaroz, Huancar, Puesto Sey, Pastos Chicos, Catua, Susques, Jama, El Toro, Coranzulí, San Juan and Abrapampa. The project implementation is through EPCM (Engineering, Procurement and Construction Management) with a high proportion of local involvement through construction and supply contracts and local employment. The community and shared value policy continues to be a key success factor, training local people under the supervision of high quality experienced professionals.

## 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 projects is available on the Company's website in "Technical Report – Salar de Olaroz Lithium-Potash Project, Argentina" dated May 30, 2011, (the Olaroz Report), the "Technical Report – Salinas Grandes Project" dated April 30, 2010 and the "Technical

Report – Salar de Cauchari Project, Argentina” dated April 30, 2010, respectively, which have each been prepared by John Houston, Consulting Hydrogeologist, together with, in the case of the Olaroz Report, Mike Gunn, Consulting Processing Engineer, in accordance with NI 43-101.

## **CAUTION REGARDING FORWARD-LOOKING INFORMATION**

This news release contains “forward-looking information” within the meaning of applicable securities legislation. Forward-looking information contained in this release may include, but is not limited to, the completion of commissioning, the commencement of commercial production and ramp up of the Olaroz Lithium Facility and the timing thereof, the cost of construction relative to the estimated capital cost of the Olaroz Lithium Facility, the meeting of banking covenants contained in project finance documentation, the design production rate for lithium carbonate at the Olaroz Lithium Facility, the expected brine cost and grade at the Olaroz Lithium Facility, the expected operating costs at the Olaroz Lithium Facility and the comparison of such expected costs to expected global operating costs, the estimation and conversion of exploration targets to resources at the Olaroz Lithium Facility, the viability, recoverability and processing of such resources, the potential for an expansion at the Olaroz Lithium Facility and the outcome of studies currently being undertaken into the proposed expansion at Olaroz and elsewhere, the capital cost of an expansion at the Olaroz Lithium Facility; the future performance of the relocated borax plant and boric acid plant, including without limitation the plants estimated production rates, financial data, the estimates of mineral resources or mineralisation grade at Borax Argentina mines, the economic viability of such mineral resources or mineralisation, mine life and operating costs at Borax Argentina mines, the projected production rates associated with the borax plant and boric acid plant, the market price of borate products whether stated or implied, demand for borate products and other information and trends relating to the borate market, taxes including recoveries of IVA, royalty and duty rate and the ongoing working relationship between Orocobre and the Province of Jujuy, TTC and Mizuho Bank.

Such forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from those expressed or implied by such forward-looking information, including but not limited to the risk of further changes in government regulations, policies or legislation; the possibility that required concessions may not be obtained, or may be obtained only on terms and conditions that are materially worse than anticipated; that further funding may be required, but unavailable, for the ongoing development of the Company’s projects; changes in the scope and focus of studies currently being undertaken with respect to the expansion of the Company’s production facilities, fluctuations or decreases in commodity prices and market demand for product; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with weather patterns and impact on production rate; risks associated with commissioning and ramp up of the Olaroz Lithium Facility to full capacity; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Olaroz Lithium Facility; general risks associated with the further development of the Olaroz Lithium Facility; general risks associated with the operation of the borax plant or boric acid plant; the potential for an expansion at the Tincalayu operations and the outcome of studies currently being undertaken into the proposed expansion at Tincalayu a decrease in the price for borates resulting from, among other things, decreased demand or an increased supply of borates or substitutes, as well as those factors disclosed in the Company’s Annual Report for the year ended June 30, 2016 filed 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.