



## Salar de Olaroz Lithium Project

Oroceara's Salar de Olaroz Lithium Project consists of 63,000 hectares of salar (salt lake) known to contain high values of Lithium and Potash in brine. The project is located in the elevated and Puna region of Argentina's north-western province of Jujuy, and is well served by key infrastructure including sealed roads, high voltage electricity, gas pipelines and rail access.

Construction on the US\$225 million (net) project began in late November 2012. The construction and commissioning period will be approximately 18 months, with initial battery grade lithium carbonate production scheduled for April 2014.

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In October 2012, Oroceara and Toyota Tsusho Corporation ("TTC") executed a definitive [Investment and Financing and Definitive Lithium Carbonate Agreement](#) in which the joint venture provides for a comprehensive financing plan structured to secure TTC's direct participation in, and support for, funding (through development of Olaroz) Oroceara's partnership with TTC commencing in January 2015. Following the execution of a preliminary agreement which set out a path towards financing and development of the Olaroz Project, with TTC's investment 25% participation. Since then, the two companies have worked closely together while advancing the project through to the final investment decision in late September 2012. It is business where product quality is paramount. TTC's investment partnership is a strong endorsement of the market acceptance of the high purity battery grade product produced at the Olaroz Project.

In July 2012, Oroceara received final governmental approval to commence construction of the Olaroz Lithium Project. Earlier in June 2012, the Company entered into an agreement with Ajoyo Energía y Minas Sociedad del Estado ("EMSE"), a mining investment company owned by the provincial Government of Jujuy, whereby EMSE will hold an equity interest in the project and will provide assistance during the development of Olaroz. The receipt of these approvals and the EMSE agreement cleared the way for finalising the project construction financing package with TTC, Minoro Corporación Bank and Japanese state-owned Japan Oil, Gas and Metals National Corp. ("JOGMEC").

The detailed engineering phase of the Olaroz Project has now been completed, resulting in necessary changes to the scope of the project from that outlined in the definitive Feasibility Study. The design capacity of the operation has been increased to 17,500 tonnes per annum ("tpa") of lithium carbonate from 16,400 tpa originally provided for in the Feasibility Study. This production improvement is due to an increase in the expected brine grade from 770mg/l in the Feasibility Study to 820mg/l following the result of the 3D flow difference modelling (with USGS Modflow-Surface version 3 software) ordered from by Dr. Noel Baruch ([http://www.ingos.com.ar/](#)). Expected potash recovery has also been increased to approximately 20.000tpa compared to 10.000tpa as a result of an amended process flow. Potash costs and capital costs are not currently included in the project plan or economics at this time, and will be investments considered only for future development phases of the Olaroz Project.

Following completion of detailed engineering plans, and having benefited of material contracts with the execution of the contract for the construction of the lithium carbonate plant, the capital cost estimate has been revised to US\$225 million from US\$207 million in the definitive Feasibility Study (see QFS details below). The revised estimate includes US\$22 million of contingency funds. The US\$22 million estimate also includes all costs already incurred by Oroceara on the detailed engineering plans and completion of the Feasibility Study in May 2011 and all other project related costs paid by Oroceara since December 2011 ("Oroceara Reserves").

### Investment Structure & Project Financing

The Olaroz Lithium Project Joint Venture will be operated through Oroceara's Argentine subsidiary, Salar de Olaroz S.A., the ownership of which is being transferred from Oroceara Ltd to a Singaporean company, Salar de Olaroz Pty Ltd, that will be the joint venture company partner with Toyota Tsusho and Ajoyo Energía y Minas Sociedad del Estado ("EMSE"), the mining investment company owned by the provincial Government of Jujuy, Argentina. The structure is shown below.

The effective Olaroz Project equity interest will be Oroceara 65.5%, TTC 25.0% and EMSE 8.5%.

As part of its obligations under the January 2010 agreement, Toyota Tsusho has successfully procured a substantial and low cost project debt facility that was finalized in December 2012. The debt financing is provided to Minoro Corporación Bank Ltd, with a maximum facility amount of US\$100 million as detailed below:

Project debt finance from Minoro is guaranteed by Japan Oil, Gas and Metals National Corporation ("JOGMEC") and TTC. During the construction period and prior to completion, TTC will provide both a guarantee for the portion of the debt and also a yield guarantee with Oroceara for Oroceara's portion. After completion of construction and after satisfying operating performance tests, JOGMEC will provide guarantees for a maximum 85% of the debt related to Oroceara's and TTC's portion of the project debt to a maximum of US\$100 million.

This comprehensive low-cost project debt financing package procured by TTC provides significant value to the project and will help carry through Olaroz to commercial production of battery grade lithium carbonate.

The total equity component from TTC and Oroceara combined will be US\$82.8 million, approximately 30% of project cost if the project financing is fully drawn. This equity investment has been structured in the most effective way in accordance with the provisions of the January 2010 preliminary agreement. Consequently, TTC's contributions are in the form of equity subscriptions on a Singaporean joint venture holding company, Salar de Olaroz Pty Ltd, with contributions over as described below. At completion of the contributions, TTC will hold a 25% indirect interest in the Olaroz Project.

TTC's investment in the project will be approximately US\$50 million net of adjustments made to take into account various financing support arrangements to be provided by TTC to Oroceara during the project development. Oroceara's total funding requirement will be US\$16 million net of US\$16 million rebated in advance expenditures under the Feasibility Study. This net amount includes the US\$7 million loan to EMSE and payments on behalf of TTC into the Salar de Olaroz Pty Ltd for the US\$4.5 million received from TTC under the January 2010 preliminary agreement and the financing support arrangements to be provided by TTC.

At the completion of financing, Ajoyo Energía y Minas Sociedad del Estado ("EMSE"), the mining investment company owned by the provincial Government of Jujuy in Argentina, acquired an 8.5% interest in the project. A summary of the EMSE arrangements is provided below:

- EMSE holds an 8.5% equity interest in the Olaroz Project through Oroceara's Argentine holding company Salar de Olaroz.
- EMSE will be required to meet its share of the equity funding required, namely US\$7 million. These funds will be loaned by Oroceara to EMSE and will be repaid over a period of 33.3% of dividend distributions EMSE receives from the Olaroz Project.
- EMSE will be obliged to provide funds for future operations, but if it is not capable, Oroceara will loan funds on a similar basis to the initial construction funding.
- All project debt obligations to Minoro Bank and JOGMEC will have priority over distributions of any profit due to EMSE.
- EMSE will provide key construction assistance services to the Olaroz project, and will act as a leading role liaising with municipal, provincial and national government departments and customs authorities.

EMSE's equity participation aligns the interests of the Province of Jujuy with those of Oroceara and TTC, and provides a solid platform for a harmonious ongoing working relationship between Oroceara and the province. EMSE was instrumental in advancing final project approvals, including the grant of the mining license, approval of the ESF, and approval and support of the project under the necessary approval process introduced in March 2011.

### Definitive Feasibility Study

The results of the Olaroz definitive Feasibility Study were released on May 3, 2011, and were highlighted as follows:

- Strong project fundamentals for the Olaroz Project.
- Very large resource base to support long product life.
- Low operating costs for battery grade lithium carbonate, low end of global cost curve.
- High quality and conservatively derived results provide strong technical and commercial bases for project.
- Prising outlook for lithium and potash remains strong.

The results of the Olaroz QFS indicate that the project has very strong project fundamentals, with a large resource base of 6.6 million tonnes of lithium carbonate equivalent that is expected to support a long product life. The feasibility study outlines a conservative initial production rate of 17,400 tonnes per annum of battery grade lithium carbonate production with an option to produce 10,000 tonnes of potash per annum two years after the start of lithium carbonate production. Project life was estimated at 40 years. The capital cost estimated for the lithium carbonate only plant was US\$87 million with an additional US\$15 million for the potash option.

The QFS estimate extends to an average depth of 197 m and uses the Company's proprietary boundaries at a 1:1 grade directly out-of the surface to establish peripheral resource footprints. No internal cut-off boundaries have been used because it is inappropriate to use them in a fluid resource where verticality will cause mining.

The weighted average modelled specific yield is 0.6%.

The mining program also confirmed overall mine efficiency with an average megagram to lithium ratio of 2.4 and an average sulphate to lithium ratio of 25.

The Olaroz QFS also highlights the project's very low operating cash cost, estimated at US\$12 per tonne for battery grade lithium carbonate (lithium product, net of benefits). This cost estimate is competitive with existing brine producers and materially less than those reported by hard rock lithium mineral producers.

Third party consulting expertise was engaged to complete key aspects of the Olaroz QFS. Engineering design and cost estimates were undertaken by Sinclair Knight Merz ("SNM"), a leading global project firm. SNM is a significant industry experience, and is the only company that has ever designed and managed the construction of a complete lithium brine operation, one which was also in Argentina, at Salar de Hombre Muerto facility. SNM has also provided services to lithium producers in Chile. The Olaroz QFS resource estimate and process design engineering was undertaken by consulting hydrogeologist John Houston and consulting process engineer Peter Evers.

### Olaroz Production Capacity

The design capacity of the Olaroz operation has been increased to 17,500 tonnes per annum ("tpa") of lithium carbonate, from 16,400 tpa originally provided for in the QFS, now that the detailed engineering phase has been completed. This production improvement is due to an increase in the expected brine grade from 770mg/l in the Feasibility Study to 820mg/l following independent detailed modelling. Expected potash recovery has also been increased to approximately 20,000tpa compared to 10,000tpa as a result of an amended process flow. Potash costs and capital costs are not currently included in the amended project plan or economics at this time, but will be considered in future development phases.

### Geology and Resources

The Salar de Olaroz is underlain by a deep basin (gravity data suggests up to 600m deep) bounded by a pair of N-S trending faults that bound Cordoba and Cochabamba basement rocks over the basin margins. The basin is filled with Cenozoic sediments. Pliocene to Recent sediments form a multilayered aquifer that acts as a host to the brine that has probably been present here for thousands of years. Drilling has tested the aquifer to depths of 200 m and there is potential for additional resources beneath that depth. Some geological models of basin brines. The carbonate elevated levels of dissolved elements in solution that are of economic interest, lithium, potassium and boron. While the ultimate origin of the lithium and other elements is not known, they are likely to be associated in some way with the Albigens-Puna magmas body that underlies the whole region.

Details of the measured and indicated resources are given in the table below.

### Brine Chemistry

The brine chemistry at Olaroz is very attractive. An originally defined in the QFS, the estimated measured and indicated resources of 1,752 million cubic metres of brine at 850 mg/L Lithium, 1,730 mg/L Potassium and 1,050 mg/L Boron at the Olaroz Project equates to 6.4 million tonnes of lithium carbonate and 11.2 million tonnes of potash (potassium chloride) based on 3.2 tonnes of lithium carbonate being equivalent to 1 tonne of lithium and 1.51 tonnes of potash being equivalent to one tonne of potassium. Subsequent independent modelling has indicated improved lithium brine grade of 825 mg/L, allowing for an increase in the projected annual lithium carbonate production. For comparative purposes, Olaroz Project lithium grade of 800 mg/L is similar to FMC's Uyuni (Mexico) operation and approximately double the grade of both the Silver Peak, Nevada and Ricón, Argentina operations. Olaroz Project Magnesium ratio is also low (levels) is desirable for processing at around 2.6 compared to Alcamas, Ricón and Uyuni at 6.4, 6.5 and 19 respectively. Only Silver Peak and Uyuni (Mexico) are lower at 1.4.

### Climate

The Olaroz Project is an altitude of approximately 3,500m. The average temperature is approximately 6 degrees centigrade and average annual precipitation is less than 100mm. Average wind velocity is approximately 25km/h. These conditions, combined with very limited cloud cover, create favourable solar evaporation conditions.

### Processing Route

The Olaroz brine is suited to application of a modified version of the Silver Peak processing method used at the lithium brine treatment operation in Nevada. The modifications are to suit the difference in brine chemistry and climatic conditions at the Olaroz Project. The processing route utilizes solar evaporation and precipitation of waste products with the addition of locally available lime. Improved production of lithium carbonate with each step with the action of potash recovery via effluents flotation.

A development program has analysed the performance of each stage of the process to develop produce battery grade lithium carbonate. Test work has been undertaken on a pilot scale at the Project site and at commercial and university laboratories. The modified process incorporates a number of proprietary innovations. Initial work focused on evaporation to understand the brine chemistry of the brine during an annual month weather cycle, followed by lime addition test work to remove magnesium. Battery grade specification lithium carbonate from Olaroz brine has been produced from the pilot scale purification plant at Olaroz since early 2011. Analyses show the material to be of greater than 99.2% purity and to exceed specifications of battery grade material used by leading producers. The result of this processing route is a low risk, low cost end product that will meet industry needs, and allow Oroceara to be competitive with existing low cost brine producers.

### Infrastructure

The project site is located on the main highway from northern Argentina to the major port of Antofagasta, Chile, approximately 550 kilometers west of road. This route provides important access for exporting production to key lithium and potash markets, 400km to the north of the main Salar de Olaroz plant facility. The operation is supported by the provincial capital of San Salvador de Jujuy, 500km, 270km and 400km respectively by road to the east.

### Project Engineering

In August 2011, the Company awarded the detailed engineering contract for the Olaroz Project to Sinclair Knight Merz ("SNM"). SNM has been involved in the Olaroz Project since 2010 and completed the engineering and cost estimates for the Olaroz Definitive Feasibility Study. Engineering work on the ponds, brine fields, and related infrastructure to support construction is now complete.

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