

29 April 2014

**ASX/TSX ANNOUNCEMENT**

**RE: AMENDED PORVENIR RESOURCE ANNOUNCEMENT**

Orocobre Limited (“Orocobre” or “the Company”) is amending and restating the announcement issued on April 2, 2014 relating to its resource estimate for the Porvenir borate deposit in order to make certain minor corrections. The revisions include an additional table setting out the Measured and Indicated resources and the text under “Technical Information, Competent Persons’ and Qualified Persons Statements” and under “Caution Regarding Forward-Looking Information” has been restated to include additional disclosure. The text under “About Orocobre Limited” has also been updated in line with recent announcements.

These changes, as well as other minor typographical revisions, are reflected in the amended and restated announcement set out below.



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Company Secretary

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29 April 2014

## **ASX / TSX ANNOUNCEMENT**

### **Porvenir Historical Estimate Upgraded to JORC Compliant Resource.**

Orocobre Limited (ORE:ASX, ORL:TSX) (“Orocobre” or “the Company”) is pleased to announce the upgrade of a historical estimate to a Measured and Indicated Resource for the Porvenir borate deposit in Jujuy Province, Argentina. The resource is located in the Cauchari salar, within 39 mining leases owned by the 100% Orocobre subsidiary Borax Argentina. Within the Cauchari salar, the company’s 85% subsidiary, South American Salars also owns mining properties which host a lithium resource announced by the company on the 22<sup>nd</sup> of October, 2012.

#### **Highlights**

- **Measured and Indicated Resource of 2.3 million tonnes at 20.4% B<sub>2</sub>O<sub>3</sub> is estimated at the current 16% B<sub>2</sub>O<sub>3</sub> mining cut-off grade.**
- **Resource estimate in line with superseded historical estimate at the same cut-off.**
- **The resource extends to a maximum depth of approximately 3 m and is easily exploited by low cost strip mining.**
- **A Measured and Indicated resource of 6.9 million tonnes of 14.9 % B<sub>2</sub>O<sub>3</sub> is estimated at a 9% B<sub>2</sub>O<sub>3</sub> cut-off, a value appropriate for processing of the mineralisation at a potential new boric acid plant at Olacapato.**

Independent Qualified/Competent Person Murray Brooker has estimated a Measured and Indicated resource of **2.3 million tonnes at 20.4% B<sub>2</sub>O<sub>3</sub> at the current mine cut-off grade of 16% B<sub>2</sub>O<sub>3</sub> or 6.9 million tons of 14.9 % B<sub>2</sub>O<sub>3</sub>, at a cut-off grade of 9 % B<sub>2</sub>O<sub>3</sub>, a value appropriate to processing the mineralisation at a possible new boric acid plant at Olacapato** to a maximum depth of 2.9 m. Details are given below:

<b>Classification</b>	<b>Cut-off grade</b>	<b>Tonnes</b>	<b>Grade% B<sub>2</sub>O<sub>3</sub></b>	<b>Tonnes B<sub>2</sub>O<sub>3</sub></b>
Measured	16%	1,474,341	20.0	295,117
Indicated	16%	804,595	21.0	168,776
<b>Measured &amp; Indicated*</b>	<b>16%</b>	<b>2,278,937</b>	<b>20.4</b>	<b>463,992</b>
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Measured	9%	4,907,877	14.5	710,672
Indicated	9%	1,942,433	16.0	310,517
<b>Measured &amp; Indicated</b>	<b>9%</b>	<b>6,850,000</b>	<b>14.9</b>	<b>1,020,000</b>

This compares to a superseded historical estimate of 2,417,099 tonnes at 20.2 B<sub>2</sub>O<sub>3</sub> calculated at a cut-off between 14% and 19% B<sub>2</sub>O<sub>3</sub>, depending on the mineralisation style. The superseded historical estimate was originally reported on the 21<sup>st</sup> of August 2012, at the time of the announcement of the Company's purchase of Borax Argentina. The majority of the ulexite is hosted within a sand matrix, which is easily separated from the ulexite by screening after drying. The screened ulexite from this mining operation is then available for processing into Boric acid.

The company is in the process of upgrading the historical estimates (refer to Appendix 1 below) of the different Borax Argentina mining properties to JORC/NI43-101 compliant mineral resources. This Porvenir resource estimate, calculated in accordance with the requirements of JORC 2012, is the first re-evaluation of the Company's borate resource base. Geological interpretation and re-estimation of the resources at the Diablillos and Tincalayu projects is currently underway. The historical estimate (now superseded) of the Porvenir deposit was only a small part (14% of contained B<sub>2</sub>O<sub>3</sub>) of the overall quantum of the historical estimates of the mineralisation on Borax Argentina properties.

## **Introduction**

Borax Argentina SA, including the Porvenir ulexite mine, was acquired by Orocobre from Rio Tinto Minerals in August 2012. Borax Argentina has been in operation for over 50 years and operates open pit mines in Tincalayu, Sijes, and Porvenir. There are concentration plants in Tincalayu, Sijes and Porvenir (not currently used) and refinery facilities in Campo Quijano. Additionally, the large deposit at Diablillos is essentially undeveloped although some ulexite is mined for processing into boric acid.

There are presently three product streams. Firstly, the mineral tincal is mined and concentrated at the Tincalayu mine and then carted approximately 350kms to produce a range of Borax chemicals at Campo Quijano. Secondly, ulexite is mined, mainly at Porvenir, and transported to Campo Quijano to produce Boric Acid. The third product stream,

hydroboracite and colemanite are mined at Sijes and concentrated to produce mineral concentrates for direct sale.

At Porvenir, mineralisation is currently selectively mined at 21%  $B_2O_3$  and then transported to drying areas where it is spread in windrows to a height of approximately 20 cm. The windrows are turned regularly by hand rakes over a 3 week period to increase drying by the sun and wind and to remove sand and clay from the ulexite resulting in a feed grade of 26%  $B_2O_3$ . Following drying, the material is loaded into trucks and transported to the company's current operating Boric Acid plant in Campo Quijano, 300kms to the south-east. This boric acid plant has a capacity of 9,000tpa and was designed to process a high grade feed.

A pre-feasibility assessment is currently underway regarding the construction of a new boric acid plant in Olacapato, only 40 km south of the Porvenir mining operations, to produce up to 25,000 tpa of boric acid ([Figure 1](#)). The design concept behind this plant is to process lower grade run-of mine mineralisation produced by more mechanised and lower unit cost methods. The plant is being designed for a feed grade of approximately 18%  $B_2O_3$ . This allows a cut-off grade of 9%.

### **Location and Properties**

Porvenir is located in the Cauchari salar (salt lake, [Figure 1](#)) in the south of the province of Jujuy. The project is in the Puna geographical region, at an altitude of ~3900 m above sea level, 160 km west-northwest of San Salvador de Jujuy, capital city of Jujuy province.

Porvenir lies approximately 20 km south of the paved highway ([Figure 2](#)) that passes through the international border with Chile, approximately 80 kilometres by road to the west (Jama Pass). That road continues to the major mining centre of Calama and the port of Mejillones in northern Chile, a major port for the export of mineral commodities and import of mining equipment.

Orocobre, through its 100% owned subsidiary Borax Argentina, owns thirty nine mining properties in the Cauchari salar (salt lake) that constitute the Porvenir project ([Figure 2](#)). The leases are located immediately south of the company's flagship Olaroz lithium operation and host shallow (current maximum depth 1.5 m) strip mining of ulexite, the dominant boron mineral in this salar. The company's 85% owned subsidiary, South American Salars, owns mining properties immediately east of the Borax Argentina properties and these host an inferred lithium brine resource previously reported by the company.

### **About borate mineralisation**

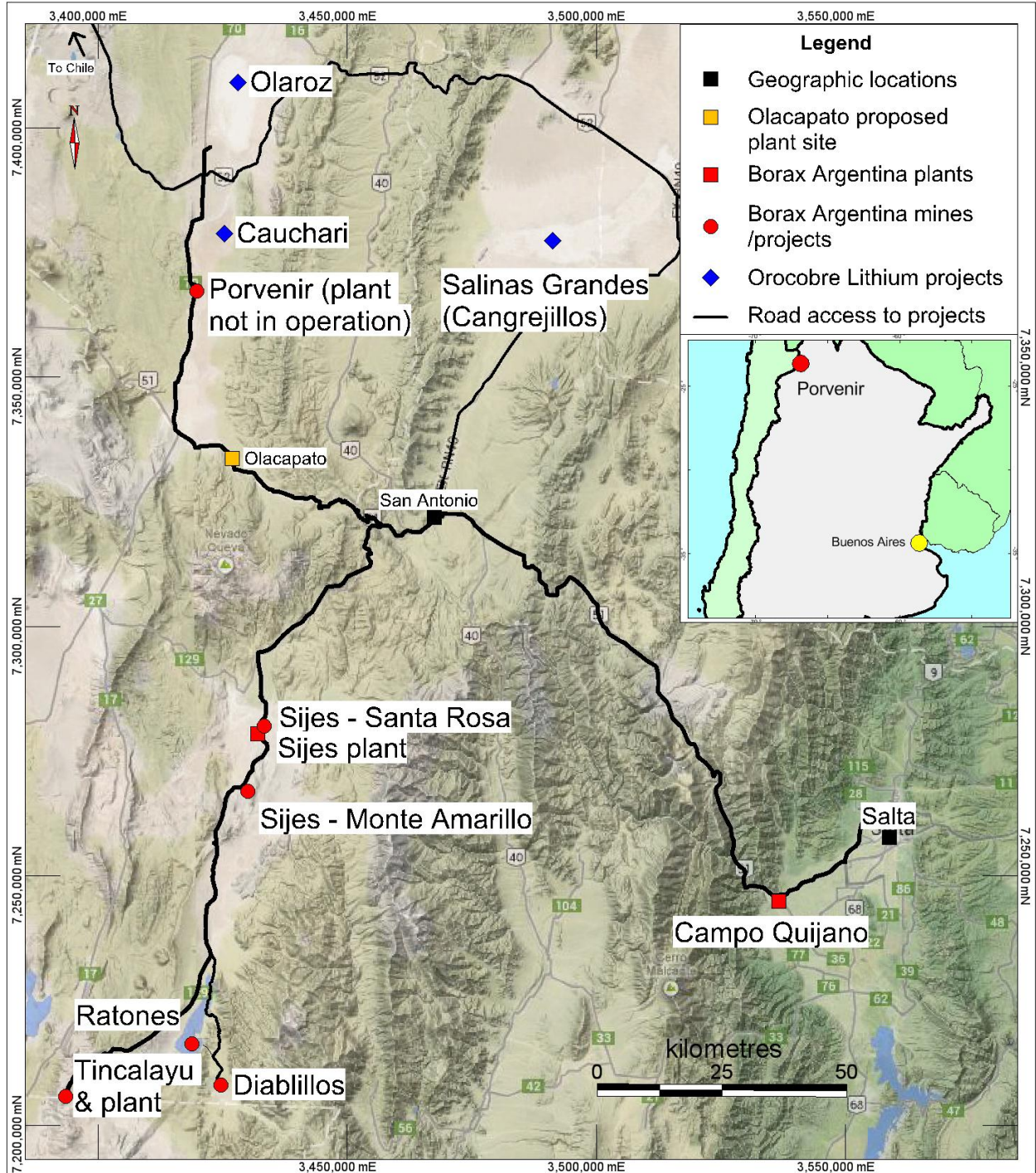
Borates are the group of minerals which consist of boron bonded with oxygen and cations such as Ca, Mg and Na. Economic borate mineralisation largely consists of minerals such as ulexite ( $NaCaB_5O_6(OH)_6 \cdot 5(H_2O)$ ) and borax which were deposited in salar (salt lake)/playa-lake environments. The most significant borate deposits are located in Turkey, the USA and Argentina. These are regarded as industrial minerals and have a wide range of uses. These include use as fluxes in a wide variety of industrial applications, as frits for the glass industry and in industrial products such as fibre glass and flame retardants.

Boric acid is used in a wide variety of applications including glass, ceramics, fertilisers and wood preservatives. The market has a growth profile above world GDP growth. Industrial



grade boric acid pricing has ranged between approximately US\$750/t to \$1,250/t CIF over the past 5 years. Boric acid is 56.3%  $B_2O_3$ .

**Figure 1: The location of the Porvenir project and proposed Olacapato plant in northern Argentina**



## **Geology, Exploration Data and Interpretation**

Exploration on the Porvenir leases has been undertaken by test pitting as the resource is very shallow and in general can be evaluated more effectively with pits rather than drill holes. A total of 3,954 pits have been excavated across the Porvenir tenements, in 100 m spaced sampling lines, with pits spaced 100 m apart along the lines. These pits are mostly less than 2 metres deep (maximum depth 2.9 m), extending to the base of mineralisation. This sampling was undertaken in three programs between 2000 and 2004. Pits were sampled where significant ulexite mineralisation was noted. The geology of the pits and samples was described by Borax Argentina geologists under the supervision of the Chief Geologist, who has over 35 years experience with borate mineralisation.

The ulexite most frequently occurs within sandy and clayey units as potato-sized clots which are referred to as *papas* (Figure 3). Sandy units are developed on the margins of the alluvial fans surrounding the Cauchari salar. Where boron-bearing groundwater is transported towards the salar, *papas* of ulexite grow/precipitate in these sandy units. Clayey units are developed outside the sandy channels and these host deposits of finer grained ulexite referred to as *barras*. Ulexite mineralisation is hosted in up to four different horizons, although 62% of test pits encountered a single ulexite horizon.

Correlation between test pits shows that in the northern (Mascota) group of properties the horizons of ulexite have the greatest lateral extent (Figure 4). In the southern properties the ulexite mineralisation is narrower but often high grade. Overall, 75% of the global mineralisation is hosted in the Mascota and Grupo Cinco properties, where it is dominantly hosted by sandy material.

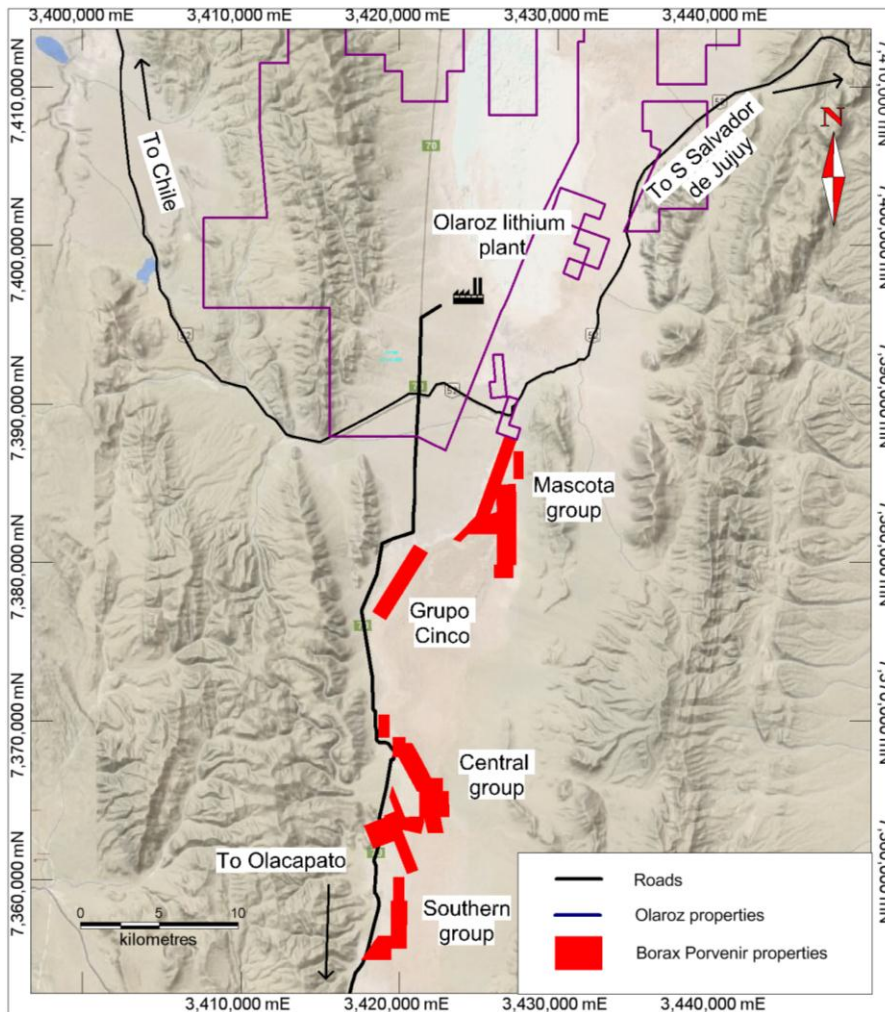
## **Data Validation, QA/QC Results**

The original 2000 to 2004 pit samples were analysed at the Borax Argentina company laboratory in Campo Quijano and this program did not include Quality Assurance or Quality Control (QA/QC) samples. Consequently, a program of re-assaying sample pulps from these original pit samples was undertaken at an independent laboratory as part of the resource estimation process. Analysis of borates is a relatively specialized procedure and the INTEMI laboratory in San Salvador de Jujuy was selected to carry out the analyses, as the laboratory has extensive experience analysing borate samples.

Six percent of the total original samples were re-assayed in the INTEMI laboratory, together with additional QA/QC samples. QA/QC analyses included the use of four standard samples of natural ulexite material at different B<sub>2</sub>O<sub>3</sub> grades, with a frequency of standards greater than 1 in 20 primary samples (equivalent to 9.4 % of the primary samples analysed). Pulverised quartz vein material was used as blank samples (8% of samples analysed). Duplicates comprised 17% of the samples re-analysed and triplicates (analysed in the Borax Argentina laboratory) a further 5% of samples re-analysed. Neither the Borax Argentina nor the INTEMI laboratories are certified as commercial laboratories, however the Borax Argentina laboratory has operated under the ISO 9001 certification of the Borax Argentina quality system since 1996.



**Figure 2: The distribution of the Porvenir properties**



**Figure 3: Ulexite mineralisation (white = papas) within a predominantly sand host**



Statistical analysis of the  $B_2O_3$  and chloride analyses shows that differences in the mean and standard deviation are not statistically significant between the INTEMI and Borax Argentina laboratories.

Analytical results for the standards show an overall acceptable distribution, despite some analyses exceeding 2 standard deviations from the nominal standard values. The re-analyses of a selection of samples shows an overall acceptable accuracy and precision in spite of a small number of re-analyses showing a poor correlation with the 2004 values. Overall, the original sample analyses are considered suitable for the purpose of this resource estimation.

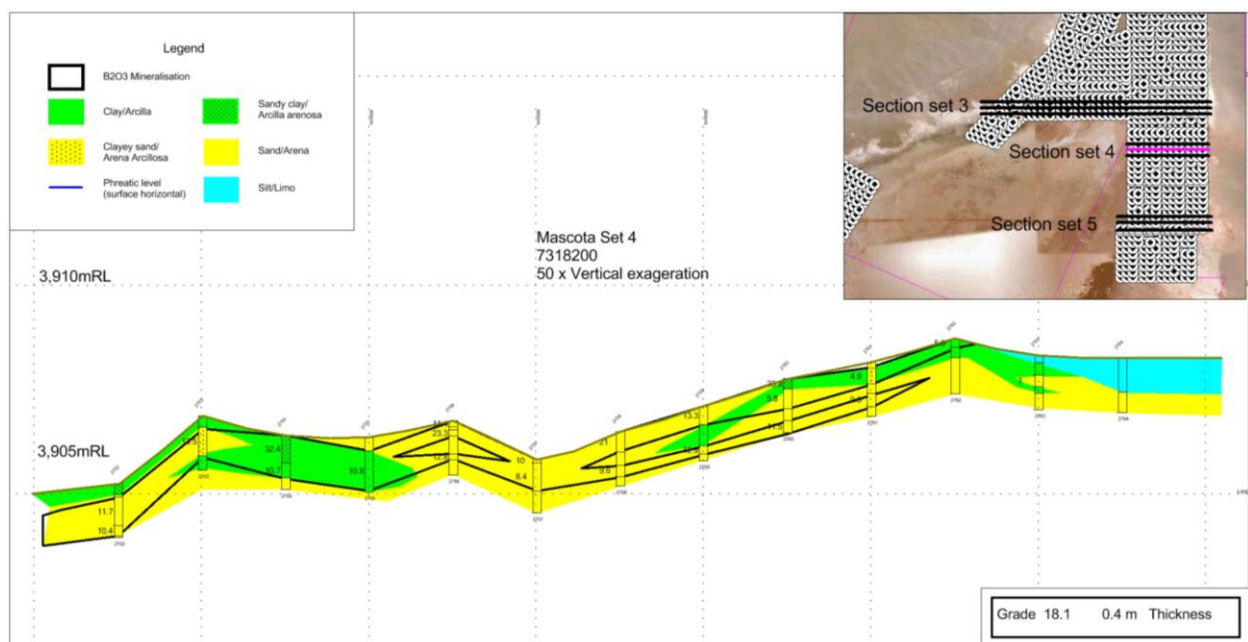
### **The Resource Estimation Process**

The total area covered by the Porvenir properties is 40.03 km<sup>2</sup>, with the resource covering 17.5 km<sup>2</sup> within these properties and the area exploited by mining to date covering 1.34 km<sup>2</sup>. As the Porvenir deposit is currently being mined areas of historical mining have been surveyed and removed from the resource calculated from the pit sampling. The resource estimate at Porvenir is compliant with the JORC 2012 code and is entirely based on pit sampling.

Mineralisation occurs in flat lying interlayered sand and clay units, with variations between the papa and barra styles of mineralisation within mineralised units generally corresponding to change in host lithology. As mineralised units cross host lithologies there has been no differentiation of areas/domaining of the resource based on lithology, as the resource is exploited in a bulk mining operation.

Density measurements were made by independent geotechnical laboratory, Tecnosuelo, using samples collected by Borax Argentina from sand and clay samples of the papa and barra mineralisation styles, with a range of B<sub>2</sub>O<sub>3</sub> contents. As ulexite has a very low density the ulexite content is a major control on the overall sample density. A regression relationship between ulexite content and density in sand and clay units was derived from this data, and used to apply a dry density to each of the resource polygons.

**Figure 4: Cross section through the Mascota northern properties showing ulexite mineralisation outlined in black**





Pit samples were taken over lithological intervals, rather than regular lengths (such as 1 m samples commonly used with reverse circulation drilling). Consequently, in the polygonal model used for resource estimation individual mineralised samples have been combined (to produce a length weighted average  $B_2O_3$  % grade) for a combined total thickness at each mineralised pit location. This acts to smooth any individual high values, although in this industrial mineral deposit there is a general lack of extremely high “spiky” values and grade capping is not considered necessary. Compositing samples, as carried out with drill holes, is not practical, where the majority of pits are < 2 m deep, and 62% of pits have only one mineralised intersection.

Following database validation a polygonal resource was estimated for the Porvenir deposit as follows:

- A polygon was constructed for each pit dug as part of the sampling program (typically 100 x 100 m polygons). Each polygon had an associated area (restricted within property boundaries). Some pits have influence in several polygons, within different properties.
- The combined thickness of each mineralised interval was used together with the area of the polygon to calculate a polygon volume for ulexite mineralisation.
- The derived density, based on  $B_2O_3$  % content and lithology, was multiplied by the polygon volume to produce a tonnage (the densities were calculated based on the relative proportions of each sample interval in each pit)
- The polygon tonnages were then multiplied by the proportion of  $B_2O_3$  % in each polygon and each polygon summed to provide a total tonnage of  $B_2O_3$  and tonnage per property.

Results were verified by comparison with a polygonal resource estimate carried out in Mapinfo software, with little difference between the two polygonal estimates (Table 1).

**Table 1: Comparison of resource estimation methodologies**

Resource estimation method	Global tonnage	$B_2O_3$ %
Excel polygonal	11,220,000	11.4
Mapinfo polygonal	11,490,000	11.5

The global resource tonnage (i.e with no cut-off applied) is 11.2 Mt of dry, in-situ ulexite material containing 11.4 %  $B_2O_3$  (stated as %  $B_2O_3$  equivalent).

The resource classification is primarily based on interpretation of the continuity of mineralisation, as the sample spacing (100 m spaced pits, with more closely spaced pits along property boundaries) is essentially uniform across the deposit. Sampling and analysis is considered to have been adequately carried out, based on the available documentation and re-analysis of 6% of the primary pit samples. Overall, the original pit assays are considered to be of adequate quality for this resource estimate.

- In the northern properties (Mascota Group, Grupo Cinco), where mineralisation shows a high level of north to south and east to west continuity, mineralisation is classified in the measured category.
- Where mineralisation is less continuous and is generally restricted to three or less adjacent pits on a cross section mineralisation has been classified as indicated (in the Central and Southern groups of properties).

### **Cut Off Grade and Resource**

Resource estimates at two cut-off grades have been considered. The first is based on the current mining cut-off of 16% B<sub>2</sub>O<sub>3</sub> which is appropriate to the current mining and processing operation. The second is based on an economic cut-off grade of 9 % B<sub>2</sub>O<sub>3</sub> which takes into account the anticipated total operational costs of the Porvenir mine, the contemplated Olacapato processing plant and the approximate current spot price of US\$775/t boric acid (FOB). Details are presented in Table 2.

**Table 2: Measured and Indicated Resources at 16% and 9% B<sub>2</sub>O<sub>3</sub> cut-offs**

<b>Classification</b>	<b>Cut-off grade</b>	<b>Tonnes</b>	<b>Grade % B<sub>2</sub>O<sub>3</sub></b>	<b>Tonnes B<sub>2</sub>O<sub>3</sub></b>
Measured	16%	1,474,341	20.0	295,117
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<b>Measured &amp; Indicated</b>	<b>9%</b>	<b>6,850,000</b>	<b>14.9</b>	<b>1,020,000</b>

A comparison of the historical and new resources estimates at a mining cut-off grade of 16% is presented in Table 3. At the same cut-off the estimates are similar, although the new estimate is 15% smaller, reflecting mining of the resource between 2004 and the present. A drop in cut-off to 9% significantly increases the size of the resource and provides potentially much greater resource extraction.

**Table 3: Comparison with the superseded historical Porvenir resource as stated in August 2012**

Resource Estimate	Classification	Cut-off grade	Tonnes	Grade % B <sub>2</sub> O <sub>3</sub>	Tonnes B <sub>2</sub> O <sub>3</sub>
<b>Resource comparison - 16% cut-off</b>					
<b>Superseded Porvenir 2004</b>	Measured	16%	2,588,243	20.8	538,613
<b>NEW Porvenir 2014</b>	Measured & Indicated	16%	2,278,937	20.4	463,992
<b>Comparison of historical and new resource estimates at different cut-offs</b>					
<b>Superseded Porvenir 2004</b>	Measured	Varied by mineral form, 14% for papas, 19% for barras, 18% for tiza/other	2,417,099	20.2	487,231
<b>NEW Porvenir 2014</b>	Measured & Indicated	9%	6,850,000	14.9	1,020,000

Footnotes: The source of the 2004 historical estimate, which has now been updated and is superseded by the new 2014 resource discussed in this announcement, was the December 2004 Resource Estimation Porvenir Properties, Cauchari Salar by Raúl Gutiérrez Solís and Alejandro Carral. The superseded historical estimate was in equivalent categories to those used by the JORC and CIM reporting codes. However, the superseded 2004 estimate did not satisfy either current JORC or CIM/NI 43-101 requirements for the reporting of resources and was considered to be a historical resource (see Orocobre announcement August, 2012). The superseded 2004 historical estimate for the Porvenir salar deposit was based on traditional polygonal resource estimation methods suitable for such geometries. A qualified person did not do sufficient work to classify the superseded 2004 historical estimate as a current mineral resource or mineral reserve, and the Company did not treat that superseded 2004 historical estimate as a current mineral resource or mineral reserve. The 2004 historical resource is no longer relevant, and has been superseded entirely by the new 2014 resource discussed in this announcement.

### **Management Commentary**

Orocobre's Managing Director, Richard Seville, stated: "The completion of this Porvenir resource estimate marks the first step in bringing all the historical estimates up to JORC compliance. Over the coming year, we will also complete the resource estimates on the more significant Dialblillos ulexite mineralisation, the Tincalayu tincal mineralisation and the Sijes hydroboracite mineralisation.

The work on Tincalayu is well advanced, but we brought the Porvenir resource forward so that it could provide an input for the possible new boric acid plant at Olacapat, 40 km south of Porvenir on which we are currently undertaking a PFS. The Porvenir resource is sufficient to support more than 20 years of mine life, for annual production of 25,000 tons of boric acid."

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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 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 is building in partnership with Toyota Tsusho Corporation the first large-scale, “greenfield” brine based lithium project in 20 years at its flagship Salar de Olaroz resource, with projected production of 17,500 tonnes per annum of low-cost battery grade lithium carbonate scheduled to commence in Q3 2014. The Company also wholly-owns Borax Argentina, an important regional borate producer. Orocobre is included in the S&P/ASX 300 Index and was named 2012 Mining Company of the Year by Argentine mining magazine Panorama Minero and the Fundacion para el Desarrollo de la Mineria Argentina (“Fundamin” or Foundation for Development of Argentina Mining). For further information, please visit [www.orocobre.com](http://www.orocobre.com)*

## **Technical Information, Competent Persons’ and Qualified Persons Statements**

*The information in this report that relates to mineralisation at Borax Argentina sites has been prepared by Mr Murray Brooker. Murray Brooker an independent consultant to Orocobre, is a geologist and hydrogeologist and is a Member of the Australian Institute of Geoscientists. Mr Brooker 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 and as a “Qualified Person” as defined in NI 43-101. Mr Murray Brooker consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.*

*The Company confirms that it is not aware of any new information or data that materially affects the information included in the references above and that all material assumptions and technical parameters underpinning the resource estimates continue to apply and have not materially changed. The Company also confirms that the form and context in which the Competent Person’s findings are presented have not been materially modified. A previous announcement was made on the 21/08/12 regarding the superseded historical resource at Porvenir, which is the subject of re-estimation in this announcement. 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 of 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.*

## **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 estimated mineral resources and mineralisation grade at the Porvenir mine, the economic viability of such mineral resources, mine life and operating costs at the Porvenir mine, the market price of boric acid whether stated or implied, demand for boric acid and other information and trends relating to the boric acid markets and other matters related to the potential development of the contemplated Olacapato processing plant.*

*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 general risks associated with the*



*feasibility of the contemplated Olacapato processing plant; 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; a decrease in the price for boric acid resulting from, among other things, decreased demand for boric acid or an increased supply of boric acids or substitutes; other fluctuations or decreases in commodity prices; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with weather patterns and impact on production rate; unexpected capital or operating cost increases; as well as those factors disclosed in the Company's Annual Report for the year ended June 30, 2013 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 market prices of boron 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.*

## Appendix 1 – Historical Borax Argentina resources (announced 21<sup>st</sup> August, 2012)

Mine/Project	Material	Historical Estimate	Tonnes	Grade% B2O3	Tonnes B2O3	% Total Resource
<b>Current Soft Rock mines</b>						
<b>Tincalayu</b>	Tincal	Measured	1,459,201	17.9	261,197	
	Tincal	Indicated	395,519	14.8	58,537	
<b>Sijes - Hydroboracite</b>	Hydroboracite	Measured	3,099,998	22.8	706,800	
<b>Sijes – Colemanite</b>	Colemanite	Inferred	200,000	20.0	40,000	
<b>Total &amp; averages</b>			5,154,718	20.7	1,066,533	
<b>Current Ulexite Mine in Salt Lake Sediments</b>						
<b>Porvenir</b>	Ulexite	Measured	2,417,099	20.2	487,231	14.4%
<b>Undeveloped Ulexite Deposits in Salt Lake Sediments</b>						
<b>Diablillos</b>	Ulexite	Measured	9,435,732	18.8	1,772,893	
<b>Ratones</b>	Ulexite	Indicated	364,663	18.0	65,639	
<b>Total &amp; averages</b>			9,800,395	18.8	1,838,532	
<b>Grand Total</b>			17,372,213	19.5	3,392,297	

Footnotes: The historical estimates are in equivalent categories to those used by the JORC and CIM reporting codes. However, these estimates did not satisfy either current JORC or CIM/NI 43-101 requirements for the reporting of resources and were considered to be historical resources (see Orocobre ASX/TSX announcement August, 2012). **A qualified person did not do sufficient work to classify the historical estimates as current mineral resources or mineral reserves, and the Company did not treat the historical estimates as current mineral resources or mineral reserves. It is uncertain whether following evaluation and/or further exploration any of the historical estimates will ever be able to be reported as current estimates in accordance with the JORC code or NI 43-101.** There is no new information that impacts on these historical estimates. However, Orocobre advises that during 2014 these resources and the information they were based on will be reviewed, re-assaying of historical pulp samples will be undertaken (together with QA/QC analysis) and the resources will be re-estimated, to bring them into compliance with JORC and CIM/NI43-101 requirements. **In the case of Porvenir the 2004 historical resource is no longer relevant, and has been superseded entirely by the new 2014 resource discussed in this announcement.** Cut off grades for mining depend on the individual deposit and the borate mineral being mined. At Tincalayu the recent cut-off grade is approximately 12% B2O3. Note that material mined in 2012-2014 is not accounted for as depletion in the figures above, with approximately 85,000 tonnes at Tincalayu and 35,000 tonnes at Sijes and 30,000 tonnes at Porvenir the estimated annual production of mineralised material at the time this information was originally released in 2012. Relevant reports from which the above summary of historical estimates is drawn include the following:

### Tincalayu:

- July 2006 Estimation for Tincalayu Deposit, Recalculation and 20 years Mining Plan. Roberto Torres & Raúl Gutiérrez; U.S. Borax and Borax Argentina S.A.;
- August 2006. 9 Years Mining Plan based on July 2006 Recalculation, Roberto Torres, U.S. Borax; 2007 – 2012. Subsequent to these estimates Borax Argentina has carried out annual reconciliations of the material mined against the material predicted by the geological model and has thereby updated the historical estimate inventory for mining depletion. The estimate set out in Table 1 reflects these annual reconciliations as of December 2011. These are reported in the annual reports titled Tincalayu Deposit Update & Yearly Mining Plan by Raúl Gutierrez.

**Sijes:**

- July 1998; Borax Argentina S.A.; Environmental and Operational Studies, Phase 1, Initial Geotechnical Appraisal; Knight Piesold Limited, England. Includes a Historical estimates Chapter;
- July 1998; Borax Argentina S.A.; Environmental and operational Studies, Phase 2; Geotechnical Appraisal; Knight Piesold Limited, England;
- May 1999; Borax Argentina S.A.; Hidroboracite Project, Raul Gutierrez Solis; August 1999, Borax Argentina S.A.; Sijes, Monte Amarillo 2 Mine. Historical Estimation, Mine Design & Planning Report. Knight Piesold Limited, England.

**Porvenir:**

- December 2004, Historical s Estimation for all Properties in Porvenir mines, Cauchari Salar. Raúl Gutiérrez Solís and Alejandro Carral Reconciliation of produced ulexite versus production planned from the historical estimates is not carried out, but the historical estimate is reduced when a block within the estimate have been mined out.

**Diablillos:**

- December 2008, Historical estimates for all properties granted at Diablillos Salar. Raúl Gutierrez Solis and Eduardo Carral.

**Ratones:**

The project was acquired by Borax Argentina circa 1987. The previous owners had conducted an estimate of contained mineralised material. This has not been validated by Borax Argentina, who considers the status of this material to be of the indicated category.

## Appendix 2 – JORC Table 1 Checklist of Assessment and Reporting Criteria

Criteria	Commentary
<b>Sampling Techniques and Data</b>	
Drilling technique	<ul style="list-style-type: none"> <li>No drilling has been carried out as part of this resource estimation. All sampling was conducted in pits excavated in the salar surface.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>See above.</li> <li>Adequate samples were obtained from the pit sampling program, where samples of several kilograms were taken from the pit walls – exact details of sample weights are not known. Consequently sample recovery is not considered a problem for the samples in this program. It is uncertain whether there was any bias during sampling, as no field duplicate samples were taken in the original program.</li> <li>Pits that did not intersect borates were not sampled but geology was described.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Pit samples were logged geologically at the site of the test pits, where samples were collected and bagged for analysis.</li> <li>Original logs were not available for the pit sampling program, with data compiled in Excel sheets and provided to the BA data manager by contractors or BA geologists.</li> <li>Geological data was compiled in Excel sheets for each property and combined into a master Excel sheet by BA staff for the purpose of resource estimation. The data was not included in a database, prior to this resource estimation. This database has been validated by Borax Argentina, to eliminate inconsistencies in the data.</li> <li>Photographs are not available from pits.</li> </ul>
Sampling techniques	<ul style="list-style-type: none"> <li>Pit samples were taken with shovels and geological hammers and sent to the BA lab in Campo Quijano. Samples were then dried prior to crushing and pulverizing, reportedly to pass a 40 mesh, with homogenization and riffle splitting of the crushed material.</li> <li>The sample length of pit samples is typically from cm to 10's of cm (average 33 cm), as individual borate horizons have limited thickness.</li> </ul>



<p>Sub-sampling techniques and sample preparation</p>	<ul style="list-style-type: none"> <li>• Historical samples were reportedly dried at &lt;30°C in sampling programs and, crushed.</li> <li>• A split of ~200 grams was obtained with a riffle splitter.</li> <li>• For 2013 re-assaying re-pulverized original pulp material was sent to the laboratory for analysis.</li> <li>• Because this is an industrial minerals deposit, with a relatively high concentration (generally 8-24% B<sub>2</sub>O<sub>3</sub>) there is not the large grade variation observed in more spiky/nuggety deposits, such as gold, where order of magnitude differences in assays are not uncommon.</li> <li>• A total of 29 density samples were taken by BA throughout the Porvenir deposit. These sample densities were measured by immersion of wax coated samples with sample lengths exceeding 10 cm in length, when lithology allowed (friable sand samples – which were sampled in tubes – were difficult to keep coherent), to minimise measurement uncertainties</li> </ul>
<p>Quality of assay data and laboratory tests</p>	<ul style="list-style-type: none"> <li>• Boron assays from original sampling were undertaken at the Borax Argentina Campo Quijano laboratory. The laboratory has been ISO 9001 certified since 1996. No QA/QC samples were included as part of that program.</li> <li>• During the 2013 pulp re-assay program standards, blanks and duplicates were included with the primary samples for re-assay. Primary and QA/QC samples were analysed at the INTEMI laboratory in Jujuy.</li> <li>• The uncertified standards, blanks and duplicates were inserted as part of the 2013 reanalysis of pulps, with a frequency of &gt;1 in 20 samples, in addition to lab internal QA/QC controls.</li> <li>• The laboratory technique (titration) used for B<sub>2</sub>O<sub>3</sub> analyses is the same as that utilized in the original assaying programs between 2000 and 2004.</li> </ul>
<p>Verification of sampling and assaying</p>	<ul style="list-style-type: none"> <li>• Verification assaying (re-assaying) was carried out on the pulps from past pit sampling within and surrounding the deposit. A total of primary 149 pulps (6 % of the original total samples) + duplicates, standards and blanks) were re-assayed.</li> <li>• Twinning of pits was not carried out in the original sampling programs, although some pits were dug in closer proximity (i.e. 25 m) close to tenement boundaries.</li> <li>• The independent QP/CP selected the pulps for analysis and reviewed the re-analysis of the pit pulps.</li> </ul>
<p>Location of data points</p>	<ul style="list-style-type: none"> <li>• Historical pit samples were located with a theodolite from the surveyed corner posts of the properties.</li> <li>• A selection of property corner points were checked with a differential GPS as part of data validation for this resource estimation. A number of pits were also located with a hand held GPS by the QP/CP, to verify their locations.</li> <li>• Project data is used in the UTM GK Zone 3, with the Argentine POSGAR datum.</li> <li>• Pits are considered to be located with less than a 5 m deviation within the 100 by 100 m area they typically represent.</li> </ul>

Data spacing and distribution	<ul style="list-style-type: none"> <li>• Pits were spaced at 100 m, with the exception of additional pits close to internal and external property boundaries, with a spacing of 20 to 25 m between sampling lines.</li> <li>• Holes have an average spacing of &lt;100m x 100m within the resource (~ 122 pits per km<sup>2</sup>).</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• The deposit consists of sub-horizontal lenses of mineralisation, with the pits dug vertically to intersect this mineralisation. Lenses may bifurcate but are not known to be offset by faults.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• No details are known about the transport and security of historical pit samples.</li> <li>• Pulp samples were kept in boxes in a locked store room prior to recovery for selection of pulps for re-assaying. These 2013 re-assay samples were transported to the Borax Argentina laboratory by BA staff.</li> <li>• Check analyses were made in the BA Campo Quijano laboratory by BA staff. The samples were processed in the laboratory, where only authorized BA personnel are permitted entry.</li> <li>• Samples were transported to the INTEMI laboratory in Jujuy by Borax staff or accredited couriers.</li> </ul>
Review (and Audit)	<ul style="list-style-type: none"> <li>• Conducted by the author, <i>No audit was conducted.</i></li> </ul>
<b>Mineral tenement and land tenure status</b>	
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>• BA owns 39 mining properties covering parts of the Cauchari salar, which are referred to as the Porvenir tenements.</li> <li>• The tenements are 100% owned by BA.</li> <li>• Royalties of 3% are payable to the Argentine government.</li> <li>• The tenements are believed to be in good standing, with payments made to relevant government departments.</li> </ul>
Exploration by other parties	<ul style="list-style-type: none"> <li>• A number of other parties have tenements over parts of the Cauchari salar. This includes South American Salars – Orocobre's 85% owned subsidiary. There is no known systematic historical exploration in the Borax properties prior to that conducted between 2000 and 2004. It is likely that some prior sampling was undertaken by predecessors to RioTinto or prospectors, but this is not recorded.</li> </ul>
Geology	<ul style="list-style-type: none"> <li>• The deposits are shallow sands and clays hosting ulexite mineralisation on the margins of an active salar (salt lake). Drilling for lithium exploration shows that deeper salar deposits extend to &gt; 400 m below surface. The salar basin is underlain and surrounded by Ordovician and younger sediments.</li> </ul>
Drill hole data	<ul style="list-style-type: none"> <li>• There are no drill holes in this surficial deposit.</li> </ul>
Data aggregation	<ul style="list-style-type: none"> <li>• As this industrial mineral deposit lacks local "nugget" high grade zones no cutting or capping of grades has been applied.</li> <li>• The cut-off grade used for this estimate of the Porvenir resource is 10%.</li> <li>• Sample compositing has been conducted, with individual samples combined to a total thickness and length weighted average grade for each pit (61.6 % of pits had one sample = 1</li> </ul>

	mineralised interval)
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>Pit intersections are true thicknesses, as mineralisation is flat lying and pits are vertical. There is lateral variation in facies and grade between pits.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>Diagrams are included within the text of this announcement.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>Exploration results are not included in this announcement</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>The pit sampling programs conducted between 2000 and 2004 represent the only substantive data sets known for this project.</li> <li>Geophysics carried out in the project area has not been and does not apply to the location of shallow borates.</li> <li>Lines of piezometers have recently been installed across the project area, in order to better understand seasonal variations in the phreatic level</li> </ul>
Further work	<ul style="list-style-type: none"> <li>The company is currently working on a Pre-Feasibility study for the processing of the Porvenir ulexite in a new boric acid plant at Olacapato.</li> </ul>
<b>Estimation and Reporting of Mineral Resources</b>	
Database integrity	<ul style="list-style-type: none"> <li>The project data was stored in a master Excel spreadsheet, which has been uploaded to the master geology Access database.</li> <li>Field and assay data was entered manually into spreadsheets, which were combined to create the master spreadsheet. This master spreadsheet was used to calculate the polygonal resource.</li> <li>BA geologists have conducted validation checks on the data in the master spreadsheet, evaluating this against the primary information, where this is possible and correcting information as required.</li> <li>Prior to spreadsheet validation overlapping sampling intervals were found to be a common feature of the existing database.</li> <li>The QP/CP has evaluated the master spreadsheet for potential errors.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The QP/CP has visited the mine site twice, most recently in October 2013.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>Mineralisation is developed in a sequence of recent terrestrial sediments.</li> <li>Borates are often present within cm of surface, extending to depths of &gt; 2 m.</li> <li>As this is a stratabound deposit geology has been important in guiding and controlling the Mineral Resource estimation.</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>The mineralization occurs over a number of separate areas within the properties owned by BA. The total tenement area is 4003 hectares and the total area covered by mineralisation is 17.5 km<sup>2</sup>.</li> <li>The borate mineralisation is up to ~ 800 m wide.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>The mineralisation was modelled as a planar mineralised unit, based on compositing closely spaced horizontal units (the average unit thickness in mineralised pits is 33 cm).</li> </ul>

	<ul style="list-style-type: none"> <li>• The resource estimate has been carried out as a polygonal resource estimate, based on 100 m polygons. A check of this has been conducted using Mapinfo software.</li> <li>• Domains were not used to distinguish between different parts of the deposit, as grades for the different mineralisation styles (papas and barras) and hosted lithologies (sand and clay) on average do not show a large variation</li> <li>• No high grade cuts or capping was applied to the actual assay values used to inform the model polygons.</li> <li>• Cut-off grades: A lower 10 % B<sub>2</sub>O<sub>3</sub> cut-off was used based on the calculated operational costs and data distribution.</li> <li>• The bulk density data was assigned based on B<sub>2</sub>O<sub>3</sub> content</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>• The tonnage is estimated on a dry in-situ basis, using information from representative density samples.</li> <li>• Due to the extremely dry conditions and high evaporation in the Puna region once material is excavated and spread out (10-20 cm thick) it rapidly dries out.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>• A cut-off study was undertaken that evaluated variable operational costs for the deposit, based on years of operational experience.</li> </ul>
Mining factors and assumptions	<ul style="list-style-type: none"> <li>• Mining recovery is estimated at 85%.</li> <li>• Strip ratio is generally &lt;1:1.</li> <li>• A lower cut off of 10 % B<sub>2</sub>O<sub>3</sub> was applied.</li> </ul>
Metallurgical factors and assumptions	<ul style="list-style-type: none"> <li>• The ulexite deposit is essentially monomineralic and the ulexite forms the feed stock directly for boric acid production.</li> <li>• No recent test work has been completed as the metallurgical and processing characteristics of the run of mine mineralisation are well understood, as the deposit has been mined for years.</li> <li>• Ulexite papas in clay are not currently mined, as it is difficult to separate the ulexite and clay. This is the subject of ongoing test work, to evaluate the most cost effective means to exploit this material.</li> </ul>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>• Porvenir is a long-running (~ 50 years) and fully permitted mining operation.</li> <li>• The mine waste material consists of inert sand, clay and some ulexite. Material separated during drying is collected as waste and returned to pits created by mining.</li> <li>• Mineral processing does not currently occur in the Porvenir mining properties but in the plant at Campo Quijano. Future mineral processing is planned for a new site at Olacapato.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>• Bulk density was evaluated in detail, with a total of 29 representative samples taken within the deposit from sand and clay units with different percentages of ulexite.</li> <li>• Bulk density was assigned to polygons within the deposit, based on the proportions of ulexite (density &lt;1 for pure ulexite) and sand/clay.</li> <li>• Bulk density samples were collected in the field from pits sampling tubes and covered in plastic and sealed in plastic bags to prevent moisture loss in the extremely dry Puna environment.</li> </ul>



	<p>The samples were then transported to Salta and measured within days of collection for wet and dry density.</p> <ul style="list-style-type: none"><li>• A 1.8 g/cc upper limit was used for dry density, however this principally affects low grade samples which fall below the cut-off grade and are not included in the resource.</li></ul>
Classification	<ul style="list-style-type: none"><li>• The resource was classified as Measured and Indicated, based on the geological continuity of mineralisation. The pit spacing is essentially constant, so this was not used to classify areas of the resource.</li><li>• The continuity of mineralisation is greatest in the north of the salar, and these areas were classified as measured; whereas mineralisation in the central and southern properties is narrower and less continuous and was classified as indicated.</li></ul>
Review and audit	<ul style="list-style-type: none"><li>• The resource estimate was overseen by the independent QP/CP.</li><li>• <i>No external audit or review has been conducted to date.</i></li></ul>
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"><li>• There was no QA/QC undertaken as part of the original sampling program. Re-assaying of pulps has been undertaken to assess the correlation with the original assay results. Results show an acceptable correlation, supporting the validity of analytical data for use in this resource estimate.</li><li>• Mining has been carried out at this deposit for many years and this has provided an extensive base of information regarding the deposit conditions.</li></ul>