

**ASX RELEASE**

LPI.ASX

22 December 2016

**STRONG LITHIUM BRINE FLOW RATE  
FOR MARICUNGA PUMP TEST**

- Pump test has commenced at well P4 located within the Cocina tenement, adjacent to the high-grade M10 drill hole previously announced.
- Initial brine flow rate recorded at 25 litres per second, targeting the deeper aquifer only, and will now be monitored over the next 30 days.
- The brine flow rates recorded at Maricunga (in wells P1, P2, P4) are amongst the highest results publicly released for lithium projects in South America.
- Strong flow rates are driven by high permeability and porosity within the salar, and are important metrics for lithium brine project economics.

Lithium Power International Limited (ASX: LPI) (“LPI” or “the Company”) is pleased to advise commencement of the pump test at the recently completed well P4 at the Maricunga lithium brine project in northern Chile. LPI is very encouraged by the initial brine flow rate, which compares favourably to other lithium brine projects currently in production or in development within South America.

**Maricunga Pump Test Well P4**

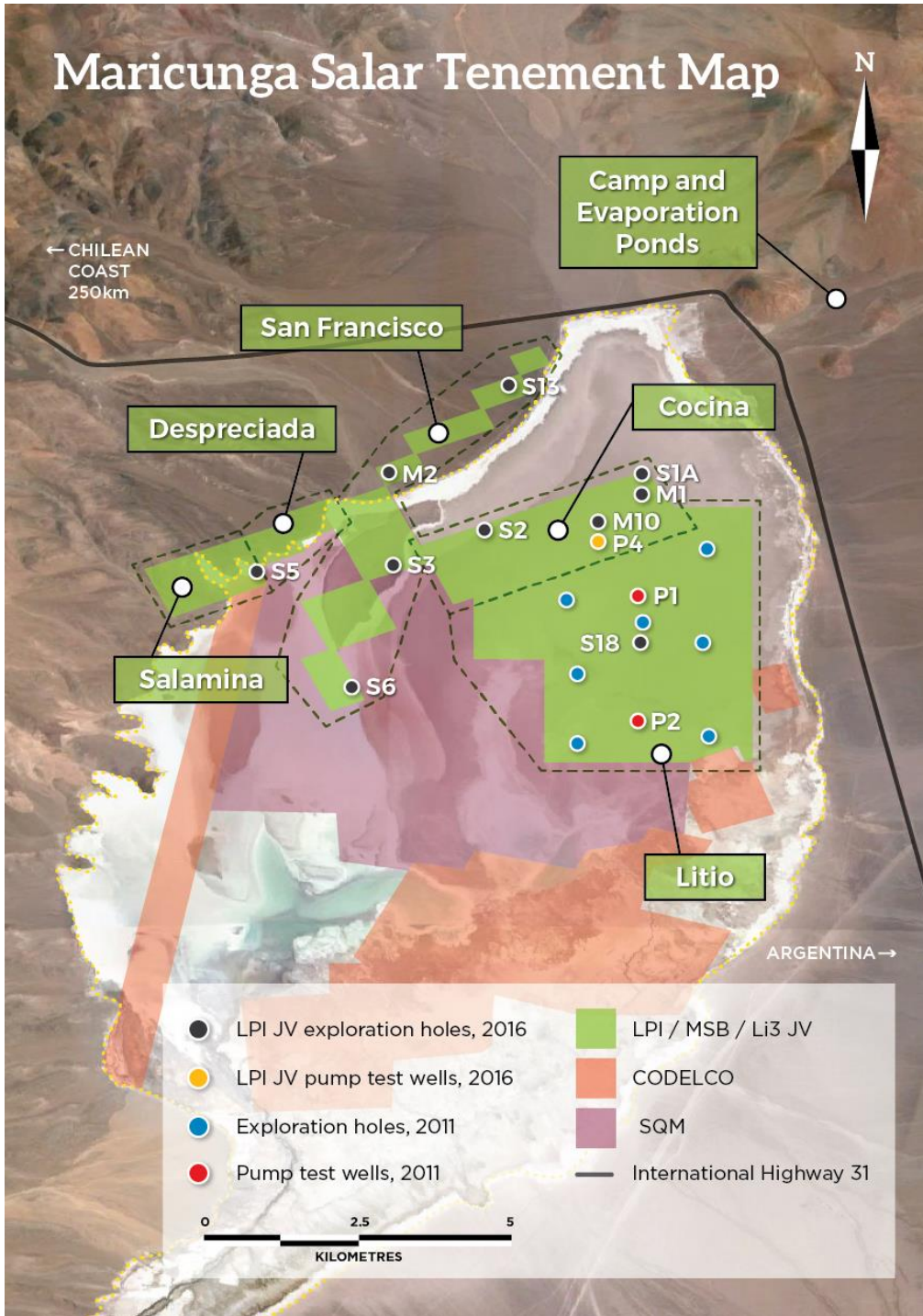
Pump test well P4 was recently installed in the centre of the “old code” Cocina tenement to a depth of 180m (see Figure 1). P4 was drilled as a twin hole to M10, which recorded high lithium grades of 1,239mg/l over the 150-190m interval (as announced on 11<sup>th</sup> November 2016). During drilling, P4 intersected an upper brine aquifer from surface to 66m depth, comprising salt (halite), clay, silt, sand, and minor gravel units. From 66m to 180m depth, a more porous aquifer exists, comprising a mix of mainly sand and gravel.

P4 has commenced pumping lithium brine at a rate of 25 litres per second (l/s). Over the next 30 days, the brine outflow will be continuously monitored for both lithium grade and flow rate. Assay results will be announced as they are received, and at the end of the test.

P4 is located to the north of previous pump test wells P1 and P2, which were installed in the Lito tenement, and were pump tested for 14 and 28 days respectively in 2015. At that time, P1 and P2 reported brine flows of 37-38 l/s from the upper halite zone near the surface and from a deeper sand unit, interpreted to be the same as the deeper sand and gravel aquifer found in P4. In this case, P4 is designed to only pump brine from the deeper aquifer, in order to measure the flow rate at depth within the salar (hence the lesser flow rate as compared to P1 and P2).

For personal use only

For personal use only



**Figure 1:** Maricunga lithium brine project tenements - with the location of pump test well P4 in yellow.

**Note** – P1 and P2 pump test wells (in red) were drilled in 2011, and tested in 2015.

## Brine Flow Rate Comparison

A comparison of brine flow rates from pump tests at various other lithium projects in South America is provided in Table 1. This highlights that Maricunga brine flow rates are amongst the highest observed at lithium projects currently in production or at an advanced stage of development. However, it should be noted that many factors influence the results of pump tests, and the information publicly released is often limited.

Flow Rate l/s	Pump Test Type	Sediment Type	Data Source	Duration
<b>Maricunga, Chile, Lithium Power JV</b>				
25	Test production (P4)	Sand, gravel	Lithium Power - this announcement	30 days
38	Test production (P1)	Salt, sand, clay	Lithium Power announcement 13/09/16	14 days
37	Test production (P2)	Salt, sand, clay	Lithium Power announcement 13/09/16	28 days
<b>Hombre Muerto, Argentina, FMC and Galaxy</b>				
38	Pre-production	Salt	Sal de Vida NI43-101; Houston and Jaacks, 2010	30 days
15.2	Pre-production	Mixed sediment	Galaxy 10/04/13 announcement	30 days
16	Pre-production	Mixed sediment	Galaxy 10/10/12 announcement	30 days
<b>Sal de los Angeles (Diablillos), Argentina, LithiumX</b>				
8	Airlift over 44 m	Sand, gravel	LithiumX report 29/08/2016 page 79	2 hours
8	Airlift over 42 m	Sand, gravel	LithiumX report 29/08/2016 page 79	65 hours
<b>Cauchari, Argentina, SQM and Lithium Americas</b>				
5.8-20	Pre-production PB-03A	Salt and sand layers	Lithium Americas DFS 11/07/2012. Tested at 20 l/s	27 days
10.3-25	Pre-production PB-04	Sand, silt, clay and salt.	Lithium Americas DFS 11/07/2012. Tested at 13 l/s	30 days
12.9-25	Pre-production PB-06A	5 layers of sand and gravel + clay	Lithium Americas DFS 11/07/2012. Tested at 22 l/s	13 days
4	Pre-production PB-01	Alternating layers sand, salt, clay	Lithium Americas DFS 11/07/2012 page 170	8 days
23	Pre-production PB-I	Coarse gravel, sand, clay	Lithium Americas DFS 11/07/2012. Tested at 23 l/s	4 days
<b>Olaroz, Argentina, Orocobre</b>				
14	Pre-production	Sand, clay, silt, halite	Orocobre announcement 25/01/2012	3 months
31	Production hole	Sand, some gravel, clay, silt, halite	Orocobre announcement 23/10/2014	n/a
20	Pump testing	Med-coarse clean gravel	Olaroz technical report 13/05/2011	6 days

**Table 1:** Comparison of the Maricunga brine flow rates to other pump tests in South America

## Salar Permeability

Pump tests are important as they provide information on the permeability, lithium grade, and flow rates of the different sediment units which host brine within the salar. Further, high flow rates suggest less capex requirement for future well field development, which is an attractive driver of lithium brine project economics. The Maricunga project has an upper aquifer of salt (halite), plus a deeper aquifer with sand and gravel units, all of which are favourable for pumping of brine for lithium production (see Figure 2).

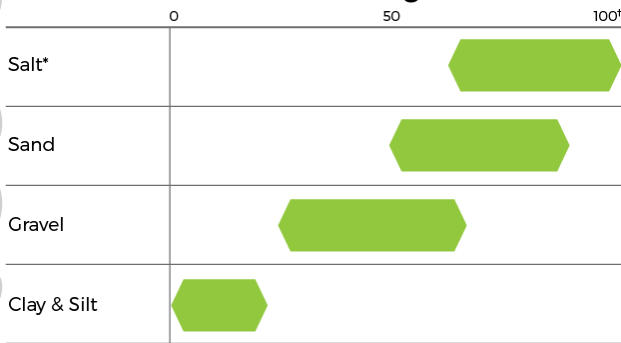
## Salar Porosity

Porosity is a related characteristic to permeability, and refers to the percentage of pore space between grains of sediment that can host lithium brine. There are several different measures of porosity, but the most important metric for brine deposits is the “drainable porosity” (see Figure 3). This represents brine that can be extracted from an aquifer during pumping and used for lithium production. The drainable porosity value is lower for fine grained sediments (clays and silts) and higher for coarser sediments (salt, sands and gravels).

For personal use only

For personal use only

**Relative brine flow rate – ranges**

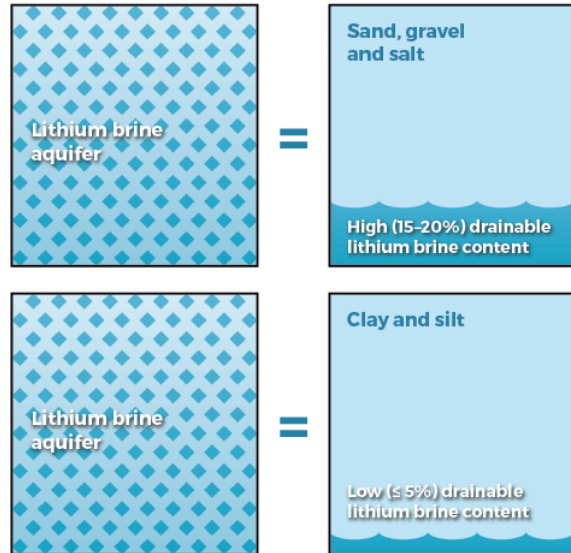


\* Flow rate indicative of salt within 50m of surface only.  
† Refers to relative brine flow rate using Index 0-100.

**Figure 2:** Relative brine flow rates by sediment type

**Aquifer composition**

Like a sponge, an aquifer holds brine in its pores and crevices. The volume of drainable brine which can be extracted is determined by porosity and permeability of the underlying sediment type.



**Figure 3:** Drainable brine hosted within an aquifer

**Lithium Power International’s Chief Executive Officer, Martin Holland, commented:**

“The strong brine flow rates from the Maricunga pump tests further highlight the attractiveness of this lithium brine project as compared to others in the region. The combination of high lithium grades and strong flow rates are both positive drivers of project economics, given the potential for capex and opex benefits going forward.

We will update shareholders of the performance metrics of the 30 day pump test as they become available, as well as progress on our ongoing resource drilling program across the salar.”

**Maricunga JV Background**

The Maricunga JV is 50%-owned by LPI. The project is regarded by LPI management as one of the highest quality undeveloped pre-production lithium brine projects globally, with a very high grade and strong flow rates. The Lito tenements have been subject to significant past exploration by our JV partners, Minera Salar Blanco and Li3 Energy, in order to generate the existing lithium and potassium resource\*. The current drilling & pump test program is targeting an expansion of that resource on both the existing tenements and additional tenements acquired since, with a new JORC compliant resource estimate due in 1H17.

For personal use only



**Figure 4:** P4 pump test pipeline



**Figure 5:** P4 pump test underway

**For further information, please contact:**

**Martin C Holland – CEO**  
Lithium Power International  
E: [info@lithiumpowerinternational.com](mailto:info@lithiumpowerinternational.com)  
Ph: +612 9276 1245  
[www.lithiumpowerinternational.com](http://www.lithiumpowerinternational.com)  
[@LithiumPowerLPI](https://twitter.com/LithiumPowerLPI)

**Media enquiries to Sam Burns, Six Degrees Investor Relations, M: +61 400 164 067**

\* The reader is referred to the previous announcement by LPI on the 28<sup>th</sup> July 2016, which provided details of the Maricunga project resource and information regarding what is considered by ASX as a production target. With regards to the resource LPI confirms that it is not in possession of any new information or data relating to the resource, (which is considered by ASX to be a foreign estimate), that materially impacts on the reliability of the estimate or the mining entity's ability to verify the foreign estimate as mineral resources in accordance with Appendix 5A (JORC Code). LPI confirms that all the material assumptions underpinning the production target provided in that announcement continue to apply. LPI confirms that the supporting information provided in the announcement by LPI on the 28<sup>th</sup> July 2016 continues to apply and has not materially changed. LPI Cautions that the foreign estimate was not reported in accordance with the JORC code.

This work was completed prior to three years before the joint venture on the project was announced by LPI on 20<sup>th</sup> July 2016. A competent person has not done sufficient work to classify the foreign estimate as mineral resources or ore reserves in accordance with the JORC Code. It is uncertain that following evaluation and/or further exploration work that the foreign estimate will be able to be reported as mineral resources or ore reserves in accordance with the JORC Code. As the Maricunga resource estimate was not undertaken under the JORC code LPI intends to verify this foreign estimate as part of the 4Q16 drilling and assaying program on the Maricunga project. Work will consist of drilling diamond and detailed sampling and analysis with an accompanying QA/QC program. Future reporting will be under the JORC code.

#### **Competent Person's Statement – MARICUNGA LITHIUM BRINE PROJECT**

The information contained in this ASX release relating to Exploration Results has been compiled by Mr Murray Brooker. Mr Brooker is a Geologist and Hydrogeologist and is a Member of the Australian Institute of Geoscientists and the International Association of Hydrogeologists. Mr Brooker has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a competent person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. He is also a "Qualified Person" as defined by Canadian Securities Administrators' National Instrument 43-101.

Mr Brooker is an employee of Hydrominex Geoscience Pty Ltd and an independent consultant to Lithium Power International. It should be noted that Mr Brooker was awarded a number of shares and options at the recent lithium Power International AGM and Mr Brooker hereby declares this ownership. Mr Brooker consents to the inclusion in this announcement of this information in the form and context in which it appears. The information in this announcement is an accurate representation of the available data from initial drilling at the Maricunga project.

For personal use only

**APPENDIX 1 - JORC Code, 2012 Edition**
**Table 1 Report: Maricunga Salar**

Criteria	Section 1 - Sampling Techniques and Data
<i>Sampling techniques</i>	<ul style="list-style-type: none"> <li>• Drill cuttings were taken during rotary drilling, used to install the test production well P4. These are low quality drill samples, but provide sufficient information for lithological logging. Additional geological information is available from hole M10 drilled to 200 m, approximately 25 m from P4, and acting as an observation well in this test.</li> <li>• Brine samples are to be collected at different times during the pump testing undertaken. Water levels are monitored extensively during and following the test period using data loggers. Pumping is undertaken using a submersible pump, powered by a portable generator.</li> <li>• The brine samples will be collected in clean plastic bottles and filled to the top to minimize air space within the bottle. Each bottle was taped and marked with the sample number and details of the well and the time of the sample were noted. Samples will be taken at different times throughout the pumping test.</li> </ul>
<i>Drilling technique</i>	<ul style="list-style-type: none"> <li>• Rotary drilling – This method was used to install the pump well, with the use of brine for lubrication during drilling, to minimize the development of wall cake in the hole that could reduce the well flow rate.</li> <li>• Drilling allowed for recovery of drill cuttings and basic geological description. During rotary drilling, cuttings were collected directly from the outflow from the drill collar. Drill cuttings were collected over one metre intervals in cloth bags that were marked with the well number and depth interval. Sub-samples were collected from the plastic bag by the site geologist to fill chip trays (also at a one metre interval).</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>• Rotary drill cuttings were recovered from the well head.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>• Rotary drilling was carried out for the collection of drill cuttings for geologic logging. Drill cuttings were logged by a geologist.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• Brine samples collected during the pumping are homogenized as brine flows from the well and no sub-sampling is undertaken in the field.</li> <li>• The brine sample was collected in one-litre sample bottles, rinsed and filled with brine. Each bottle was taped and marked with the well number and details of the pump test.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>• The University of Antofagasta in northern Chile is used as the primary laboratory to conduct the assaying of the brine samples collected as part of the drilling program. They also analyse blanks, duplicates and standards, as blind control samples in the analysis chain. The laboratory of the University of Antofagasta is not ISO certified, but it is specialized in the chemical analysis of brines and inorganic salts, with extensive experience in this field since the 1980s, when the main development studies of the Salar de Atacama were begun.</li> <li>• The quality control and analytical procedures used at the University of Antofagasta laboratory are considered to be of high quality and comparable to those employed by ISO certified laboratories specializing in analysis of brines and inorganic salts.</li> </ul>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li>• A full QA/QC program for monitoring accuracy, precision and to monitor potential contamination of samples and the analytical process is in operation. Accuracy, the closeness of measurements to the “true” or accepted value, is monitored by the insertion of standards, or reference samples, and by check analysis at an independent (or umpire) laboratory.</li> <li>• Duplicate samples in the analysis chain are submitted to the University of Antofagasta as unique samples (blind duplicates) during the drilling process.</li> <li>• Stable blank samples (distilled water) are inserted to measure cross contamination during the drilling process.</li> <li>• The anion-cation balance is used as a measure of analytical accuracy.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>• The well was located with a hand held GPS.</li> <li>• The location is in WGS84 Zone 19 south.</li> </ul>

For personal use only

For personal use only

<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>Lithological data was collected throughout the drilling.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>The salar deposits that host lithium-bearing brines consist of subhorizontal beds and lenses of halite, sand, silt and clay. The vertical well is essentially perpendicular to these units, intersecting their true thickness.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>Samples were transported to the University of Antofagasta (primary and duplicate samples) for chemical analysis in sealed 1-litre rigid plastic bottles with sample numbers clearly identified.</li> <li>The samples were moved from the drill site to secure storage at the camp on a daily basis. All brine sample bottles are marked with a unique label.</li> </ul>
<i>Review (and Audit)</i>	<ul style="list-style-type: none"> <li>No audit of data has been conducted to date.</li> </ul>
<b>Section 2 - Mineral Tenement and Land Tenure Status</b>	
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>The Maricunga property is located approximately 170 km northeast of Copiapo in the III Region of northern Chile at an elevation of approximately 3,800 masl.</li> <li>The property comprises 1,438 ha in six mineral claims known as Lito 1 through Lito 6. In addition the Cocina 19-27 properties, San Francisco, Salamina and Despreciada properties have been added to the property package since 2012.</li> <li>The properties are located in the northern section of the Salar de Maricunga.</li> <li>The tenements are believed to be in good standing, with payments made to relevant government departments.</li> </ul>
<i>Exploration by other parties</i>	<ul style="list-style-type: none"> <li>SLM Lito drilled 58 vertical holes in the Lito properties on a 500 m x 500 m grid in February 2007. Each hole was 20 m deep. The drilling covered all of the Lito 1 – 6 property holdings.</li> <li>Those holes were 3.5" diameter and cased with either 40 mm PVC or 70 mm HDPE pipe inserted by hand to resistance. Samples were recovered at 2 m to 10 m depth and 10 m to 20 m depth by blowing the drill hole with compressed air and allowing recharge of the hole.</li> <li>Subsequently, samples were taken from each drill hole from the top 2 m of brine. In total, 232 samples were collected and sent to Cesmec in Antofagasta for analysis.</li> <li>Prior to this the salar was evaluated by Chilean state organization Corfu, using hand dug pit samples.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>The sediments within the salar consist of halite, sands, gravels, silts and clays deposits that have accumulated in the salar from terrestrial sedimentation and evaporation of brines within the salar.</li> <li>Brines within the salar are formed by solar concentration, with brines hosted within the different sedimentary units.</li> <li>Geology was recorded during drilling to of all the wells and piezometers.</li> </ul>
<i>Drill hole data</i>	<ul style="list-style-type: none"> <li>The well was installed with hole M10 acting as an observation well for changes in water level, in addition to the information collected from the logging of drill cutting. In addition to M10 there are three other observation wells for the pump testing.</li> </ul>
<i>Data aggregation</i>	<ul style="list-style-type: none"> <li>Brine samples taken from the pump well represent composite samples.</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>The lithium-bearing brine deposits extend across the properties and over a thickness of &gt; 200 m, limited by the depth of the drilling.</li> <li>The drill holes are vertical and perpendicular to the horizontal sediment layers in the salar.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>Diagrams were provided in Technical report on the Maricunga Lithium Project Region III, Chile NI 43-101 report prepared for Li3 Energy on 23 May 2012. See attached location map.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>This announcement presents representative key results from pump testing at the beginning of the pump testing operation. Further information will be provided upon completion of the test.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>Refer to the information provided in Technical report on the Maricunga Lithium Project Region III, Chile. NI 43-101 report prepared for Li3 Energy on 23 May 2012.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The company will consider additional drilling on the properties which have been added to the project since the 2012 public report.</li> </ul>