



## LAKE RESOURCES N.L. (ASX:LKE)

ASX Market Announcements Office

22 May 2018

### **DRILLING CONFIRMS LARGE SCALE LITHIUM BRINE BASIN KACHI LITHIUM PROJECT, ARGENTINA**

- **Initial drilling confirms the Kachi Lithium Project is a maiden discovery of a very large deep lithium brine-bearing basin being a similar size to producing globally significant lithium projects.**
- **Lithium brines intersected in numerous horizons from surface to 400metres in drill holes spaced 11 kilometres apart at Lake's 100%-owned Kachi Lithium Brine Project in Catamarca Province, Argentina.**
- **Seven rotary and diamond drill holes completed in lithium brine-bearing sediments in the Kachi salt lake. Results reported for four of the seven new resource drill-holes, with variable depths up to 402 metres.**
- **Highlights include drill-hole PP2-DV-003, which averaged 308mg/l lithium after 27 hours of airlifting, with low impurities and low average Mg/Li ratio of 4.3.**
- **Results are pending from a number of samples from depths below 200 metres with promising conductivities.**
- **Six of the seven holes ended in sandy material, and remain open at depth. The extensive sands encountered have relatively high drainable porosity based on initial site observations, and are expected to have relatively high permeability, positive for future brine extraction requirements and resource estimation.**
- **Lake considers the Kachi project to be a covered salt lake over 25 x 15 kilometres hosting a very large lithium brine body in sandy sediments with high permeability and low impurities.**
- **A seismic survey and drilling data suggests the Kachi basin is over 400 metres deep with potential to host a very significant volume of brine. This vindicates the exploration approach, despite slow drilling and delays in results.**
- **Deeper horizons are being targeted to locate higher grades and assess flow rates and extend the potential. The implied size of the brine reservoir has made the Company contemplate further drilling rigs to accelerate the resource assessment.**

Argentine-focused lithium exploration and project development company **Lake Resources NL (ASX: LKE)** is pleased to report initial drill results and ongoing exploration activities at its 100%-owned Kachi Lithium Brine Project in Catamarca Province.

The Company can now definitively demonstrate that lithium brine is present in numerous horizons from near surface to at least 400m depth in drill holes spaced 11km apart (Figure 1). Drilling also confirms Kachi is a very large-scale covered salt lake over an area of around 25 x 15 kilometres (375 km<sup>2</sup>).

Lake has been conducting two concurrent phases of drilling operations:

1. Resource exploration drilling utilising a diamond drill rig to collect drill cores for porosity assessment and to obtain brine samples for resource estimation, and
2. Production well drilling using rotary drill rigs for additional resource estimation data and construction of wells for test pumping purposes. These will have the potential to pump lithium

brine into trial evaporation ponds and test the latest extraction methods. A total of seven drill holes have been completed on three separate drill platform locations (Figure 1).

Lake's Managing Director, Steve Promnitz, commented "The significant scale of the Kachi basin is evident. We believe that there is a covered salt lake with an estimated area over 25 x 15 kilometres, hosting a very large brine body in sandy sediments with good permeability and low impurities.

Drilling has intersected multiple brine aquifers. The higher lithium values with a low Mg/Li ratio in hole-003 area positive discovery and indicate good potential for future positive results. **Three drill rigs are on site in the expanded drill programme to accelerate exploration to produce a resource statement."**

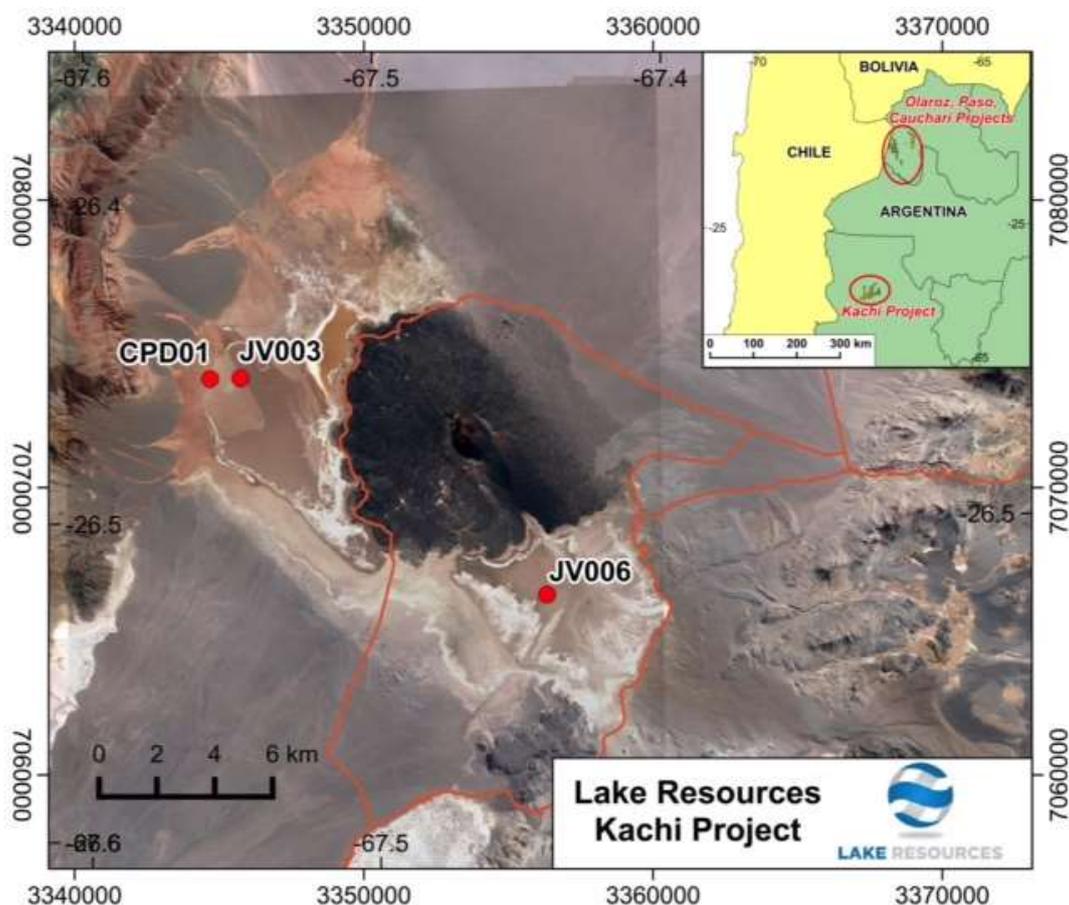


Figure 1. Kachi Lithium Project, showing the location of drill platforms

### Resource Drilling – Kachi Lithium Brine Project

Lake Resources' 100%-owned Kachi Lithium Brine Project in Catamarca province, Argentina covers over 50,000 hectares of mining leases owned 100% by Lake's Argentine subsidiary, Morena del Valle Minerals SA. These are held over the centre of the known Kachi salt lake in the deepest part of the basin. Surface sampling has revealed positive lithium results in conductive brines, which are being quantified through the drilling program and geophysics.

The current status of resource diamond drilling works comprises the completion of four diamond drill-holes, with the receipt of analytical results from brine samples from the first three drill-holes. Table 1 provides drill hole location details and averaged lithium results. Three rotary wells have also been drilled to date with more underway.

Completed diamond drill holes were progressively drilled deeper as drilling knowledge has been gained. Within the lake, variable lithologies have been intersected which are dominated by sandy sediments. Samples have been collected for porosity measurements that will be undertaken by a laboratory in the USA with extensive experience in analysing salt lake sediments for their porosity characteristics, in

particular the specific yield for drainable porosity. Once completed, the porosity data will be used together with the systematic brine analyses from the drilling samples to produce a resource estimate in accordance with the JORC reporting code.

Analytical results for lithium to date have been highest in drill-hole PP2-DV-003. Brine samples in this hole display encouraging conductivities and densities with a favourable Li/Mg ratio of 4.3.

The diamond drilling intersected thick intervals of intercalated sands, gravels, sandy clays and clay horizons. The predominant litho-type of lake sediments is sand-dominant, and poorly consolidated, with relatively low core recoveries in sandy material. Figure 2 shows a range of grain sizes in material from drill site JV006 (in the south) within unconsolidated sediments found to 300m depth

Initial indications from field hydraulic testing indicate high permeabilities for the sandy material, which will be further tested with the installation of large diameter production test bores.

The deepest drilling to date at 402m has been undertaken in the south of the project area in diamond drill hole PP2 at site JV006 (Figure 1). Here approximately 300m of almost continuous, predominantly sandy sediments have been intersected as well as two ignimbrites. An ignimbritic breccia was encountered below 300m, underlain by a sedimentary conglomerate (Figure 3) containing brines with encouraging densities and conductivities and iron staining which suggests secondary permeability features. The seismic geophysical program identified the ignimbritic breccia horizon which shows considerable extent in the basin.



**Figure 2. Recovered unconsolidated core from PP2-JV006 in the south of the project**



**Figure 3. Recovered conglomerate core from PP2-JV006**

**Table 1: Kachi Lithium Project – details of drill-hole locations**

Exploration Hole	Total Depth (m)	Depth Installed Well (m)	Monitoring Installation Installed	Assay Interval (m)	Lithium average (mg/L)	Potassium average (mg/L)	Drilling Method	Easting	Northing	Azimuth, °	Dip, °
<b>Northern Drill Holes</b>											
CPD-01	76.25	34	Yes	4 - 30	157	3330	Diamond	643829	7073100	0	-90
PP1-JV-003	150.5	150.5	Yes	74 - 92	156	3384	Diamond	644880	7073149	0	-90
PB1-DV-003	242.0	236.8	Yes	3 - 242	306	5965	Rotary	644898	7073147	0	-90
<b>Southern Drill Holes</b>											
PB1-DV-006	167.5	68	Yes	68 - 85	TBC	TBC	Rotary	655273	7065354	0	-90
PB2-DV-006	87	N/A	Yes	150 - 180	TBC	TBC	Rotary	655307	7065374	0	-90
PP1-JV-006	167.5	113	Yes	95 - 113	203	3,321	Diamond	655320	7065352	0	-90
PP2-JV-006	403	TBC	Yes	120 - 121	191	3,199	Diamond	655326	7065362	0	-90

Coordinates are WGS84 Z19 South

## **Brine Chemistry**

Brines with high conductivity and density (1.18 - 1.22 g/cm<sup>3</sup>) have been intersected in thick sandy and gravelly aquifers, with the best results to date 308 mg/L after 27 hours of airlifting from 200m depth in hole PB1-JV003. A number of samples are pending from greater depths to 400m, where the brine has promising elevated conductivities and densities. Pump testing will occur in the near future as the rotary rig completes replication of the diamond drilling in larger diameter holes, allowing the installation of test production wells. Regular updates will be provided in future as drilling progresses. To date the lithium brines analysed show positive chemistry with low combined impurities (boron, sulphate, calcium, magnesium, iron). Brines pending analysis from deeper levels (350 – 400m) in JV006 also show high density (1.2 g/cm<sup>3</sup>). Deeper horizons are being targeted to locate higher grades and extend the potential size of the brine mineralisation. The suggested size of the brine body has made the Company contemplate further drilling rigs to accelerate the resource statement.

**Table 2: Summary of analytical results received**

Hole	Depth from (m)	Depth to (m)	Li (mg/l)	Ca (mg/l)	Mg (mg/l)	B (mg/l)	K (mg/l)	SO4 (mg/l)	Mg/Li	Density (g/ml)	Comments
PP2-DV-003	3	242	304	278	1324	326	5907	22056	4.4	1.221	Start air lift
PP2-DV-003	3	242	239	307	1613	304	4945	18509	6.8	1.222	30 mins air lift
PP2-DV-003	3	242	303	285	1295	328	5962	22349	4.3	1.220	12 hrs air lift
PP2 -DV-003	3	242	309	294	1305	329	5994	22389	4.2	1.220	21 hrs air lift
PP2-DV-003	3	242	308	287	1304	327	5998	22441	4.2	1.220	27 hrs air lift
PP2-JV-006	69	70	194	1021	958	186	3171	tbc	4.9	tbc	Spear Point
PP2-JV-006	120	121	191	1443	873	168	3199	tbc	4.6	tbc	Spear Point
PP1-JV-006	95	132	203	1559	766	158	3321	tbc	3.8	tbc	Spear Point??????

## **Production Well Drilling**

The Company has recently completed three rotary drill-holes. One of which will be used as an aquifer test well to better understand hydraulic properties. This first production well is located at site JV006 in the south, and diamond drill-holes at this site will act as monitoring wells. The production well is installed with 6-inch PVC casing and screens in the hole drilled at a 9.5-inch diameter. A rotary drill hole was also drilled at JV003 in the west, to a depth of 242m (PP2-DV-003). Brine in the hole was air lifted which returned a lithium grade of 308 mg/L lithium following a period of 27 hours, with an average Mg/Li ratio of 4.3. These grades are significantly higher than recorded from shallower levels at the same location, and the airlift sample at 30 minutes is interpreted to include contributions from shallower levels.

## Geophysical Survey

A geophysical seismic survey is being undertaken using passive seismic techniques, with the aim of developing an understanding of basin geometry and thickness of the sediments hosting brine. This method distinguishes lithologies with highly contrasting seismic velocities such as unconsolidated lake sediments and harder cemented sediments or ignimbrites. To date 170 stations have been processed.

The results correlate well with dense lithologies intersected at 300m depth in PP2-JV003 in the south, and suggest the presence of unconsolidated sediments to a depth in excess of 500m under gravel cover. The survey suggested the majority of the basaltic material visible at surface is a thin veneer overlying lake sediments, which is very positive for the project as it increases the potential volume of sediments to host brines.

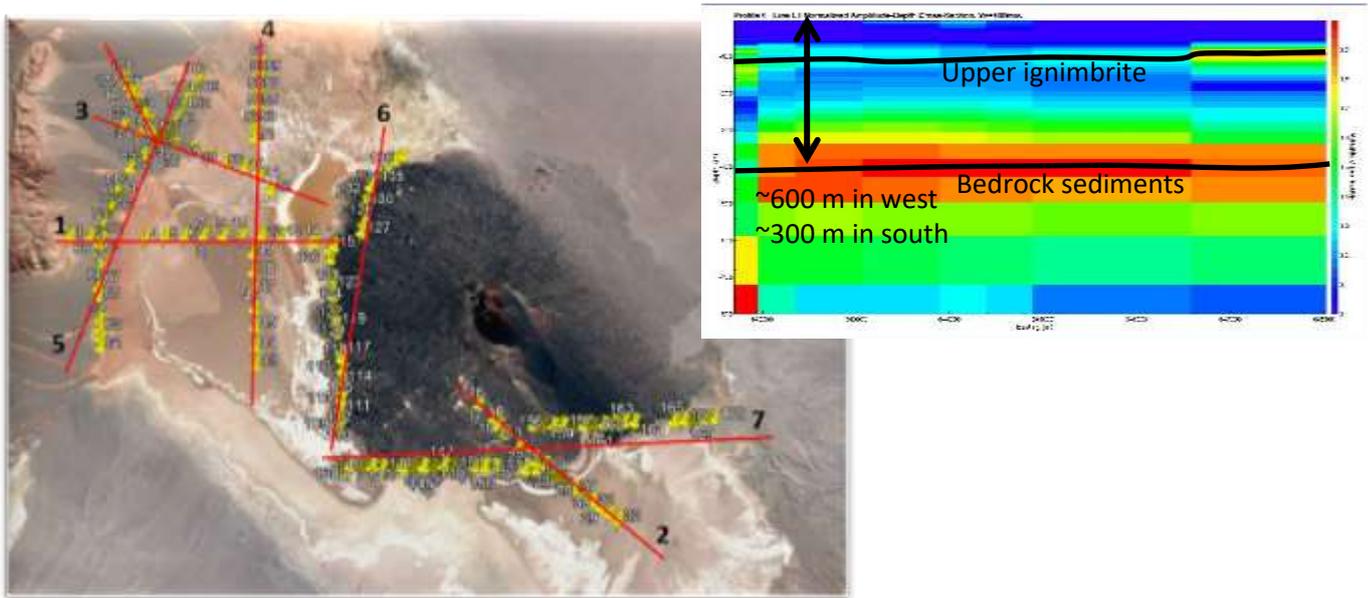


Figure 4. Kachi Lithium Project, with passive seismic survey results and reflector around 600m depth on Line 1

### For further information please contact:

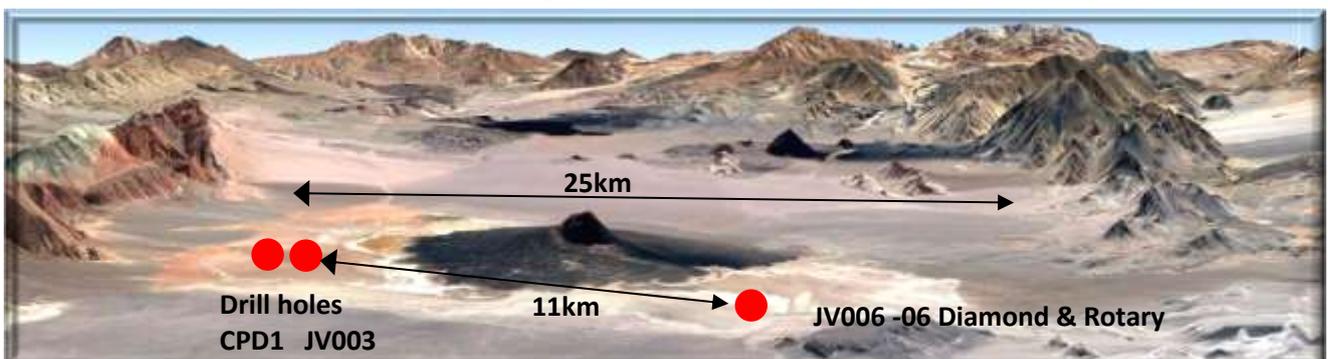
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**Figure 5. Kachi Lithium Project, with images of the larger rotary drill rig in the south east and the diamond rig in the south east side-by-side to the rotary ri**

#### **Background on Lake Resources NL (ASX:LKE)**

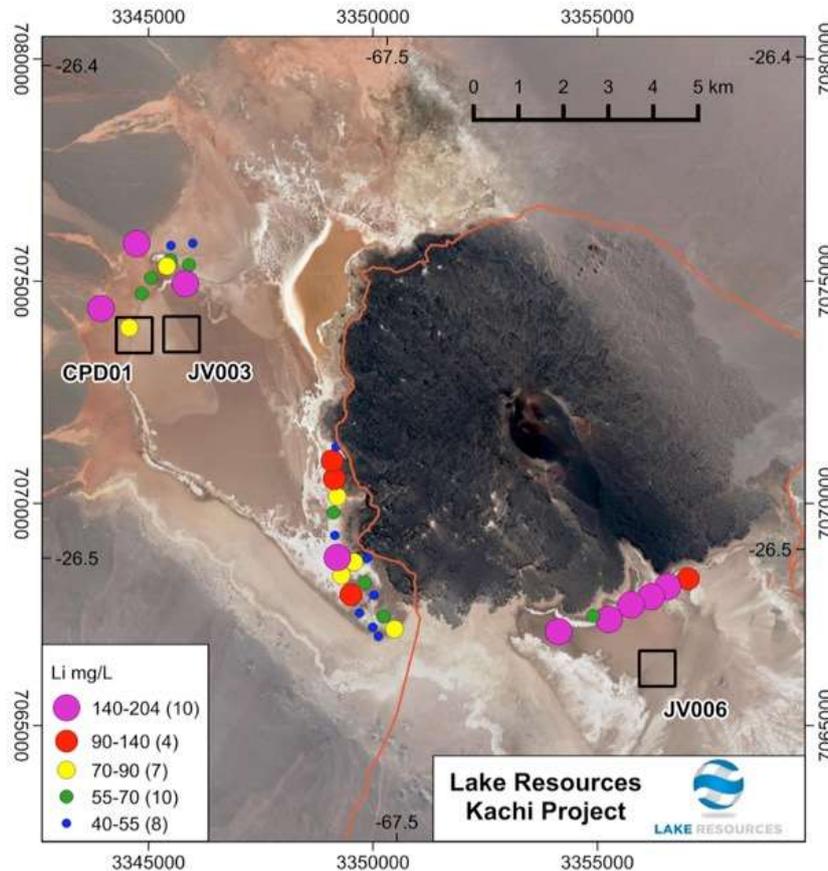
Lake Resources NL (ASX:LKE, Lake) is a lithium exploration and development company focused on developing its 3 lithium brine projects and 1 hard rock project in Argentina, all owned 100%. The leases are in a prime location among the lithium sector's largest players within the Lithium Triangle where half of the world's lithium is produced. Lake holds one of the largest lithium tenement packages in Argentina (~180,000Ha) secured in 2016 prior to a significant 'rush' by major companies. The large holdings provides the potential to provide security of supply demanded by battery and electric vehicle manufacturers located.

The three key brine projects, Olaroz/Cauchari, Paso and Kachi, are located adjacent to major world class brine projects either in production or being developed in the highly prospective Jujuy and Catamarca Provinces. The Olaroz-Cauchari project is located in the same basin as Orocobre's Olaroz lithium production and adjoins SQM/Lithium Americas Cauchari project, where high grade lithium (600 mg/L) with high flow rates have been drilled immediately across the lease boundary. The Kachi project covers 50,000 Ha over a salt lake south of FMC's lithium operation and near Albemarle's Antofalla project.

Drilling at Kachi has confirmed a large lithium brine bearing basin over 25km long and over 400m deep. Drilling over Kachi is aimed to produce a resource statement later in 2018. Drilling will commence in coming months at Olaroz-Cauchari now that tenure has been confirmed in a landmark agreement in March 2018. This will provide several catalysts for the company's growth. Scope exists to unlock considerable value through partnerships and corporate deals in the near-term.

Significant corporate transactions continue in adjacent leases with development of SQM/Lithium Americas Olaroz/Cauchari project with an equity/debt investment over \$300 million and Advantage Lithium's equity transaction in some of Orocobre's leases. LSC Lithium has also raised over \$60 million on a large lease package in similar areas as Lake's properties. Nearby projects of Lithium X were recently acquired via a takeover offer of C\$265 million completed March 2018.

The demand for lithium continues to be strong for lithium ion batteries in electric vehicles, according to recent data from the leading independent battery minerals consultant - Benchmark Mineral Intelligence. Supply continues to be constrained suggesting good opportunities for upstream lithium companies for many years.



**Figure 1. Kachi Lithium Project, showing the location of drill platforms with near surface auger samples**

**Competent Person’s Statement – Kachi Lithium Brine Project**

The information contained in this ASX release relating to Exploration Results has been compiled by Mr Andrew Fulton. Mr Fulton is a Hydrogeologist and a Member of the Australian Institute of Geoscientists and the Association of Hydrogeologists. Mr Fulton 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.

Andrew Fulton is an employee of Groundwater Exploration Services Pty Ltd and an independent consultant to Lake Resources NL. Mr Fulton 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 exploration at the Kachi project.

**APPENDIX 1 - JORC Code, 2012 Edition**

**Table 1 Report: Kachi Lithium Brine Project**

Criteria	Section 1 - Sampling Techniques and Data
Sampling techniques	<ul style="list-style-type: none"> <li>• Brine samples were taken from the diamond drill hole with a bottom of hole spear point during advance and using a straddle packer device to obtain representative samples of the formation fluid by purging a volume of fluid from the isolated interval, to minimize the possibility of contamination by drilling fluid then taking the sample. Low pressure airlift tests are used as well. The fluid used for drilling is brine sourced from the drill hole and the return from drillhole passes back into the excavator dug pit lined to avoid leakage.</li> <li>• The brine sample was collected in a clean plastic bottle (1 litre) and filled to the top to minimize air space within the bottle. A duplicate was collected at the same time for storage and submission of duplicates to the laboratory. Each bottle was taped and marked with the sample number.</li> <li>• Drill core in the hole was recovered in 1.5 m length core runs in core split tubes to minimize sample disturbance.</li> <li>• Drill core was undertaken to obtain representative samples of the sediments that host brine.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>• Diamond drilling with an internal (triple) tube was used for drilling. The drilling produced cores with variable core recovery, associated with unconsolidated material, in particularly sandy intervals. Recovery of these more friable sediments is more difficult with diamond drilling, as this material can be washed from the core barrel during drilling.</li> <li>• Brine has been used as drilling fluid for lubrication during drilling.</li> </ul>

<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>• Diamond drill core was recovered in 1.5m length intervals in the drilling triple (split) tubes. Appropriate additives were used for hole stability to maximize core recovery. The core recoveries were measured from the cores and compared to the length of each run to calculate the recovery.</li> <li>• Brine samples were collected at discrete depths during the drilling using a double packer over a 1 m interval (to isolate intervals of the sediments and obtain samples from airlifting brine from the sediments within the packer) .</li> <li>• As the brine (mineralisation) samples are taken from inflows of the brine into the hole (and not from the drill core – which has variable recovery) they are largely independent of the quality (recovery) of the core samples. However, the permeability of the lithologies where samples are taken is related to the rate and potentially lithium grade of brine inflows.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>• Sand, clay, silt, salt and cemented rock types was recovered in a triple tube diamond core drill tube, was examined for geologic logging by a geologist and a photo taken for reference.</li> <li>• Diamond holes are logged by a senior geologist who also supervised taking of samples for laboratory porosity analysis as well as additional physical property testing.</li> <li>• Logging is both qualitative and quantitative in nature. The relative proportions of different lithologies which have a direct bearing on the overall porosity, contained and potentially extractable brine are noted, as are more qualitative characteristics such as the sedimentary facies and their relationships. When cores are split for sampling they are photographed.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• Brine samples were collected by packer and spear sampling methods, over a metre. Low pressure airlift tests are used as well to purge test interval and gauge potential yields.</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 sample number.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>• The Alex Stewart Argentina/Norlab SA in Palpala, Jujuy, Argentina, is used as the primary laboratory to conduct the assaying of the brine samples collected as part of the sampling program. They also analyzed blind control samples and duplicates in the analysis chain. The Alex Stewart/Norlab SA laboratory is ISO 9001 and ISO 14001 certified, and it is specialized in the chemical analysis of brines and inorganic salts, with experience in this field and with the oversight of the experienced Alex Stewart Argentina S.A. laboratory in Mendoza, Argentina, which has been operating for a considerable period.</li> <li>• The quality control and analytical procedures used at the Alex Stewart/Norlab SA 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>• Field duplicates, standards and blanks will be used to monitor potential contamination of samples and the repeatability of analyses. Accuracy, the closeness of measurements to the “true” or accepted value, will be 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 were submitted to Alex Stewart/Norlab SA as unique samples (blind duplicates) during the process</li> <li>• Stable blank samples (distilled water) were used to evaluate potential sample contamination and will be inserted in future to measure any potential cross contamination</li> <li>• Samples were analysed for conductivity using a hand held Hanna pH/EC multiprobe.</li> <li>• Regular calibration using standard buffers is being undertaken.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>• The diamond drill hole sample sites were located with a hand held GPS.</li> <li>• The properties are located at the junction of the Argentine POSGAR grid system Zone 2 and Zone 3 (UTM 19) and in WGS84 Zone 19 south.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• Brine samples were collected over 1m intervals every 6 m intervals within brine producing aquifers, where this was possible.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>• The salt lake (<i>salar</i>) deposits that contain lithium-bearing brines generally have sub-horizontal beds and lenses that contain sand, gravel, salt, silt and clay. The vertical diamond drill holes will provide a better understanding of the stratigraphy and the nature of the sub-surface brine bearing aquifers</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• Samples were transported to the Alex Stewart/Norlab SA laboratory for chemical analysis in sealed 1-litre rigid plastic bottles with sample numbers clearly identified. Samples were transported by a trusted member of the team.</li> <li>• The samples were moved from the drillhole sample site to secure storage at the camp on a daily basis. All brine sample bottles sent to the laboratory are marked with a unique label not related to the location.</li> </ul>
<i>Review (and Audit)</i>	<ul style="list-style-type: none"> <li>• No audit of data has been conducted to date. However, Competent Person Andrew Fulton of GES was present on site during drilling of the 2nd drillhole in the programme. The review included drilling practice, geological logging, sampling methodologies for water quality analysis and physical property testing from drill core, QA/QC control measures and data management. The practices being undertaken were ascertained to be appropriate.</li> </ul>

<b>Criteria</b>	<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 Kachi Lithium Brine project is located approximately 80km south-southwest of FMC's Hombre Muerto lithium operation and 40km south of Antofagasta de la Sierra in Catamarca province of north western Argentina at an elevation of approximately 3,000m asl.</li> <li>The project comprises approximately 54,210 Ha in twenty eight mineral leases (minas) of which five leases (9,445 Ha) are granted for drilling, twenty leases are granted for initial exploration (39,575 Ha) and three leases are applications pending granting.</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>Marifil Mines Ltd conducted sparse near-surface pit sampling of groundwater at depths less than 1m during 2009.</li> <li>Samples were taken from each hole and analysed at Alex Stewart laboratories in Mendoza Argentina.</li> <li>Results were reported in an NI 43-101 report by J. Ebisch in December 2009 for Marifil Mines Ltd.</li> <li>NRG Metals Inc recently commenced exploration in adjacent leases under option. An initial diamond drillhole intersected lithium bearing brines from 172-198m and below with best results to date of 15m at 229 mg/L Lithium, reported in December 2017. A VES ground geophysical survey was completed prior to drilling. A NI 43-101 report was released in February 2017.</li> <li>No other exploration results were able to be located</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>The known sediments within the <i>salar</i> consist of salt/halite, clay, sand and silt horizons, accumulated in the <i>salar</i> from terrestrial sedimentation and evaporation of brines .</li> <li>Brines within the salt lake are formed by solar concentration, with brines hosted within sedimentary units .</li> <li>Geology was recorded during the diamond drilling</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>Lithological data was collected from the hole as it was drilled and cores were retrieved. Detailed geological logging of cores has not been completed to date.</li> <li>All drill holes are vertical, (dip -90, azimuth 0 degrees).</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>N/A pending results</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>A drill hole location plan is provided showing the locations of the drill holes and the surface sampling.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>No brine assay results are available from the drilling to date, other than observations of the sediment types. Information will be provided as it becomes available.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>There is no other substantive exploration data available regarding the project.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The company is undertaking a 2000m maiden diamond drilling programme in 10 holes and will expand the programme based on results to rotary water well drilling and further diamond drilling. Ground geophysics will also be undertaken.</li> </ul>