15 December 2021

Kachi Update – Drilling Reinforces Doubling Lithium Production

- **New drilling reinforces prior results at Lake's flagship Kachi Lithium Brine Project, supporting potential expansion of future production, targeting 50,000tpa LCE.**
- **Kachi Project upside potential highlighted in recent project finance due diligence visit.**

Clean lithium developer Lake Resources NL (**ASX: LKE; OTC:LLKKF**) confirms that drilling to date at its flagship Kachi Lithium Project continues to reinforce prior lithium assay results and indicates lithium brines extend well beyond the limits of the current resource. Continued similar results would support a doubling of future planned production targeting 50,000tpa LCE (lithium carbonate equivalent).

The drilling footprint will be expanded next year, with additional rotary drill rigs, with the intention to upgrade and expand the resource (see ASX announcement 7 July 2021), to support the completion of the Definitive Feasibility Study (DFS) and the final investment decision (FID) on the Kachi Project. A more detailed announcement with results and the planned drill program will be released early in the new year.

The scale and upside potential of the Kachi project was highlighted in a recent site visit by a project finance due diligence team for the Export Credit Agency (ECA) led project finance. The Kachi Project covers 74,000 hectares (183,000 acres) of leases, in a region subject to intensifying M&A activity and investment. Drilling to date focused on the southwest corner of the known salt lake and surrounds. The Resource Statement released to the ASX on 27 November 2018 identified considerable upside beyond the large identified total resource of 4.4 Mt LCE (Indicated 1.0Mt, Inferred 3.4Mt). Less than 20 percent of the current total resource is utilised for the planned 25,500 tpa lithium carbonate production over 25 years (refer ASX announcements 23 March 2021; 30 April 2020). The scale and potential can be seen in a new 3D fly-through of Lake's Kachi Lithium Brine Project, available on the Lake website.

New infill drilling is designed to assist the conversion of resources to a higher category with increased data. Drilling will enable Lake to convert Inferred Resources to Measured and Indicated (M&I) Resources, to allow for a production expansion study targeting 50,000 tonnes per annum (tpa) lithium carbonate.

A 1200m, four well diamond drill programme is underway and the program may be extended. Initial results are pending. A water well rig has completed three wells exploring process water options. A third rig has been completing pre-collar holes and pumping brine samples. A further rig is planned for production well drilling in coming months in 2022.

"Argentina continues to be one of the few locations where lithium production can increase to assist the significant supply gap to increasing demand. Lake is one of only a few companies that can transform into a globally significant producer with a number of projects that can deliver high purity lithium carbonate at scale with meaningful ESG benefits", Lake's Managing Director, Mr. Steve Promnitz, said.

Lake executives were recently in London and received support and encouragement for the project in recent discussions with ECA's and ECA-supported international banks. This was followed by a site visit in Argentina.

"Benchmark Mineral Intelligence have noted that lithium demand is growing a three times the speed of new supply. This environmentally sustainable project is coming to market at just the right time, with equity and debt support and an expanding list of potential offtakers", Lake's Managing Director, Mr. Steve Promnitz, said.

"Lake, together with our technology partner Lilac Solutions, continue to progress towards the final investment decision and the start of construction of the flagship Kachi Lithium Brine Project next year."

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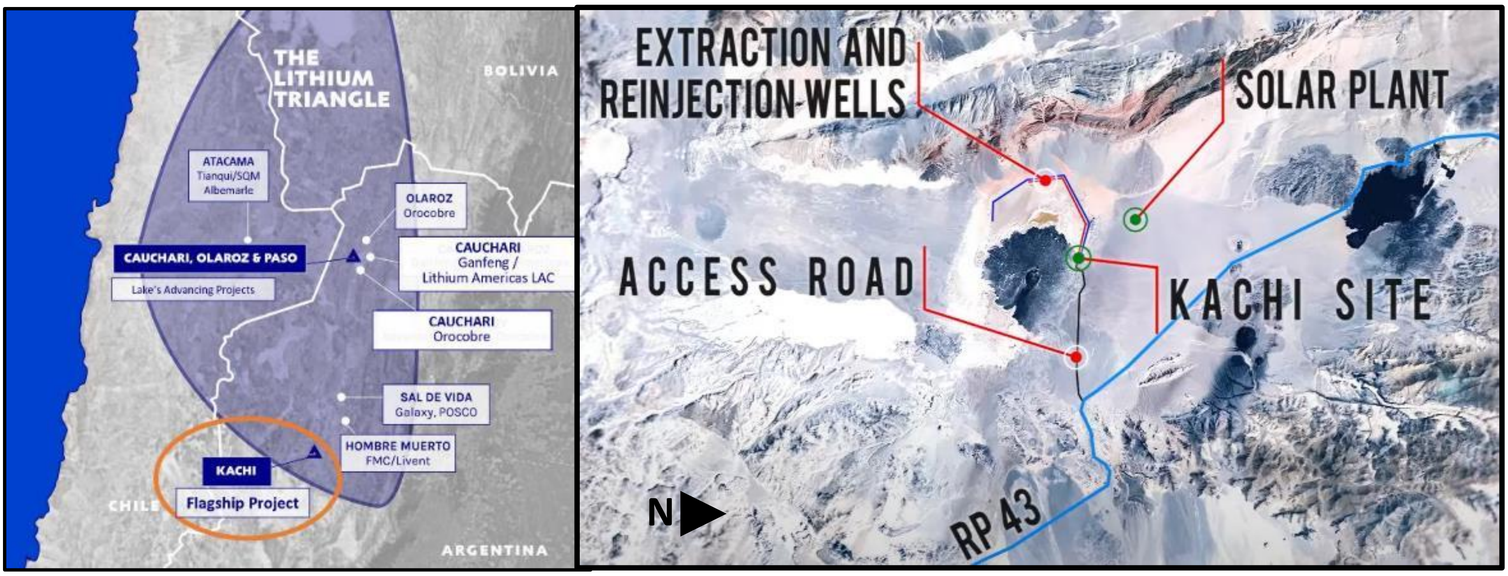

Figure 1. Location of Lake's Kachi Project.

Figure 2. Image of Lake's Kachi Project, covering 30km left to right.

Figure 3. Image of Lake's Kachi Project, looking south, with drilling area to right of image.

Figure 4. Diamond drill rig at Kachi, with COO Gautam Parimoo, and geologist Patricia, discussing progress.

Figure 5. Water well rig at Kachi Project, assessing process water options.

LAKE RESOURCES

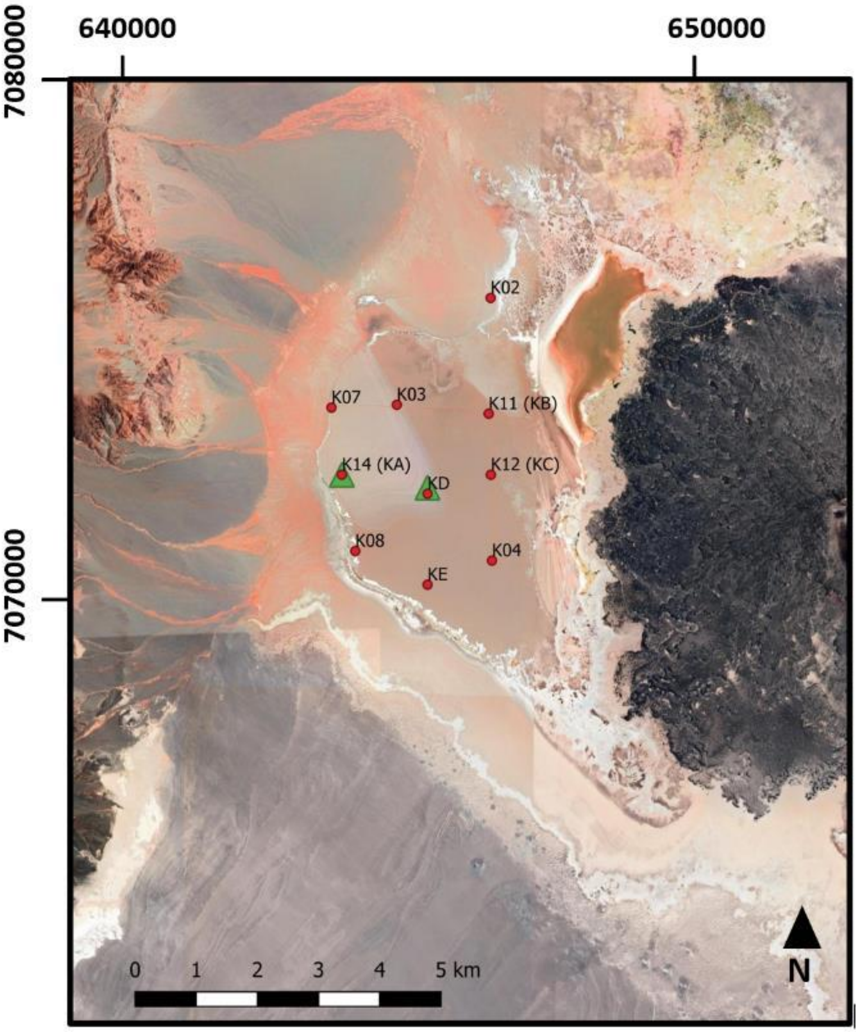

Figure 6. Location of Kachi Project resource drillholes – present (numbered) and planned (letters).

Competent Person Statement

The information contained in this report relating to Exploration Results, Mineral Resource estimates, and the associated Indicated Resource, which underpins the production target utilised in the Pre-Feasibility Study, have 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 presentation of this information in the form and context in which it appears. The information in this presentation is an accurate representation of the available data to date from initial exploration at the Kachi Lithium Brine project.

About Lake Resources NL (ASX:LKE OTC:LLKKF) –

Clean high purity lithium using efficient disruptive clean technology - in demand by EV makers and lithium-ion batteries

Lake Resources NL (ASX:LKE, OTC: LLKKF) is a clean lithium developer utilising direct extraction technology for production of sustainable, high purity lithium from its flagship Kachi Project in Catamarca Province within the Lithium Triangle in Argentina among three other projects covering 220,000 ha.

This direct extraction method delivers a solution for two rising demands – high purity battery materials to avoid performance issues, and more sustainable, responsibly sourced materials with low carbon footprint and significant ESG benefits.

1. **Climate-Tech**: Efficient, disruptive, clean, cost-competitive technology using well-known water treatment re-engineered for lithium (not mining). Technology partner, Lilac Solutions Inc, is supported by the Bill Gates led Breakthrough Energy fund, MIT's The Engine fund, Chris Sacca's Lowercarbon Capital, BMW, Sumitomo and SK Materials. Lilac will earn in to the Kachi Project, up to a 25% stake, based on certain milestones and then be expected to fund their c.US$50 million pro-rata share (refer ASX announcement 22 September 2021)

2. **High Purity**: 99.97% purity lithium carbonate samples for a premium price. Demonstrated high quality in nickel rich NMC622 lithium-ion batteries (refer ASX announcement 20 October 2020; 2 March 2021).

3. **Sustainable /ESG**: Far smaller environmental footprint than conventional methods, that returns virtually all water (brine) to its source with a low CO2 footprint.

4. **Prime Location, Large Projects**: Flagship Kachi project in prime location among low-cost producers with a large lease holding (70,000 ha) and expandable resource (4.4 Mt LCE) of which only 20% is used for 25 years production at 25,500tpa (JORC Resource: Indicated 1.0Mt, inferred 3.4Mt, refer ASX announcement 27 November 2018). Pre-feasibility study by tier 1 engineering firm shows large, long-life low-cost operation with US$1.6 billion NPV pretax, and annual EBITDA of US$260 million from 2024 (refer ASX announcement 17 March 2021; 28 April 2020). (No changes to the assumptions in the resource statement or the PFS have occurred since the announcement date.)

5. **Finance Indicatively Available**: Long duration, low-cost project debt finance for the Kachi Lithium Project is indicatively available from the United Kingdom's Export Credit Agency UKEF and Canada's EDC with Expressions of Interest to support approx. 70% of the total finance required for Kachi's development, subject to standard project finance terms (refer ASX announcements 11 August 2021; 28 September 2021).

An innovative direct extraction technique, based on a well-used ion exchange water treatment method, has been tested for over 18 months in partnership with Lilac Solutions, with a pilot plant module in California operating on Kachi brines and has shown 80-90% recoveries. Battery quality lithium carbonate (99.97% purity) has been produced from Kachi brine samples with very low impurities (refer ASX announcement 20 October 2020). The first samples of high purity (99.97% purity) battery quality lithium carbonate were tested in a NMC622 battery by Novonix with excellent results (2 March 2021).

This method of producing high purity lithium can revolutionise and disrupt the battery materials supply industry as it's scalable, low cost, and delivers a consistent product quality with a significant ESG benefit.

Lake's other projects include the Olaroz and Cauchari brine projects, located adjacent to major world class brine projects in production or construction, including Orocobre's Olaroz lithium production and adjoins the impending production of Ganfeng Lithium/Lithium Americas' Cauchari project. Lake's Cauchari project has shown lithium brines over 506m interval with high grades averaging 493 mg/L lithium (117-460m) with up to 540 mg/L lithium. These results are similar to lithium brines in adjoining leases and infer an extension and continuity of these brines into Lake's leases (refer ASX announcements 12 June 2019, 23 March 2021).

For more information on Lake, please visit http://www.lakeresources.com.au/home/

APPENDIX 1 - JORC CODE, 2012 EDITION, JORC TABLE 1 REPORT: KACHI LITHIUM BRINE PROJECT

Criteria	Section 1 - Sampling Techniques and Data
Sampling techniques	• 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. • 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. • Drill core in the hole was recovered in 1.5 m length core runs in core split tubes to minimize sample disturbance. • Drill core was undertaken to obtain representative samples of the sediments that host brine.
Drilling techniques	• 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. • Rotary drilling has used 8.5" or 10" tricone bits and has produced drill chips. • Brine has been used as drilling fluid for lubrication during drilling.
Drill sample recovery	• 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. Chip samples are collected for each metre drilled and stored in segmented plastic boxes for rotary drill holes. • 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). • 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.
Logging	• Sand, clay, silt, salt and cemented rock types was recovered in a triple tube diamond core drill tube, or as chip samples from rotary drill holes, and examined for geologic logging by a geologist and a photo taken for reference. • 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. • 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.
Sub-sampling techniques and sample preparation	• 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. • 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.
Quality of assay data and laboratory tests	• The Alex Stewart Argentina/Nor lab 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. The SGS laboratory in Buenos Aires has also been used for both primary and check samples. They also analysed blind control samples and duplicates in the analysis chain. • The Alex Stewart/Norlab SA laboratory and the SGS laboratory are ISO 9001 and ISO 14001 certified, and are specialized in the chemical analysis of brines and inorganic salts, with experience in this field. This includes the oversight of the experienced Alex Stewart Argentina S.A. laboratory in Mendoza, Argentina, which has been operating for a considerable period. • The quality control and analytical procedures used at the Alex Stewart/Norlab SA laboratory or SGS 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. •

Verification of sampling and assaying	• 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. • Duplicate samples in the analysis chain were submitted to Alex Stewart/Norlab SA or SGS laboratories as unique samples (blind duplicates) during the process • Stable blank samples (distilled water) were used to evaluate potential sample contamination and will be inserted in future to measure any potential cross contamination • Samples were analysed for conductivity using a hand-held Hanna pH/EC multiprobe. • Regular calibration using standard buffers is being undertaken.
Location of data points	• The diamond drill hole sample sites and rotary drill hole sites were located with a hand-held GPS. • 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.
Data spacing and distribution	• Brine samples were collected over 1m intervals every 6 m intervals within brine producing aquifers, where this was possible.
Orientation of data in relation to geological structure	• The salt lake (*salar*) 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
Sample security	• Samples were transported to the Alex Stewart/Norlab SA laboratory or SGS 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. • 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.
Review (and Audit)	• No audit of data has been conducted to date. However, the CP has been onsite periodically during 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.
Criteria	**Section 2 - Mineral Tenement and Land Tenure Status**
Mineral tenement and land tenure status	• The Kachi Lithium Brine project is located approximately 100km south-southwest of Livent's (FMC's) Hombre Muerto lithium operation and 45km south of Antofagasta de la Sierra in Catamarca province of north western Argentina at an elevation of approximately 3,000m asl. • The project comprises approximately 74,380 Ha in thirty nine mineral leases (minas) granted for exploration with drilling undertaken within six leases. • The tenements are in good standing, with statutory payments completed to relevant government departments. This was reviewed recently and confirmed.
Exploration by other parties	• Marifil Mines Ltd conducted near-surface pit sampling of groundwater at less than 1m depths in 2009. • Samples were taken from each hole and analysed at Alex Stewart laboratories in Mendoza Argentina. • Results were reported in an NI 43-101 report by J. Ebisch in December 2009 for Marifil Mines Ltd. • NRG Metals Inc conducted exploration in adjacent leases under option. Two diamond drillholes intersected lithium bearing brines. The initial drillhole intersected brines from 172-198m and below with best results to date of 15m at 229 mg/L Lithium, reported in December 2017. The second hole, drilled to 400 metres in mid-2018, became blocked at 100 metres and could not be sampled. A VES ground geophysical survey was completed. A NI 43-101 report was released in February 2017. • No other exploration results were able to be located.
Geology	• The known sediments within the *salar* consist of salt/halite, clay, sand and silt horizons, accumulated in the *salar* from terrestrial sedimentation and evaporation of brines. • Brines within the Salt Lake are formed by solar concentration, interpreted to be combined with warm geothermal fluids, with brines hosted within sedimentary units. • Geology was recorded during the diamond drilling and from chip samples in rotary drill holes.
Drill hole Information	• 15 drill holes completed, totaling 3150 metres with varying depths up to 403 metres.

	• Lithological data was collected from the holes as they were drilled and drill cores or chip samples were retrieved. Detailed geological logging of cores is ongoing. • All drill holes are vertical, (dip -90, azimuth 0 degrees).
Data aggregation methods	• Assay averages have been provided where multiple sampling occurs in the same sampling interval.
Relationship between mineralisation widths and intercept lengths	• Mineralisation interpreted to be horizontally lying and drilling perpendicular to this.
Diagrams	• A drill hole location plan that has been provided previously in the maiden resource statement (November 2018) shows the locations of the drill platforms but is not presented here.
Balanced reporting	• Brine assay results are available from 15 drill holes from the drilling to date, are not presented here but have been reported in previous statements and previously in the maiden resource statement (November 2018).
Other substantive exploration data	• There is no other substantive exploration data available regarding the project, apart from bulk samples totaling 40,000 litres of brine which were sent for testing by direct lithium extraction modules.
Further work	• Further water well drilling is planned to expand the resource, convert Inferred Resources to a higher classification and aim to convert Measured and Indicated Resources into Reserves, while testing pumping rates. •
Criteria	**Section 3 – Estimation and Reporting of Mineral Resources**
Database integrity	• Data was transferred directly from laboratory spreadsheets to the database. • Data was checked for transcription errors once in the database to ensure coordinates, assay values, and lithological codes were correct. • Data was plotted to check the spatial location and relationship to adjoining sample points. • Duplicates and standards have been used in the assay process. • Brine assays and porosity test work have been analysed and compared with other publicly available information for reasonableness. • Comparison of original and current datasets were made to ensure no lack of integrity.
Site visits	• The Competent Person visited the site multiple times during the drilling and sampling program • Some improvements to procedures were made during visits by the Competent Person
Geological Interpretation	• The geological model is continuing to develop. There is a high level of confidence in the interpretation of the exploration results to date. There are relatively consistent geological units with relatively uniform clastic sediments • Any alternative interpretations are restricted to smaller scale variations in sedimentology, related to changes in grain size and fine material in units • Data used in the interpretation includes rotary and diamond drilling methods • Drilling depths and geology encountered has been used to conceptualise hydro-stratigraphy • Sedimentary processes affect the continuity of geology, whereas the concentration of lithium and potassium and other elements in the brine is related to water inflows, evaporation and brine evolution in the Salt Lake.
Dimensions	• The lateral extent of the resource has been defined by the boundary of the Company's properties. The brine mineralisation subsequently covers 175 km^2. • The top of the model coincides with the topography obtained from the Shuttle Radar Topography Mission (SRTM). The original elevations were locally adjusted for each borehole collar with the most accurate coordinates available. The base of the resource is limited to a 400 m depth. The basement rocks underlying the Salt Lake sediments have been intercepted in drilling. • The resource is defined to a depth of 400 m below surface, with the exploration target immediately extending beyond the aerial extent of the resource.
Estimation and modelling techniques	• No grade cutting or capping was applied to the model. • No assumptions were made about correlation between variables. Lithium and potassium were estimated independently. • The geological interpretation was used to define each geological unit and the property limit was used to enclose the reported resources.
Moisture	• Moisture content of the cores was not Measured (porosity and density measurements were made), but as brine will be extracted by pumping not mining this is not relevant for the resource estimation.

	• Tonnages are estimated as elemental lithium and potassium dissolved in brine.
Cut-off parameters	• No cut-off grade has been applied.
Mining factors or assumptions	• The resource has been quoted in terms of brine volume, concentration of dissolved elements, contained lithium and potassium and their products lithium carbonate and potassium chloride. • No mining or recovery factors have been applied although the use of the specific yield (drainable porosity) is used to reflect the reasonable prospects for economic extraction with the proposed mining methodology. (Recoveries of 83% lithium have been used in the PFS for the direct processing method) • Dilution of brine concentrations may occur over time and typically there are lithium and potassium losses in both the storage ponds and processing plant in brine extraction operations. However, potential dilution will be estimated in the groundwater model simulating brine extraction. • The conceptual mining method is recovering brine from the Salt Lake via a network of wells, the established practice on existing lithium and potash brine projects. • Detailed hydrological studies of the lake are being undertaken (groundwater modelling) to define the extractable resources and potential extraction rates.
Metallurgical factors or assumptions	• Lithium carbonate is targeted as the commercial product. • It would be obtained by the brines being subjected to direct lithium extraction (ionic exchange and reverse osmosis) to produce a high grade LiCl eluate which is processed in a conventional lithium carbonate plant by reaction with sodium carbonate: $LiCl + Na_2CO_3 \rightarrow Li_2CO_3 + NaCl$ • Process work, and pilot module testing has been undertaken by Lilac Solutions, which is an expert laboratory in the treatment of brines by ion exchange. • Bench tests included short and long-term tests using ion exchange media and brine from Kachi to establish recovery, reagent consumption, and engineering parameters used in the PFS • Analyses of solutions by ICP and includes the use of standards • The longevity of the ion exchange media has been tested over 1000 cycles, or six months • Lithium carbonate of high purity and low impurities has been produced which can be considered equivalent to metallurgical test work) is being carried out on the brine following initial test work. • Pilot plant module test-work has processed over 20,000 litres of Kachi brine using Lilac Solutions ion exchange direct extraction method, which produced concentrated lithium chloride (eluate). • Hazen Research Inc has demonstrated the conversion of lithium chloride from the pilot module into larger volumes of high purity lithium carbonate with purity >99.97% with very low levels of impurities. • Hazen processed the eluate from Lilac to produce the lithium carbonate sample using reduction of water through evaporation, treatment with sodium hydroxide and soda ash, ion exchange, precipitation, filtering and recrystallization. • Due to the high purity of the lithium carbonate, the lithium is reported as 100% minus the sum of impurities. ICP-MS and ICP-AES assays from the Hazen Research lab were used to assess impurities. Titration (acidimetric titration with HCl) was performed for total Lithium, run in duplicate and resulted in assays of 100.2 wt% and 100.3 wt.%. This is the accepted assay technique for larger lithium carbonate samples. • To ensure consistency of the processing and analysis with industry standards, Dr Nick Welham was consulted and reviewed the results and calculations of purity. • Novonix has demonstrated that the 99.97% purity lithium carbonate performs well in an NMC622 battery half cell after lithiation into a cathode with standard commercial precursor material. • This work is yet to be integrated into the resource model.
Environmental factors as assumptions	• Impacts of a lithium operation at the Kachi project would include surface disturbance from the installation of extraction/processing facilities and associated infrastructure, accumulation of various salt tailings impoundments and extraction from brine and fresh water aquifers regionally. • Environmental management plan for the protection of wetlands, salt lakes, and surrounds. • Consultation with communities in the area of influence of the project. • Environmental impact analysis on-going.
Bulk density	• Density measurements were taken as part of the drill core assessment. This included determining dry density and particle density as well as field measurements of brine density. Note that no mining is to be carried out as brine is to be extracted by pumping and consequently sediments are not mined • No bulk density was applied to the estimates because resources are defined by volume, rather than by tonnage.

Classification	• The resource has been classified into the two possible resource categories based on confidence in the estimation. • A Measured resource would reflect higher density drilling, with porosity samples from drill cores and well constrained vertical brine sampling in the holes. • The Indicated resource reflects the higher confidence in the brine sampling in the rotary drilling and lower quality geological control from the drill cuttings. • The Inferred resource underlying the Measured and/or Indicated resource reflects the limited drilling to this depth together with the geophysics through the property. • In the view of the Competent Person the resource classification is believed to adequately reflect the available data and is consistent with the suggestions of Houston et. al., 2011
Audits or reviews	• The Mineral Resource was estimated by the Competent Person.
Discussion of relative accuracy/ confidence	• An independent estimate of the resource was completed using a nearest neighbour estimate and the comparison of the results with the ordinary kriging estimate is below 0.3% for measured resources and below 3% for indicated resources which is considered to be acceptable. • Univariate statistics for global estimation bias, visual inspection against samples on plans and sections, swath plots in the north, south and vertical directions to detect any spatial bias shows a good agreement between the samples and the ordinary kriging estimates.

References

Houston, J., Butcher, A., Ehren, P., Evans, K., and Godfrey, L. (2011). The Evaluation of Brine Prospects and the Requirement for Modifications to Filing Standards. Economic Geology. V 106, p 1225-1239.