ABOUT

PepinNini Minerals Limited is a diversified ASX listed Australian Exploration Company focused on exploring, discovering and developing a significant mineral resource. PepinNini has exploration tenements prospective for Kaolin on the Eyre Peninsula and nickel-copper-cobalt-PGE in the Musgrave Province of South Australia and hold a Minerals brine resource in Salta Province, Argentina. The company also holds a copper-gold exploration project in Salta Province, Argentina

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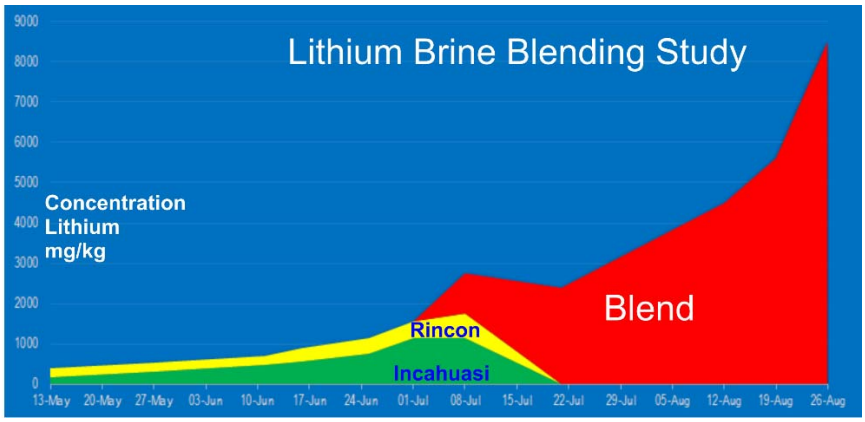
PepinNini Minerals Limited

ASX RELEASE 22 September 2021 ASX: **PNN**

PepinNini reports very strong interim results from lithium brine blending study

PepinNini Minerals Ltd (PepinNini, PNN) today reported very encouraging interim results from the lithium brine blending study underway in Chile, using brine from the company's leases on the Rincon and Incahuasi salares in Argentina.



The study, which commenced in May 2021, uses 2,000 litres of brine collected from each salar that is transported to testing facilities in Chile and allowed to evaporate and concentrate.

Three testing regimes are being applied in the study:

- Test 1 – Blended brines
- Test 2 – Incahuasi brine
- Test 3 – Rincon brine

After eight weeks of testing, **a lithium ion concentration of 8,500 mg/kg** was recorded for the blended brine, **a level 14 times that of Incahuasi brine** and **seven times that of Rincon brine**. Companies such as Orecobre(ASX:ORE) at their Olaroz project(100km north) concentrate to 7,000 mg/kg(ASX announcement 1 April 2011).

While the testing has another month to complete, the preliminary results suggest that the brine blending process is viable and highly effective.

The blending of brine with a high concentration of sulphate from the Salar del Rincon with the brine of high concentration of calcium from the Salar de Incahuasi avoids the precipitation of lithium sulphate and reduces the calcium content. By using this difference between the brines, **it is possible to obtain a higher concentration of lithium in the brine at a lower cost.** Importantly it is *industry best practice* to conduct brine blending studies in order to evaluate and optimise future lithium chemical production

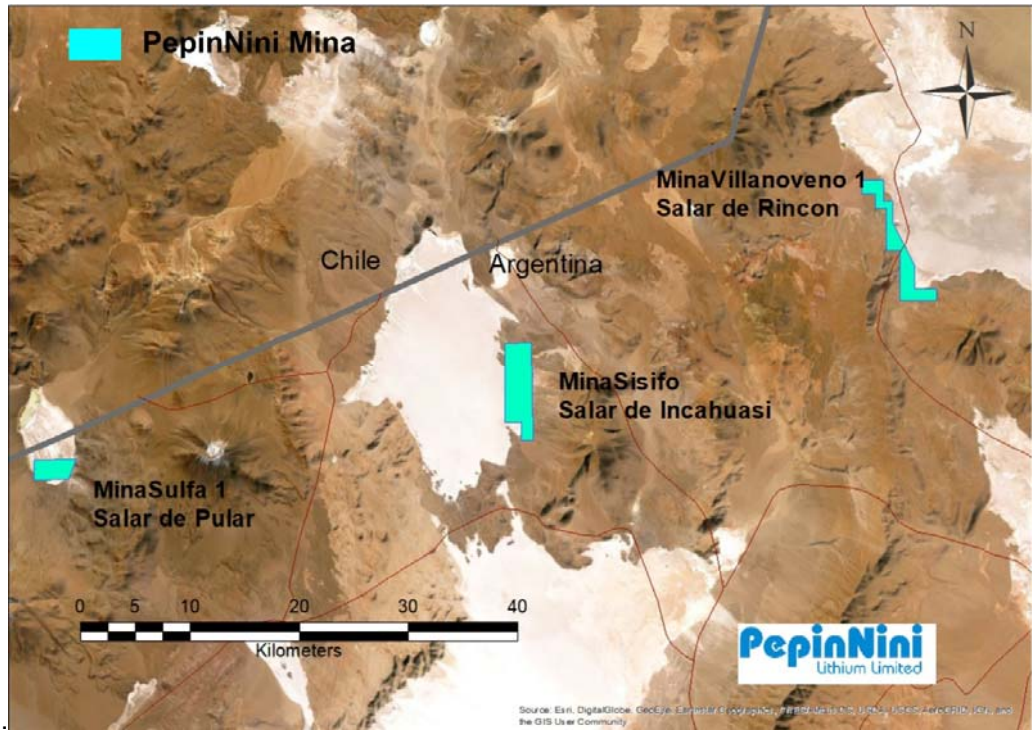


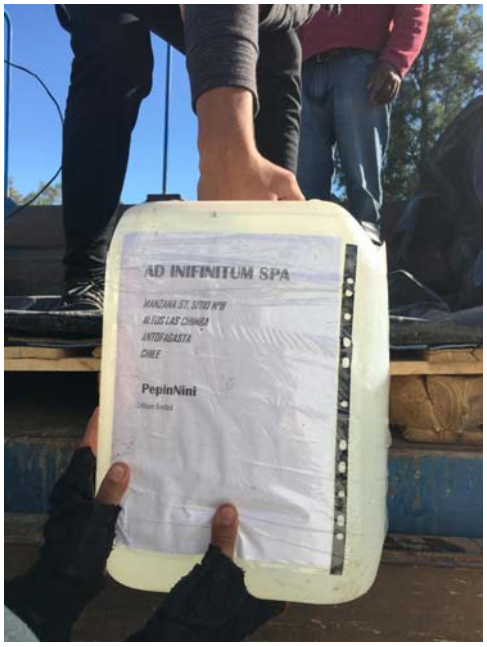
Figure 1 *– Mina locations, Salta Lithium Brine Project*

Study methodology

Brine for the study was collected from trenches on Salar de Incahuasi and pumped from monitoring wells on Salar del Rincon. The relative density of each brine sample was recorded and the 4,000 litres of brine was transported in sealed containers to testing facilities in Chile where the brine was poured into testing ponds lined with plastic liners in an environment similar to that of the project area in Argentina: ie elevation around 4,000 metres above sea level, low rainfall, average temperature of 15°C and high evaporation rate.

Photo 1 - Salar de Incahuasi - *Brine Collection by pumping from trenches created Aug-Sep 2019*

Photo 2 - Salar de Rincon - *Brine was pumped from monitoring wells converted from resource drilling program Dec 2017*



Photos 3 and 4 - *Relative density of brine measured before labelled plastic brine containers were sealed for transport*

Testing Process Stages

Photo 5 - 13 May *- brine poured into prepared ponds with plastic liners*

15 May - *evaporation commences*

19 May - *evaporation continues*

24 June
Rincon *concentrated brine*

Incahuasi *concentrated brine*

oncentrated brine *harvested for mixing*

Next Steps

- scale up the testing to obtain a lithium carbonate battery grade sample in pilot testing on site
- drilling of four boreholes including a pumping well on Incahuasi Salar to augment the LCE (lithium carbonate equivalent) resource stated for Salar del Rincon (ASX announcement 27 June 2018)
- Conduct a pre-feasibility study for both Rincon and Incahuasi, including the design of a processing plant.

This announcement was authorised for issue by the Board of PepinNini Minerals Ltd

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Note: Additional information on PNN is available at www.pepinnini.com.au

The information contained herein that relates to the progress of the laboratory test work and study development related activities have been directed by Mr. Marcelo Bravo. Mr. Bravo is Chemical Engineer and managing partner of Ad-Infinitum Spa. with over 25 years of working experience and he is a Member of the Chilean Mining Commission (register 0412) and has sufficient experience which is relevant to the activity which they are undertaking to qualify as a Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Bravo consents to the inclusion of his name in the matters based on the information in the form and context in which it appears.

The section on the Salta project exploration results has been prepared with information compiled by Marcela Casini, MAusIMM. Marcela Casini is the Exploration Manager-Argentina of PepinNini Minerals Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration 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". Marcela Casini consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

JORC Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representability and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	**Salar de Incahuasi** • Liquid samples were collected from trenches dug for a brine sampling program with an excavator shovel in June 2020  • The trenches were dug 2 meters wide, 8 meters long and the depth was limited by a harder material where the excavator could not dig deeper

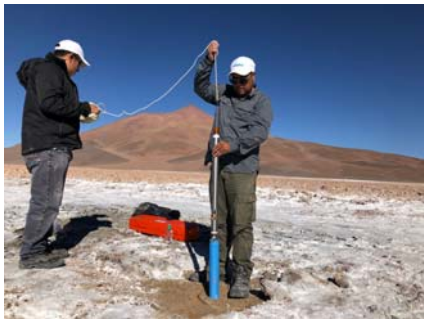
Criteria	JORC Code explanation	Commentary

- Brine was pumped from the trenches into plastic containers

- Containers were sealed and labelled and transported to Chile
- A chain of custody was established for samples from field to testing facilities in Chile with each stage signed off and handed over to final receipt by testing facility

Salar del Rincon

- Brine was pumped(June - July 2020) from monitoring wells drilled in 2017(refer ASX announcement 16 Jan 2018).



Criteria	JORC Code explanation	Commentary
		Brine samples from monitoring wells on Rincon Salar **Experimental test description** • Test 1 - Blended brine - used ratio of 1m^3 Rincon Brine to 0.33m^3 Incahuasi brine • Test 2 - used all Incahuasi brine • Test 3 - used all Rincon brine • Total test brine 4,000 litres
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• No Drilling was undertaken - samples taken from boreholes drilled Dec 2017 **Borehole PNN-VI-DW-02** • Borehole coordinates: GK Posgar Zone 3: 7333639.91E -3380585.57N Elevation:3730 masl • Start drilling date: 16 Dec 2017 • Finish drilling date: 23 Dec , 2017 • Total Depth: 130 meters • Drilling Methodology: Diamond Drilling • Drilling Company: Hidrotec • Rig: HT06LF90 **Borehole PNN-VI-DW-01** • Borehole coordinates: GK Posgar Zone 3: N 3382155.2/E 7330630.6 Elevation:3,731 masl • Start drilling date: Dec 7, 2017 • Finish drilling date: Dec 9, 2017 • Total Depth: 80 meters • Drilling Methodology: Diamond Drilling • Drilling Company: Hidrotec • Rig: HT06LF90
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative*	• No drilling was undertaken

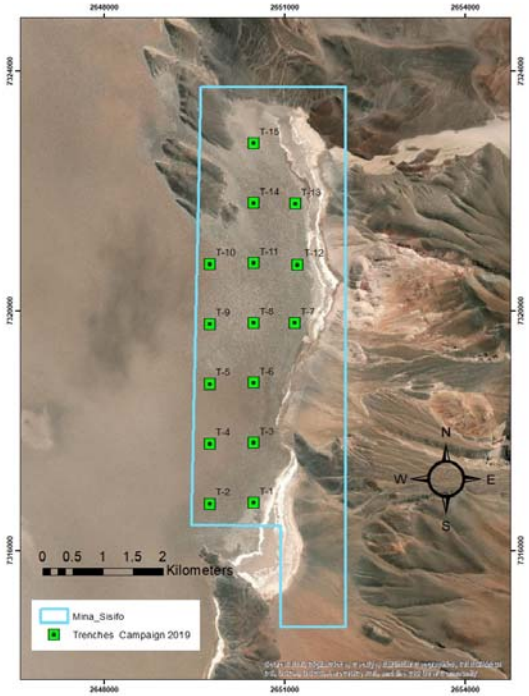
Criteria	JORC Code explanation	Commentary
	nature of the samples. • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• No logging done for sampling • Brine density was recorded before sample containers were sealed 
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representativity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Unused new and clean plastic containers were used • Bottles were sealed and labelled

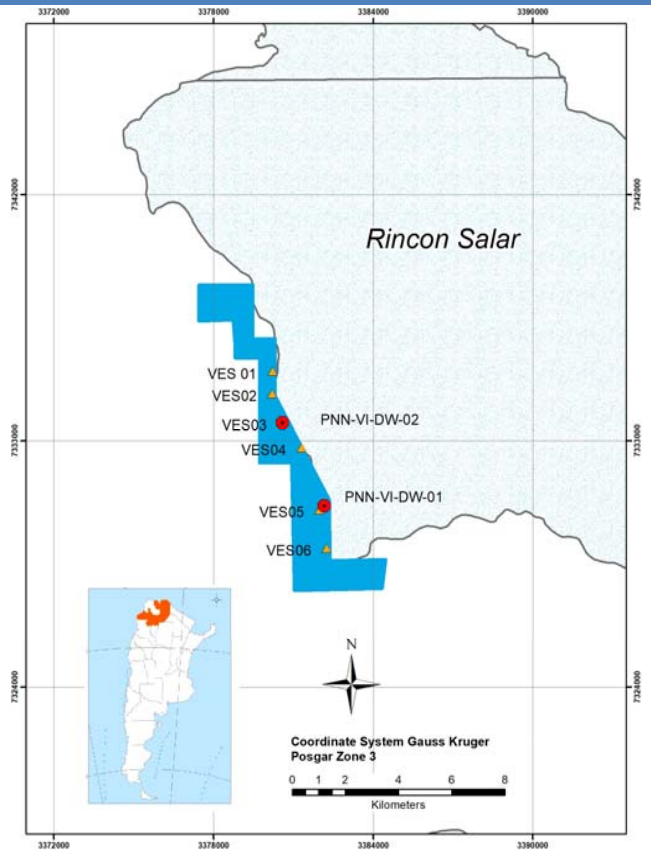
Criteria	JORC Code explanation	Commentary

- 4,000 litres were sent to the testing facility in Chile by truck
- Samples were analysed on arrival in Chile to establish base chemistry

	pH	Density (g/cm3)	SO4= %p/p	B %p/p	Ca %p/p	K %p/p	Li %p/p	Mg %p/p	Na %p/p	Cl- %p/p
Incahuasi	6,70	1,211	0,08	0,01	**0,75**	0,54	0,02	0,60	7,93	16,09
Rincón	7,00	1,212	**0,85**	0,02	0,05	0,46	0,02	0,25	10,05	15,64

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• A chain of custody was maintained for samples from trenching in Salar de Incahuasi and pumping location of monitoring borehole on Salar del Rincon to testing facility receipt in Chile.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• A Competent person(CP) is used for oversight verification and reporting of testing work in Chile • 4,000litres were sent to the testing facility in Chile
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Geographic positioning control for trench location using both latitude and longitude and Gauss_Kruger POSGAR (WGS-84) • Handheld GPS device for trench locations • The grid system used is Argentina Gauss_Kruger POSGAR (WGS-84) Zone 3.

Criteria	JORC Code explanation	Commentary
		 Monitoring wells were Borehole locations for Rincon samples

Criteria	JORC Code explanation	Commentary
		
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Trenches were 2 m wide and 8 metres long and up to 0.8m deep • Boreholes were located approximately 4 kms apart
Orientation of data in relation	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key*	• Trenches dug into horizontal layers

Criteria	JORC Code explanation	Commentary
to geological structure	*mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	
Sample security	• *The measures taken to ensure sample security.*	• A chain of custody is established for samples from field to testing facility in Chile with each stage signed off and handed over to final receipt by testing facility..
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Data collection, processing and analysis protocols aligned with industry best practice.

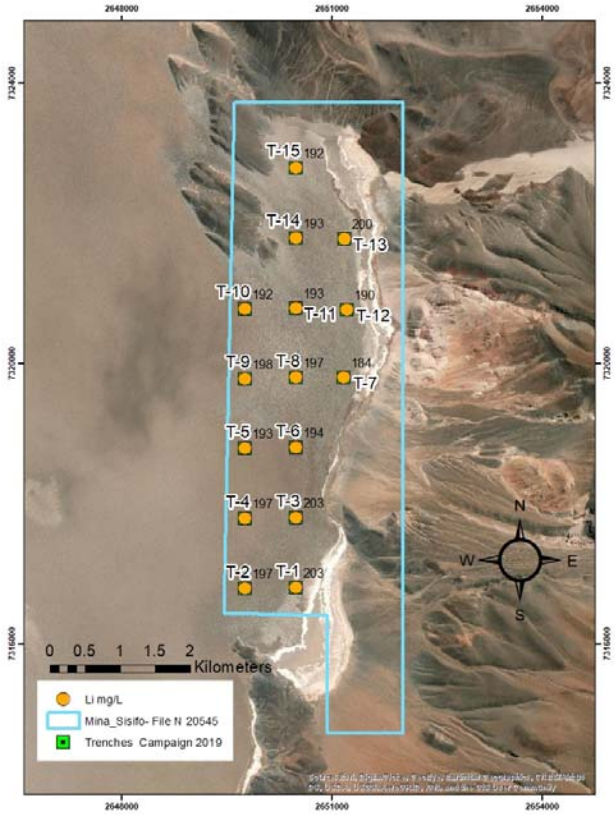
Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Mina Sisifo File Number 20545, Held 100% by PepinNini SA an Argentina entity wholly owned by PepinNini Minerals Ltd. • Mina Villanovena 1 File Number 19565, Held 100% by PepinNini SA an Argentina entity wholly owned by PepinNini Minerals Ltd. • Held under grant from Mining Court of Salta Province, Argentina Tenure (Mina) held in perpetuity and appropriately maintained.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Technical Report Salar de Incahuasi, Salta Argentina, Dr Ricardo N Alonso MAusIMM, Walter R Rojas, August 2011 – Lithea Inc. • TSX-V:LAT 13 Nov 2008 – Latin American Minerals Inc. acquires Lithium project in Argentina following positive initial sampling program - Sampling and Analytical Protocols: Sampling and analytical protocols were implemented and supervised by or under the direction of Dr. Waldo Perez, the Corporation's internal Qualified Person as defined by National Instrument 43-101. All of the lithogeochemical samples were collected by geologists taking into account the nature of the material being sampled. The crust sample was collected with a hammer from surface, weighted between 2 to 4 kilograms and was collected in a plastic bag, tagged with a pre-numbered ticket and tightly closed with plastic tape. The brines samples were collected in a brand new plastic bottle filled atop containing 1 litre of brine and tightly closed. All samples were

Criteria	JORC Code explanation	Commentary
		tagged with a prenumbered ticket and stored in a secured location at the base camp for no more than 10 days. The brines were stored in a dark room. The samples were shipped by courier to Alex Stewart Assayers Argentina S.A. ("ASAA") laboratories in Mendoza (Argentina). ASAA is an ISO 9001-2000-certified laboratory with headquarters in England. The crust samples were grinded to #200 mesh, then split and dissolved in hot water. A total of 500 ml of sample have been separated for ICP analysis. The brine samples were filtered and read directly by ICP analysis. All samples were assayed for 13 elements by ICP. Accuracy and precision of results is tested through the systematic inclusion of blanks and duplicates. • Rincon Lithium Project Maiden JORC Mineral Resource - Argosy Minerals Ltd(ASX:AGY) 19 June 18
Geology	• *Deposit type, geological setting and style of mineralisation.*	• PepinNini is primarily exploring for brine aquifers in salars (dried salt lakes) and the geological setting is suitable for lithium bearing brines in commercial quantities. **Salar de Incahuasi** • The Lithology is uniform across, and along the project area, All the area is covered by a thick crust of halite, in all the trenches was encountered cubic Crystals and caverns of halite with great porosity , below the upper crust • The depth of the trenches was limited by harder halite where the excavator couldn't dig more deep • That layer could be massive and harder halite
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should*	• No drilling was undertaken **Salar del Rincon** • Brine taken from previously drilled boreholes **Borehole PNN-VI-DW-02** • Borehole coordinates: GK Posgar Zone 3: 7333639.91E -3380585.57N Elevation:3730 masl • Start drilling date: 16 Dec 2017 • Finish drilling date: 23 Dec , 2017 • Total Depth: 130 meters

Criteria	JORC Code explanation	Commentary
	clearly explain why this is the case.	• Drilling Methodology: Diamond Drilling • Drilling Company: Hidrotec • Rig: HT06LF90 **Borehole PNN-VI-DW-01** • Borehole coordinates: GK Posgar Zone 3: N 3382155.2/E 7330630.6 Elevation:3,731 masl • Start drilling date: Dec 7, 2017 • Finish drilling date: Dec 9, 2017 • Total Depth: 80 meters • Drilling Methodology: Diamond Drilling • Drilling Company: Hidrotec • Rig: HT06LF90
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No data aggregation used,
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	**Salar de Incahuasi** • The Lithology is uniform across, and along the project area, All the area is covered by a thick crust of halite, in all the trenches was encountered cubic Crystals and caverns of halite with great porosity , below the upper crust • The depth of the trenches was limited by harder halite where the excavator couldn't dig more deep • That layer could be massive and harder halite

Criteria	JORC Code explanation	Commentary
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	

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		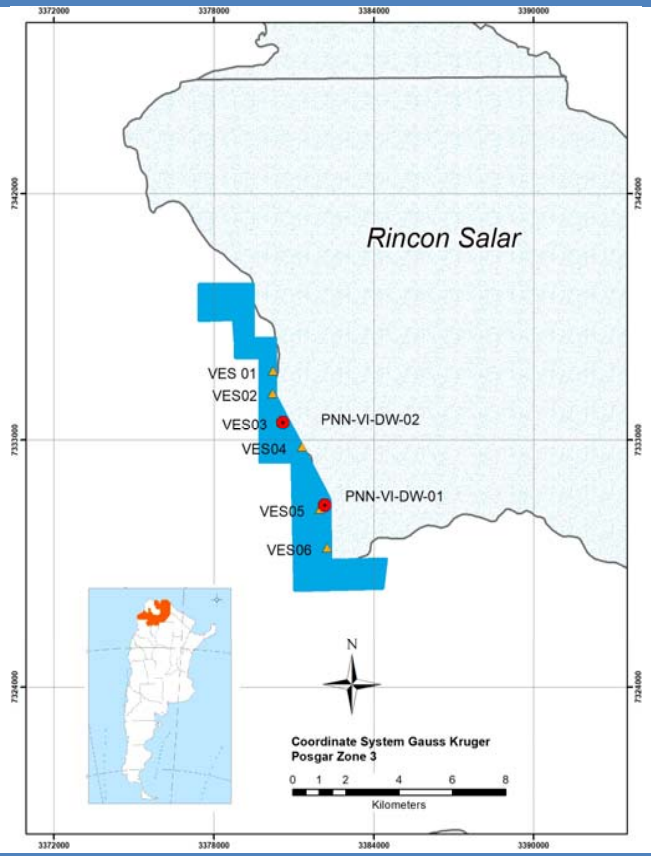
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All tests have run for eight(8) weeks **Rincon well brine evaporation**

Criteria	JORC Code explanation	Commentary

RINCON		
Date	Density (g/cm3)	Li Mg/kg
13-may	1,212	182
27-may	1,215	305
11-jun	1,217	477
16-jun	1,226	571
25-jun	1,231	747
01-jul	1,256	1139
08-jul	1,251	1151

Incahuasi Well brine evaporation

INCAHUASI		
Date	Density (g/cm3)	Li Mg/kg
13-may	1,210	215
27-may	1,213	231
11-jun	1,217	238
16-jun	1,225	327
25-jun	1,226	392
01-jul	1,238	420
08-jul	1,265	609

Mixed brine evaporation

MIXED BRINE		
Date	Density (g/cm3)	Li Mg/kg
08-jul	1,228	1000
21-jul	1,245	2400
12-aug	1,288	4500
19-aug	1,347	5600
26-aug	1,350	8500

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	TREATED BRINE Date / Density (g/cm3) / Li Mg/kg 04-aug: 1,180 / 400 19-aug: 1,233 / 600 26-aug: 1,286 / 1100 01-sep: 1,290 / 1600 06-sep: 1,350 / 2400 • Test 2 - Incahuasi - after 4 weeks • Test 3 - Rincon - after 4 weeks RINCON Date / Density (g/cm3) / Li Mg/kg 4-Aug: 1,212 / 182 19-aug: 1,213 / 400 26-aug: 1,227 / 600 01-sep: 1,237 / 1200 06-sep: 1,286 / 1900
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	**Test 1** • Rincon evaporation - completed • Incahuasi evaporation - completed • Mix brine for gypsum removal - completed • mixed brine evaporation - in progress • Treatment for Magnesium removal - to do • Final evaporation - to do

Criteria	JORC Code explanation	Commentary
		Test 2 • Incahuasi well brine evaporation • Treatment for Calcium removal - completed • Treated brine evaporation - in progress • Treatment for Magnesium removal - to do • Final evaporation - to do **Test 3** • Rincon brine evaporation • Treatment for sulphate removal - to do • Treated brine evaporation - in progress • Treatment for Magnesium removal - to do • Final evaporation - to do