UPDATED MINERAL RESOURCE ESTIMATE TECHNICAL REPORT on the TRES QUEBRADAS LITHIUM PROJECT Catamarca Province, Argentina



Prepared for:

Neo Lithium Corp. 333 Bay Street, Suite 2400, Toronto, Ontario M5H 2T6, Canada

EFFECTIVE DATE: August 15, 2018

Prepared by: Mark King, Ph.D., P.Geo., F.G.C. GROUNDWATER INSIGHT INC. 3 MELVIN ROAD, HALIFAX, NOVA SCOTIA CANADA





TABLE OF CONTENTS

SUMMARYV	/11
1 INTRODUCTION	1
1.1 Authorization and Purpose	1
1.2 Sources of Information	1
1.3 Scope of QP Inspection and Involvement	1
1.4 Special Considerations for Brine Resources	2
1.4.1 Overview of Evaluation Framework	2
1.4.2 Brine Resource Estimation – Porosity	4
1.4.3 Brine Reserve Estimation – Permeability and Boundary Conditions	4
1.5 Units and Currency	5
2 RELIANCE ON OTHER EXPERTS	6
3 PROPERTY DESCRIPTION AND LOCATION	8
3.1 Location	8
3.2 Description	8
3.3 Type of Mineral Tenure1	12
3.4 Mining Rights Opinion1	15
3.4.1 Overview	15
3.4.2 Protected Areas1	15
3.4.3 Surface Access1	15
3.4.4 Water Rights	16
3.4.5 Mining Group	10
3.4.0 Royallies	10
3.4.7 EINTOITTETTAL LIADITTES	10
3.4.0 Permits	19
3.4.10 Site Access Risk Factors	20
3 4 11 Closing	20
	-0
PHYSIOGRAPHY	21
4.1 Accessibility	21
4.2 Climate	21
4.3 Local Resources	26
4.4 Infrastructure2	26
4.5 Physiography2	26
5 HISTORY	<u>28</u>
6 GEOLOGICAL SETTING AND MINERALIZATION	<u>29</u>
6.1 Regional Geology2	29
6.2 Salar Basin Geology	30
6.3 Salar In-Fill Geology	38
6.4 Structures4	13
6.5 Mineralization4	16





6.6	Surface Water	48
6.6.1	1 Surface streams	48
6.6.2	2 Permanent Surface Water Bodies	50
6.7	Groundwater	53
6.8	Water Balance	55
6.9	Surface and Shallow Brine Hydrochemistry	56
7 DEPO	OSIT TYPES	
8 EXPL	_ORATION	
8.1	Overview	64
8.2	Vertical Electric Sounding ("VES") Surveys	65
8.3	Seismic Survey (2017/18 Program)	67
8.4	Surface Brine Sampling Program	69
8.5	Pumping Test Program	72
8.5.1	1 Summary of Previous Work (2016/17 Program)	
8.5.2	2 Pumping Tests in the 2017/18 Program	
8.6	Data Processing	
9 DRIL	LING	
9.1	Overview	76
9.2	Diamond Drilling	78
9.3	Rotary Drilling	81
10 SAN	IPLE PREPARATION, ANALYSES AND SECURITY	
10.1	Overview	82
10.2	Sample Collection	82
10.2	.1 Surface Brine and Stream Methods	82
10.2	2 Subsurface Brine Sampling	86
10.2	.3 Pumping Tests	88
10.3	Sample Preparation	89
10.4	Brine Analysis	
10.5	Field QA/QC Program	
10.5	5.1 Summary	
10.5	Round Robin Analysis of Bulk Reference Samples	
10.5	5.5 Reference Sample Performance in the Sampling Program	
10.5	5 Field Blank Performance	92 QA
10.5	Laboratory Dunlicate Analysis	
10.0	Sample Security	
11 DAT		
11.1	Project Review and Interaction	
11.2	independent Duplicate Sampling	
12 MIN	ERAL PROCESSING AND METALLURGICAL TESTING	
12.1	Introduction	101
12.2	Brine Chemistry Interactions	
12.3	Brine Processing	





12.4 12.5 12.6	Solar Evaporation Pond Construction Evaporation Pond Operation Lithium Carbonate Plant	103 105 107
13 MIN 13.1 13.2 13.3 13.4 13.5 13.6	ERAL RESOURCE ESTIMATE Method Overview Hydrostratigraphic Model Development Brine Model Development Mineral Resource Zones and Cut-off Mineral Resource Model Component Checks Mineral Resource Estimate	110 110 111 114 116 117 118
14 ADJ	IACENT PROPERTIES	120
15 OTH 15.1 15.2 15.3 15.4 15.5 15.6 15.7 15.8	HER RELEVANT DATA AND INFORMATION . Numerical Model Overview Numerical Model Domain Spatial Discretization Flow Model Parameterization Flow Boundary Conditions Strategy for Model Calibration and Temporal Discretization Preliminary Calibrated Model Closing for Other Relevant Data and Information	121 121 121 121 124 124 127 127 128
16 INTE	ERPRETATION AND CONCLUSIONS	131
17 REC	COMMENDATIONS	132
18 REF	ERENCES	134
19 LIST	Γ OF ABBREVIATIONS	137
20 DAT	E AND SIGNATURE PAGE	139
APPEN	IDIX 1: SELLEY LOG - LOG AND CORRELATION LINE LOCATIONS	141
APPEN	IDIX 2: ISOPACH MAPS FOR THE SIX SALAR UNITS	. 143
	IDIX 3: VES SECTIONS FROM THE 2017/18 PROGRAM	150
	IDIX 4: INTERPRETED SEISMIC SECTIONS	155
APPEN	IDIX 5: SUMMARY OF ALL DRILLING SPECIFICATIONS	164





LIST OF FIGURES

Figure 1.1: Evaluation framework considered applicable to lithium brine prospects.	3
Figure 3.1: Property Location Map – 3Q Project.	9
Figure 3.2: Catchment area basin of the 3Q Salar Complex.	10
Figure 3.3: Claims held in the 3Q Project	.14
Figure 4.1: Topography and roads in the 3Q Project catchment	.22
Figure 4.2: Daily solar radiation recorded by the Vaisala weather station - 3Q Project	.23
Figure 4.3: Monthly average air temperature recorded by the Vaisala weather station - 3Q Project	.23
Figure 4.4: Monthly precipitation recorded by the Vaisala weather station - 3Q Project	.24
Figure 4.5: Monthly average humidity recorded by the Vaisala weather station - 3Q Project	.24
Figure 4.6: Average wind speed recorded by the Vaisala weather station - 3Q Project.	.25
Figure 4.7: Monthly average evaporation rate obtained by calculation, with data from the Vaisala weather statio	n -
3Q Project.	.25
Figure 6.1: Geological map of the 3Q Project area (see Figure 6.2, for lithology legend)	.31
Figure 6.2: Lithostratigraphic legend for the 3Q Project geological map shown in Figure 6.1	.32
Figure 6.3: Conceptual cross-section showing structural systems in the vicinity of 3Q Salar.	.45
Figure 6.4: Surface stream gauging points in the 3Q Salar Complex	.49
Figure 6.5: Time series flow rate data for the main surface streams in the 3Q Salar Complex	.50
Figure 6.6: Bathymetry of Laguna 3Q and Laguna Verde.	.51
Figure 6.7: Temporal evolution of lake surface areas (estimated with Landsat satellite images)	.52
Figure 6.8: Recorded groundwater piezometric levels, lakes levels, and rainfall	.53
Figure 6.9: Piezometric surfaces extrapolated from groundwater monitoring network data.	.54
Figure 6.10: Surface brine concentration distributions for Li, K, Ba, and B.	.57
Figure 6.11: Surface brine concentration distributions for Cl, Na, Ca, and SO4.	.58
Figure 6.12: North-South transect of surface brine concentrations for Li, K, Mg, Ca, Ba, Sr and B.	.59
Figure 6.13: Principal component analysis for the chemistry of surface brine samples collected in 3Q Salar: (A)	
surface brine resident in the salar crust, and surface streams, (B) surface brine resident in the salar	r
crust, surface streams, and lakes, (C) deep and surface brines, and surface streams, and (D) deep a	ind
surface brines, surface streams, and natural springs	.60
Figure 6.14: Simulated evaporation of a water sample from the Salado River (top). Water and brine samples	
collected during the last four 3Q Project sampling campaigns, super-imposed on simulation results	\$
(bottom).	.61
Figure 8.1: Surface geophysics (VES and Seismic) conducted to date - 3Q Project	.66
Figure 8.2: Chronology of surface brine sampling in the 3Q Salar Complex.	.70
Figure 8.3: Interpolation of the magnesium-lithium ratio in surface brine samples	.71
Figure 8.4: Pumping tests conducted during the 2017/18 Program.	.73
Figure 8.5: Simulated and measured drawdown for 72-hr pumping tests at PB2-R7 and PB3-R7	.75
Figure 9.1: Drill platform and borehole locations and chronology – 3Q Project.	.77
Figure 10.1: Lithium results for mid-range reference samples, compared with Round Robin Mean and Standard Deviation	91
Figure 10.2: Lithium results for high-range reference samples, compared with Round Robin Mean	91
Figure 10.3: Potassium results for mid-range reference samples, compared with Round Robin Mean.	92
Figure 10.4: Potassium results for high-range reference samples, compared with Round Robin Mean.	92
Figure 10.5: Field duplicates versus original sample results for lithium (mg/L).	.93
Figure 10.6: Field duplicates versus original sample results for potassium (mg/L).	.93
Figure 10.7: Field duplicates versus original sample results for magnesium (mg/L).	94
Figure 10.8: Blank sample results for lithium.	.95





Figure 10.9: Blank sample results for potassium	95
Figure 10.10: ASL internal laboratory duplicate results for Lithium	96
Figure 10.11: ASL internal laboratory duplicate results for potassium.	96
Figure 11.1: Independent duplicate lithium samples versus original samples, relative to a 1:1 line	99
Figure 11.2: Independent duplicate potassium samples versus original samples, relative to a 1:1 line	99
Figure 11.3: Independent duplicate magnesium samples versus original samples, relative to a 1:1 line	.100
Figure 11.4: Independent duplicate calcium samples versus original samples, relative to a 1:1 line	.100
Figure 12.1: Block diagram of the brine processing procedure	.103
Figure 12.2: Typical pond cross section	.104
Figure 12.3 Schematic of the pond walls	.105
Figure 12.4: Phase Diagram and brine behaviour for the 3Q Project brine	.106
Figure 12.5: Block diagram of the solar evaporation pond system for the production of high lithium concentratio	on
brine	.106
Figure 13.1: Configuration of primary units in the Vulcan Mineral Resource model	.113
Figure 13.2: Distribution of lithium in the top layer of the Vulcan Resource model	.115
Figure 13.3: Distribution of potassium in the top layer of the Vulcan Resource model	.116
Figure 13.4: Resource category configuration, for a range of cut-off values	.117
Figure 15.1: Topographic surface imposed on the top of the FEFLOW model domain	.122
Figure 15.2: Profile and sections illustrating the FEFLOW model domain	.123
Figure 15.3: Hydraulic conductivity zones in the FEFLOW model	.125
Figure 15.4: Annual inflows (specified) and evaporative outflows (determined by the model).	.126
Figure 15.5: The depth-dependent evaporation function used for the salar crust.	.127
Figure 15.6: Comparison of simulated and observed piezometric heads - calibrated FEFLOW model	.129
Figure 15.7: Simulated piezometric surfaces (with FEFLOW) in 2017 and 2018	.130

LIST OF PHOTOS

Photo 3.1: Southward view of seasonal flooding in northern 3Q Salar	11
Photo 3.2: Looking southward from the north end of Laguna 3Q	11
Photo 3.3: View of the 3Q Project Camp	12
Photo 4.1: Drilling Platform on 3Q Salar	27
Photo 4.2: Pit excavation for shallow brine sampling, on the rough surface of 3Q Salar.	27
Photo 6.1a-b: (Left) Outcrops of andesitic-dacitic rocks of the El Cuerno Formation, in the northwest of the	mapped
area. (Right) Brecciated rock in contact with intermediate volcanics.	
Photo 6.2: Outcrops of the El Cuerno Formation, in the southwest of the mapped area, west of Laguna Verd	le.
Outcrops are partially covered by modern deposits (alluvial fans).	33
Photo 6.3: Los Aparejos Formation. Outcrops assignable to this formation have only been identified in the n	orthern
end of the mapped area, immediately north of Laguna 3Q, and could possibly form the deep a	aquifer
(Fanglomerate) observed in salar drilling.	34
Photo 6.4: Outcrop of the Tres Quebradas Porphyry, in the north zone of the Project.	34
Photo 6.5: Interbedded sediments corresponding to Laguna Verde Strata. (Left) sandy-silty outcrop; (right)	
conglomerate facies	35
Photo 6.6: Reddish sandstone facies assignable to Laguna Verde Strata, east of 3Q Salar.	35
Photo 6.7: Basaltic volcanic mantles of Pissis in the south sector (Valle Ancho River valley)	36
Photo 6.8: Volcaniclastic deposits corresponding to "Cerro Nacimientos Lavas".	37
Photo 6.9: Core from the hydrogeological basement, with a gentle dip of 5 to 40 degrees.	
Photo 6.10: Reddish-gray Fanglomerate in core from PP1-D22, at a depth of approximately 587 m	39





Photo 6.11: Transition between Lower Sediments (reddish-brown) and white Massive Halite, at 461.5 m.	40
Photo 6.12: Porous Halite shown in core from well PP1-D22, at a depth of 78 m	41
Photo 6.13: The boundary between Upper Sediments and Hyper-Porous Halite	42
Photo 6.14: Alluvial fan deposits and filling materials in inactive fluvial channels, on the northwest margin of	
Laguna Verde	43
Photo 8.1: VES equipment	67
Photo 8.2: Vibroseis Sercell with seismometers set up at 20 m spacing (left). Interior controls for the seismic	
equipment (right)	68
Photo 9.1: Aerial view of diamond drilling platform.	80
Photo 9.2: Reviewing diamond core, at a storage warehouse in Fiambala	80
Photo 10.1: Collecting brine samples from shallow hand-excavated pits.:	82
Photo 10.2: Collecting samples and performing soundings in Laguna 3Q, with hip waders	83
Photo 10.3: Collecting samples from Laguna 3Q, from a boat	84
Photo 10.4: Measuring streamflow in 3Q River.	85
Photo 10.5: Measuring field parameters in streamflow	85
Photo 12.1: Three pre-concentration ponds connected in series with four CaCL2 ponds	.107
Photo 12.2: Two evaporation ponds connected in series, on the 3Q Salar core.	.107
Photo 12.3: Precipitation of antarctite within the ponds	.107

LIST OF TABLES

Table 3.1: Status of Mineral Claims in the 3Q Project.	13
Table 6.1: Volume and average composition of the Mineral Resource Estimate defined for the 3Q Project (for	800
mg/L lithium cut-off)	46
Table 6.2: Comparison of selected brine chemistry for the Mineral Resource Estimate defined at the 3Q Proje	ct (for
the 800 mg/L cut-off), with other lithium brine deposits	47
Table 6.3: Lake surface levels (meters above sea level)	51
Table 6.4: Preliminary water balance for the 3Q Salar Complex	55
Table 8.1: Summary of exploration work reported previously - 3Q Project	64
Table 8.2: Summary of exploration work conducted for the 2017/18 Program and first reported in the current	t
Technical Report - 3Q Project.	65
Table 8.3: Aquifer hydraulic properties determined from pumping tests, using MODFLOW and PEST	74
Table 9.1: Summary of diamond drilling contractors and well installation – 3Q Project	78
Table 9.2: Summary of RBRC results from the diamond cores	79
Table 12.1: Average Chemical Composition (%) of 3Q Brine with 400 and 800 mg/l Li cut-off	101
Table 13.1: Summary of primary hydrostratigraphic units in the Vulcan model	112
Table 13.2: Sample search specifications for Mineral Resource categorization	116
Table 13.3: Summary of the Mineral Resource Estimate at lithium grade cut-off values of 800 and 400 mg/L	
(Effective Date: August 15, 2018)	119
Table 17.1: Proposed exploration components and estimated budget.	133





SUMMARY

INTRODUCTION

This Report was prepared for Neo Lithium Corp. (the "Company" or "NLC") to document the following for the Tres Quebradas Project (the "3Q Project"), located in Catamarca Province, Argentina:

- Background information on the 3Q Project location;
- Methods and results of recent exploration activities on the 3Q Project; and
- Methods and results of a Mineral Resource Estimate prepared for the Company.

Report preparation was supervised by Mark King, Ph.D., P.Geo., F.G.C., a "qualified person" (a "QP") is responsible for all items in this report and is independent of NLC, as such terms are defined by National Instrument 43-101 ("NI 43-101").

The mineral deposits that are the focus of this Report are related to lithium and potassium in brine contained within salar deposits and two brine lakes in the 3Q Salar Complex.

The Mineral Resource Estimate in this report have been presented in conformance with NI 43-101 and Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Resources and Reserves ("CIM Standards"). As defined under these standards, mineral resources that are not mineral reserves do not have demonstrated economic viability.

The exploration activity on the 3Q Project is <u>in respect of</u> lithium and potassium, both natural solid inorganic materials, which are industrial minerals. The natural occurrence of the lithium and potassium within a liquid, i.e., brine, does not preclude the application of the NI 43-101 reporting framework, although certain evaluation approaches are required that will be different than those used for solid phase mineralization.

All figures in this Report were prepared for this Report, unless otherwise indicated.

RELIANCE ON OTHER EXPERTS

The preparation of this Report was supervised by the QP, Mark King, Ph.D., P.Geo., F.G.C. Dr. King has 29 years of experience as a consulting hydrogeologist. He has served as technical manager on major groundwater-related projects in Canada, the United States, and South America. His expertise is an appropriate foundation for serving as the QP on lithium brine projects, based on the following:

- He has worked, in various levels of detail, on more than 18 salars in Chile, Argentina and Nevada.
- From 2009 to 2012, Dr. King served as QP for three rounds of NI 43-101 Reports for Lithium Americas, culminating in a lithium brine Reserve Estimate.
- Over a three year period, concluding in 2016, he directed SEAWAT modeling efforts related to the Albemarle brine production permit application at Salar Atacama.





- In 2011, Dr. King served as the independent Qualified Professional for work conducted by Talison Lithium, at the Salares Seven Lithium Brine Project in Chile.
- From 2013 to present, he conducted Due Diligence Studies of seven different salars in Argentina and Chile, for four different clients.
- Dr. King prepared the first two NI 43-101 Technical Reports for the 3Q Project.
- From 2016 to 2018, he directed the development of conceptual and numerical models for the Albemarle Silver Peak lithium brine deposit in Clayton Valley, Nevada.

In some of the subject areas covered in this Report, the QP has relied on other experts, including the following:

- The law firm of Martin and Miguens provided an ownership and claim Title Opinion summarized in this report. This opinion states that agreements with third parties are valid, enforceable and comply with local laws. Sections 3.3, 3.4 and 3.6 of this report rely on the Title Opinion. The QP has not researched title or mineral rights of the Project and expresses no opinion as to the ownership status of the 3Q Project properties.
- Brine processing information was provided by Dr. Claudio Suarez-Authievre, Ph.D., Chartered Chemist (Canada). Dr. Suarez-Authievre has extensive experience in brine processing projects in Argentina, Chile, and Bolivia.
- Initial geological mapping of the site was conducted by the Argentinean company Hidroar. Hidroar also conducted an independent check comparison of the cores and logs from the second Field Program (King, 2017).
- Seismic interpretation and a second round of geological mapping and was provided by Mr. Santiago Grosso. Mr. Grosso added to the geological interpretation provided in Section 6; he also led the cross-sectional interpretation that forms the basis of the solids model discretized into Vulcan.
- Vulcan Resource block modeling was done by Argentinean Geologist Mr. Daniel Quiroga, a specialist in that software.
- A numerical groundwater flow and transport model is under development for the site by Drs. Sergio Bea and Maria del Mar Alcaraz, both of Instituto de Hidrogeologia de Llanuras in Tandil, Argentina, with technical involvement of the QP. In ongoing work, the model will be used to support reserve estimation, among other applications.
- An extensive range of environmental, land use and climate studies have been conducted for the 3Q Project, by various experts and specialists. These are summarized in Section 3.4.7.
- Details of the 3Q Project Field Program were discussed in detail with Waldo Perez, Ph.D., P. Geo. (APEG-BC, Canada), in advance of the field work. Dr. Perez is CEO and President of NLC. He is a geologist with a technical background in mineral exploration, including lithium brines.

PROPERTY DESCRIPTION AND LOCATION

The 3Q Project is located in the southwestern zone of Catamarca Province, Argentina. The closest paved road to the Project is Ruta Nacional 60 ("RN60"), which connects San Fernando del Valle de Catamarca (population 212,000), the capital city of Catamarca Province, to Copiapó and the seaport of Caldera, via Paso de San Francisco.





The 3Q Project is 160 km east of Copiapó, Chile (population 203,000), which can be reached by a circuitous route of paved and dirt roads. Driving time is approximately six hours. The closest population centre to the 3Q Project is the town of Fiambalá, Argentina (population 5,000). It is located 100 km east of the Project and can be reached from the 3Q Project in a driving time of approximately four hours. The capital city of Catamarca Province (San Fernando del Valle de Catamarca) is 280 km southeast of the 3Q Project.

The 3Q Project includes a designated "Mining Group" covering 26,691 ha (the core of which will encompass mining activity) and a further 8309.72 ha (that will not carry mining activity), for a total of 35,004.72 ha of tenements in a salar/lake system. The system has been named the "3Q Salar Complex" (or "Complex") by NLC. The NLC properties are oriented northwest-southeast and extend for 40 km along the bottom of the Complex basin. The Complex includes the following three large areas of open brine (brine lakes):

- A lake in the north, known as Laguna Tres Quebradas ("Laguna 3Q"; inside the Mining Group);
- A lake in the central part of the valley, known as Laguna Verde (inside the Mining Group); and
- A lake in the south, known as Laguna Negra (outside the Mining Group).

The following areas of solid salar surfaces are also part of the Complex:

- A northern area between Laguna 3Q and Laguna Verde, known as Tres Quebradas Salar ("3Q Salar");
- A southern area between Laguna Verde and Laguna Negra, known as Laguna Negra Salar; and
- A smaller, isolated salar 2 km east of Laguna Verde, known as Salar Escondido.

All information regarding the legal status of the 3Q Project tenements was provided by the law firm of Martin and Miguens, Argentinean legal counsel for NLC. It has not been independently verified by the QP. NLC, through a wholly owned subsidiary, LIEX, has good and marketable title to 11 Mining Claims and 1 Exploration Claim that make up the 3Q Project tenements. It is the opinion of NLC legal counsel that:

- LIEX has good and marketable title to each of the Properties as of the date hereof, free and clear of any liens or other encumbrances registered on title with the Mining Authority;
- there are no competing claims by third parties with respect to the Properties; and
- the Surface Property Option referred to in Section "3.4.3 Surface Access" remains valid, binding and enforceable in accordance with its terms.

NLC legal counsel advises that, up to May 17, 2018, they are not aware of any litigation or undisclosed liabilities involving LIEX.

The 3Q Project tenements are not located in a protected area or provincial or national park. The area in which the tenements are located is a "Ramsar" site that has special interest for conservation, particularly with regards to bird nesting sites. Argentinean environmental legislation does not prohibit the development of a mining project in a Ramsar site, provided that it complies with all environmental law requirements.





To comply with the environmental regulations of the province of Catamarca, Argentina and international regulations, LIEX hired GT Ingenieria SA ("GT") for the development of an updated Environmental Impact Report ("EIR") for the exploration stage (already completed), the base line study (also completed and soon to be reported to the authorities), and the development of an EIR for the exploitation stage of the 3Q Project (in progress).

After the mining aspects of the 3Q Project have been defined, the process, financial feasibility, and the environmental impact study for Exploitation Stage will be completed. Based on the general work plan and previous environmental studies, the main impacts have already been identified in relation to the 3Q Project. Environmental impacts are predicted to be moderate during the construction and operation stages of the 3Q Project and can be reverted or mitigated in the short, medium and long term. The following potential impacts were identified:

- Changes in the landscape due to occupation of the physical space in the area of 3Q Project, on the 3Q Project access road and in the area that will be established for the construction and operation of the 3Q Project process plant in Fiambalá;
- Changes in the topography and soils, due to the permanent construction of evaporation ponds;
- Noise level increases caused by the use of equipment, machinery and vehicles in the 3Q Project, on the road connecting the 3Q Project site and the process plant; and due to the operation of the process plant to be constructed in Fiambalá;
- Deterioration of air quality, due to the emission of particles and combustion gas resulting from the operations carried out in the salt flat and in the evaporation ponds, salt removal, construction of landfills, the operation of the process plant in Fiambalá and the use of equipment, machinery and vehicles in both locations;
- Alteration, limited to a specific area, of flora processes and dynamics due to the emission of dust and air-contaminants resulting from the Project operations;
- Alteration to fauna habitats due to partial reduction of vegetation cover, emission of noise and vibrations, and the site camp;
- Diversification of land use and change in the productive matrix of Tinogasta and La Paz department;
- Increase in productive activity, training of personnel, employment and development of local suppliers; and
- Greater control in the remote area and improvement in accessibility to the tourist zones of Pissis and surrounding areas.

There are no aboriginal communities (or inhabitants) in the vicinity of the 3Q Project; however, there are communities in the area.

LIEX has developed a Community Participation Plan ("CPP"), designed as a tool for managing community affairs, aimed at strengthening the relationship between the company and the communities in Tinogasta department. The purpose of the CPP is to create instances for communication with the local population, as well as strengthening the communication and connection with institutions and public agencies of Fiambalá and Tinogasta municipalities, present in the area of influence of the 3Q Project.





Access to the 3Q Project can be maintained during winter conditions, with appropriate management. During the winter months, the access road and camp were operated continuously. Fresh water sources to the 3Q Project camp have remained unfrozen since they were established in October 2016. During the winter months, access occasionally requires heavy equipment to remove the snow from certain creeks along the road where the snow accumulates, mostly due to wind.

There are no other known significant risk factors, besides those noted in this Report, which may affect access, title, or otherwise the right or ability to perform work on the 3Q Project property.

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The 3Q Project can be accessed from RN60 via a gravel road that meets RN60 at UTM coordinates 582560 mE, 6942335 mN. RN60 is a paved year-round highway that joins the capital city of Catamarca Province (San Fernando del Valle de Catamarca) with the seaport of Caldera in Chile, via Paso de San Francisco. By this route, Caldera is approximately 450 km from the Project.

The 3Q Project is located in a high altitude, cold, desert climate. NLC has been collecting meteorological data at the 3Q Project since October 2016, with an automatic "Vaisala" weather station. These data have been compiled and analysed to support pond engineering and other objectives.

The closest population centre to the 3Q Project is the town of Fiambalá, Argentina (population 5,000). It is located 100 km east of the 3Q Project and can be reached from the Project in a driving time of approximately four hours. The capital city of Catamarca Province (San Fernando del Valle de Catamarca, population 210,000) is 280 km southeast of the Project.

Minimal infrastructure currently exists near the Project. The national highway RN60 comes to within 50 km of the property. Unpaved roads can be used to access the eastern and western sides of the property from RN60. A hotel is located on RN60, near the junction with the site access road.

Regarding other infrastructure considerations (availability of power, water, and mining personnel; potential tailings and waste disposal areas, and processing plants), the following have been identified:

- Electrical power for the site camp and operational equipment would likely be provided by a combination of solar, wind and diesel generation.
- Freshwater exists in abundance in the northwest sector of the property ("Frontera Claim") where flow monitoring in Tres Quebradas River ("3Q River") and Salado River indicates average freshwater flows on the order of 500 L/s each. It is also expected that subsurface freshwater sources would be found on one or more of the large alluvial fans that are adjacent to the Complex.
- The town of Fiambalá offers a potential source for mining personnel which would stay at a camp constructed at the 3Q Project site.
- NLC expects that the storage requirements for tailings and waste materials would be minimal.

The 3Q Salar Complex occupies the center of a north-south oriented ovoid catchment area approximately 80 km long and 45 km wide. The brine lakes of the 3Q Project are the lowest points in the catchment. Lake elevations and areas are somewhat dependent on antecedent hydrologic conditions. However, the





lakes are remarkably close in elevation, with all measurements to date falling in the range of 4085.8 masl +/- 0.8 masl. The maximum elevation within the 3Q Project tenements is approximately 4,650 masl.

The catchment area of the 3Q Salar Complex is demarcated by some of the highest volcanoes on earth, including Pissis, Tres Cruces, Nacimiento and Ojos del Salado. These volcanoes are surrounded by extensive lava and pyroclastic flows.

Areas where the topographic contours show relatively gentle upward slopes from the lakes and salars of the Complex are indicative of alluvial fans encroaching into the lakes and flat-lying salar surfaces. It is expected that the salar deposits extend outward under these fans to some degree. Steeper slopes are indicative of bedrock surfaces that plunge under the edges of the salar and lakes, giving relatively sharp boundaries to the salar deposits.

HISTORY

A third-party private owner previously staked six lithium and potassium mining claims in the vicinity of Laguna Verde, in what is now known as the 3Q Salar Complex. On January 11, 2016, this owner assigned the mining rights underlying the six lithium and potassium mining claims to Messrs. Waldo Pérez, Pedro Gonzalez and Gabriel Pindar.

On April 5, 2016, Messrs. Pérez, Gonzalez and Pindar assigned all their rights in these properties to LIEX in consideration of a nominal aggregate payment of 10,000 Argentinean pesos (approx. CDN\$890 in the aggregate) and an aggregate 1.5% gross revenue royalty over the claims. Messrs. Pérez and Pindar are both directors of NLC. LIEX staked four additional lithium and potassium mining claims in the same area, in January 2016. The final two claims (of the current package of 12) were also staked by LIEX in January 2016.

Information regarding the legal status of the 3Q Project tenements was provided by the law firm of Martin and Miguens (Argentinean legal counsel for NLC) and is further summarized in Section 3. This information has not been independently verified by the QP.

The catchment area of the 3Q Salar Complex has a limited history of mining interest. The only known previous exploration campaigns were for gold and copper. Work was conducted in the mid to late-1990s by El Dorado Gold Corporation, in the western area of the catchment where they identified and drilled several targets. The access road to the 3Q Project area was constructed at that time. Newcrest conducted exploration activities east of the salar basin in 1995 and 1996. Rugby Minerals conducted additional exploration in the same area in 2011. Rio Tinto PLC conducted exploration, trenching, and drilling near the Valle Ancho River from 2004-2005.

GEOLOGICAL SETTING AND MINERALIZATION

Geological mapping of the 3Q Project area was conducted by the Argentinean company Hidroar, on behalf of NLC, during the 2016/2017 Field Program. A subsequent geology review and update was led by Santiago Grosso during the 2017/2018 Field Program. This work by Mr. Grosso included a review of previous and





new drilling results, borehole geophysical logs, seismic interpretation, VES interpretation, and Tertiary outcrop mapping.

The area within and just outside the 3Q Project catchment is characterized by volcanic cones reaching heights of 6,000 masl or greater. Successive tectonic episodes and reactivation of hydrogeomorphological dynamics in an extremely arid environment have formed low level drainage networks. This has resulted in conformation of inter-mountain basin areas and positive relief in the area. The 3Q Project is located in an accumulation basin. The Cerro Negro de la Laguna Verde Volcano, located immediately to the south of the Laguna Verde, occurred recently, possibly sealing a previous route of southward drainage, towards the Jague River.

Salar in-fill units were differentiated in 3Q Salar and are the target of the current exploration. Through tectonic activity, these deposits are in contact with Paleozoic outcrops on the west salar margin. In the east they are also delineated by faults, where they make contact with clastic sequences of Laguna Verde Strata, effusive Cenozoic volcanics, or modern alluvial-colluvial deposits. Discharges of thermal waters (or indirect evidence in temporarily inactive zones) are observed in the northern, southern and western margins of the salar in-fill deposits.

These salar in-fill units, or hydrostratigraphic units, from deepest to shallowest are:

- **Fanglomerate** overlies the hydrogeologic basement and is composed of fanglomerates, medium-coarse sandstones and breccias;
- Lower Sediments composed of sandstones and siltstones with minor gypsum laminae;
- Massive Halite composed of fine to coarse-grained halite;
- **Porous Halite** composed of medium to coarse-grained halite, with granular intervals of loose crystals;
- **Upper Sediments** composed of reddish sandstones, silty sandstones, and plastic shales, mixed with halite crystals; and
- **Hyper-Porous Halite** composed of medium to coarse-grained halite with high inter-crystalline porosity.

The salar units have been mapped through an integrated interpretation of borehole cores, borehole cuttings, seismic surveys, VES surveys and downhole geophysics.

Overall, the information at the 3Q Project indicates that the lithium and potassium grades and the levels of impurities compare favourably against other brine deposits. However, it is noted that mineral resources are not mineral reserves and do not have demonstrated economic viability. It is further noted that the occurrence of lithium and potassium grades at the 3Q Project that are similar to (or even greater than) grades at other sites (even producing sites) does not infer economic viability for the 3Q Project. Determination of economic feasibility of the 3Q Project would be conducted in follow-up work, as part of reserve estimation.

Lakes in the 3Q Salar Complex are dynamic in terms of water level and surface extension. Three topography campaigns were carried out in the salar, to obtain accurate absolute lake level measurements.





The temporal evolution of the surface extension for Lagunas 3Q, Verde, and Negra were analyzed through Landsat satellite images from the past twelve years.

A monitoring network was installed to better understand groundwater behaviour in the 3Q Salar Complex. Groundwater has been monitored in the shallow and deep aquifer units since October, 2017. Piezometric levels in Salar 3Q respond quickly to rainfall events, sometimes rising 0.2 m or more, and the effects tend to dissipate quickly. Meanwhile, the levels of Lagunas 3Q and Verde respond more slowly, and they continue to rise over an extended period. These responses are consistent with direct precipitation input to the salar, versus a lagged and extended effect on the lakes, as they gradually receive increased flows from their respective watersheds.

A preliminary water balance for the 3Q Salar Complex was performed as part of the development of a numerical groundwater flow model. It is expected that the water balance will eventually be updated with results from a numerical groundwater model that is in development.

DEPOSIT TYPES

Information collected to date indicates that conditions at the 3Q Salar Complex favour the accumulation of economically important quantities of lithium. However, that favourability cannot be considered as confirmation of economic feasibility with respect to the 3Q Project. Determination of economic feasibility of the 3Q Project would be conducted in follow-up work, as part of reserve estimation. The 3Q Salar Complex has aspects of both evaporite-dominant and clastic-dominant salar types. Within the salar, there is a substantial occurrence of evaporite sequences in excess of 200 m. However, there are also three laterally extensive clastic units (Upper Sediments, Lower Sediments, and Fanglomerate) that show evidence of extended periods of clastic-dominant deposition. Furthermore, there are frequent small clastic layers, ranging from a few to several cm, within the evaporite units. These small clastic layers tend to increase in frequency and/or thickness, with proximity to the formal clastic units, often forming a gradual transition zone from the evaporite units to the clastic units.

EXPLORATION

An initial reconnaissance and three full field exploration programs have been conducted to date at the 3Q Project to evaluate the lithium development potential of the deposit. The first full program was documented in a previous Technical Report (King, 2016). That work involved collection of 255 surface brine samples (including 61 Quality Assurance/Quality Control ("QA/QC") samples) from lakes, salars, rivers, and geothermal springs throughout the property. Results were used to map the distributions of lithium, potassium, and other parameters in surface brines. The second program, documented in King (2017), involved 102 surface brine samples, vertical electrical sounding (VES) survey, 1989 m of diamond drilling, 733m of rotary drilling, borehole and well sampling, and pumping tests. The third program, documented herein, consisted of:

- 20 additional VES stations along 5 new transects;
- 4156 m of diamond drilling and construction of 12 wells;
- 250 core samples for analysis of RBRC;





- 1963 m of rotary drilling in 13 boreholes; construction of 7 pumping wells and 7 observation wells;
- Seismic survey with 11 lines (total of 49.34 km) within 3Q Salar and the surrounding area;
- Surface brine sampling to corroborate lithium values of the previously sampling; and
- 11 72-hour pumping tests, to parameterize a numerical flow model for future reserve estimation.

DRILLING

Two rounds of drilling have been conducted:

- The first round was done during the 2016/17 Field Program, from January to April, 2017; and
- The second round was done during the 2017/18 Field Program, from October 2017 to April 2108.

The drilling objectives were as follows:

- To obtain samples for characterizing subsurface brine chemistry;
- To characterize salar geology with continuous cores, downhole geophysics, and other drilling information;
- To install pumping and observation wells for hydrogeological characterization.

Boreholes were planned and grouped in "platforms" where, if feasible, a diamond borehole was installed first on each platform, and used to guide the subsequent installation of rotary boreholes and wells.

SAMPLE PREPARATION, ANALYSES AND SECURITY

All sample collection, QA/QC, and secure transport was performed under the supervision of Waldo Perez, Ph.D., P. Geo. The primary components of the field QA/QC program included:

- A high-range reference sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from the southeast shoreline of Laguna 3Q where high grades were previously sampled.
- A mid-range reference sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from the eastern shoreline of Laguna 3Q where mid-range grades were previously sampled.
- A Round Robin analysis of the high- and mid-range bulk reference samples was conducted by ASL.
- A low-range reference sample (essentially a field blank) was inserted at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from municipal tap water at the Project office in Fiambalá, the nearest town to the site.
- A field duplicate sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples;
- A program of laboratory duplicate sampling was conducted by ASL.
- Sets of independent field duplicate samples were collected by the QP during all three field programs.
- ASL conducts internal laboratory checks on overall analytical accuracy for selected primary parameters.





Based on results from the above noted QA/QC Program, the QP considers the 3Q Project dataset to be acceptable for the evaluation of the brine resource at the 3Q Project.

DATA VERIFICATION

Dr. Mark King (QP) provided review and input to the design and execution of three rounds of field exploration at the 3Q Project. The QP visited the 3Q Project during all three Field Programs, including twice during the most recent Program (October 21-23, 2017; April 10-14, 2018). Independent sampling was conducted during all three Field Programs, with previous results documented in earlier reports (King 2016 and King 2017) and the most recent documented herein.

Based on these activities, it is the opinion of the QP that an acceptably rigorous set of field and data interpretation methods were used in preparing the Mineral Resource Estimate for the 3Q Project.

Claim and permitting information has not been verified by the QP. This information was received in the form of a Title Opinion document prepared by the legal offices of Martin and Miguens, based in Buenos Aires (Section 3).

MINERAL PROCESSING AND METALLURGICAL TESTING

NLC has conducted a complete characterization study for the 3Q Project brine, to develop a process for producing battery grade lithium carbonate (Li₂CO₃).

MINERAL RESOURCE ESTIMATES

A Mineral Resource Estimate was developed for the 3Q Project using the three-dimensional block modeling software known as Vulcan. The software was operated by Argentinean Geologist Daniel Quiroga, a specialist in Vulcan modelling. The model was supported by geological, hydrogeological and geochemical data and interpretations provided by and 3Q Project geologists and the QP. An independent targeted check of Vulcan results was conducted with Leapfrog software.

The resource modeling procedure and results were reviewed by the QP and are considered valid and appropriate for developing a Measured, Indicated and Inferred Mineral Resource Estimate, as defined by the CIM and referenced by NI 43-101.

Within the Resource zone, there is a decreasing grade trend from north to south, with grades ranging from greater than 1000 mg/L in isolated northern locations to less than 400 mg/L in isolated southern locations. The Resource defined by the 400 mg/L cut-off extends for the full extent of the Resource zone, from Laguna 3Q in the north to Laguna Verde in the source. Meanwhile, the Resource within the 800 mg/L cut-off is limited to approximately the northern third of the Resource zone. Estimated Mineral Resources are summarized in the table below, for the 400 and 800 mg/L lithium cut-off grades.

The presentation of Mineral Resources in this Report conforms with NI 43-101 and CIM Standards. As defined under these standards, mineral resources that are not mineral reserves do not have





demonstrated economic viability. Some of the key economic considerations that relate specifically to brine resources include factors such as:

- Potential for in situ brine dilution (mixing) with freshwater, during production pumping;
- Long term sustainability for brine production from the salar aquifers;
- Potential environmental effects of brine pumping; and
- Confirmation of aquifer Sy and permeability trends.

At this time, these factors represent sources of mining uncertainty to the 3Q Project, and to any brine project at the Resource stage. They would be further evaluated as part of any follow-up assessment of economic viability, along with more universal sources of mining uncertainty, such as:

- Process design and cost;
- Engineering design and cost; and
- Future demand for mined products.





Summary of the Mineral Resource Estimate at lithium grade cut-off values of 800 and 400 mg/L (Effective Date: August 15, 2018)

	Lit	hium Grade C	ut-Off 800 m	g/L	Lithium Grade Cut-Off 400 mg/L					
	Measured	Indicated	M&I	Inferred		Measured Indicated M&I Inferred				
		Volum	e (m3)				Volun	ne (m3)		
	4.54E+07	9.38E+07	1.39E+08	2.83E+07		1.52E+08	1.07E+09	1.22E+09	9.39E+08	
	A	verage Conce	ntration (mg/	/L)			Average Conce	entration (mg/L)	
Lithium	1,010	1,006	1,007	1,239		701	602	614	584	
Boron	1,320	1,335	1,330	1,456		927	793	810	770	
Potassium	8,636	8,553	8,580	9,221		6,479	5,793	5,878	5,650	
Magnesium	1,782	1,688	1,718	2,079		1,894	2,034	2,017	2,637	
Calcium	43,679	43,037	43,246	48,421		32,777	30,251	30,565	32,519	
Strontium	776	772	773	873		613	579	583	605	
Sodium	73,242	74,212	73,896	70,769		83,948	86,264	85,976	84,861	
Sulfates	360	396	384	300		341	309	313	331	
		Tonn	age ¹			Tonnage ¹				
Lithium	46,000	94,000	140,000	35,000		107,000	646,000	752,000	548,000	
Lithium Carbonate	244,000	502,000	746,000	186,000		569,000	3,436,000	4,005,000	2,917,000	
Boron	60,000	125,000	185,000	41,000		141,000	850,000	991,000	723,000	
Boric Acid	342,000	716,000	1,058,000	235,000		808,000	4,862,000	5,670,000	4,134,000	
Potassium	392,000	802,000	1,194,000	261,000		987,000	6,211,000	7,197,000	5,304,000	
Potash	747,000	1,529,000	2,276,000	497,000		1,882,000	11,843,000	13,724,000	10,114,000	
Magnesium	81,000	158,000	239,000	59,000		288,000	2,181,000	2,470,000	2,476,000	
Calcium	1,981,000	4,036,000	6,017,000	1,368,000		4,992,000	32,433,000	37,425,000	30,526,000	
Calcium Cholride	5,486,000	11,177,000	16,663,000	3,788,000		13,824,000	89,810,000	103,634,000	84,530,000	
Sulfates	16,000	37,000	53,000	8,000		52,000	331,000	383,000	311,000	
	Ratios Ratios									
Mg/Li	1.76	1.68	1.71	1.68		2.70	3.38	3.28	4.52	
K/Li	8.55	8.50	8.52	7.44		9.24	9.62	9.57	9.68	
SO4/Li	0.36	0.39	0.38	0.24		0.49	0.51	0.51	0.57	
Ca/Li	43.24	42.77	42.93	39.09		46.73	50.24	49.74	55.70	

Note 1. Tonnage values are rounded

ADJACENT PROPERTIES

There are no known properties adjacent to the 3Q Project where lithium prospecting has been conducted. The only known previous exploration campaigns in the catchment was for gold and copper. Work was conducted in the mid to late-1990s by El Dorado Gold Corporation, in the western area of the catchment where they identified and drilled several targets. The access road to the 3Q Project area was constructed at that time. Newcrest conducted exploration activities east of the salar basin in 1995 and 1996. Rugby Minerals conducted additional exploration in the same area in 2011. Rio Tinto PLC conducted exploration, trenching, and drilling near the Valle Ancho River from 2004-2005.





The two nearest lithium brine prospects are at Maricunga Salar and Laguna Verde (both in Chile). Maricunga is located 56 km to the northwest in Chile. An NI 43-101 Report was prepared on behalf of Lithium Power International (Flo Solutions, 2017), which documented a Measured and Inferred Resource for Maricunga. Recent press releases indicate that an update to the Maricunga Resource is about to be released. The Laguna Verde Project is located 50 km NNE, also in Chile. Hinner (2009) prepared an NI 43-101 report for Etna Resources Inc., documenting an evaluation of this lithium prospect.

Further north, in the same Province in which the 3Q Project is located (Catamarca), are the Fenix Lithium Mine and the Sal de Vida Project. Both operations are located within the Hombre Muerto Salar, 250 km NNE of the 3Q Project.

The QP has not verified the information with regard to any project described above, and the information on any property other than the 3Q Project is not necessarily indicative of the mineralization on the 3Q Project.

OTHER RELEVANT DATA AND INFORMATION

A numerical groundwater flow and transport model is currently under development for the site which, in the next stage of work, would be used to support a Reserve Estimate.

The model is being developed by Drs. Sergio Bea and Maria del Mar Alcaraz, both of Instituto de Hidrogeologia de Llanuras in Tandil, Argentina, with technical involvement of the QP. To date, the model has been advanced to the calibration stage. In ongoing work, the model will be further validated and then applied to address the following objectives, all of which would support Reserve Estimation:

- To evaluate and optimize various production pumping scenarios for the 3Q Project;
- To evaluate potential environmental effects of pumping on surface water bodies at the 3Q Project; and
- To support a quantitative Estimate of 3Q Project Reserves.

These objectives would be addressed as part of a multi-disciplinary team, to ensure that any "modifying factors" are appropriately represented and evaluated in the numerical model.

In October 2017, the Company announced the positive results of a preliminary economic assessment ("PEA") conducted on the 3Q Project (Pitts, 2017), based on the Company's initial Resource Estimate. The Company has advised the author it has not yet completed an economic study of the 3Q Project taking the new, larger Mineral Resource Estimate into account.

The Company has advised the QP it expects to continue to advance the Project in terms of process refinement, weather data collection and hydrogeological model completion. New information from this ongoing work, combined with the increase in the Mineral Resource Estimate and developments in the lithium market from the effective date of the release of the PEA results to the effective date of this report may result in the re-evaluation of certain economic and other parameters that apply to the PEA.





Therefore, the Company has advised the QP that for the reasons described above, the Company is not treating the PEA as a current preliminary economic assessment of the 3Q Project or as material information relevant to the 3Q Project. The Company advises that readers should do likewise.

The QP is aware of no other data and information that are relevant for reasonable assessment of the 3Q Project.

INTERPRETATION AND CONCLUSIONS

In addition to the Mineral Resource Estimate stated above, results available to date for the 3Q Project help to define the following important interpretations and conclusions:

- An updated Mineral Resource Estimate was prepared for the 3Q Project,
- The 2017/18 Field Program has substantially improved the characterization of salar stratigraphy, brine distribution, hydrogeology and surface water hydrology for the 3Q Project.
- It is apparent that conditions in the 3Q Salar Complex have led to the accumulation of brine with elevated grades of lithium. However, economic viability of the deposit should not be inferred. Additional evaluation would be required to confirm that develop and exploitation of the deposit is viable.
- The data indicate a trend of increasing lithium grade towards the north, in all levels of the Resource zone. An evaluation of evaporation pathways indicates that the lithium accumulation in the northern lake (Laguna 3Q) could be explained by evaporation of the inflowing rivers, especially Salado River.
- The thickness of the deep Fanglomerate unit remains mostly unknown. It was intercepted by six boreholes but only two reached the bottom of the unit.
- The northern area of elevated grade was drilled to 250 m but, due to technical difficulties, brine samples were only collected in the upper 100 m. It is necessary to drill additional boreholes in the northern area to more fully characterize the depth of elevated grade in the area.
- A trend of decreasing magnesium to lithium ratio is also indicated towards the north. This trend is shown in surface brine and deeper brine.
- A range of hydraulic testing results are now available for preliminary hydraulic characterization of the upper four units in 3Q Salar (Hyper-Porous Halite, Upper Sediments, Porous Halite, Massive Halite). Targeted tests have not yet been conducted to characterize the hydraulics of the two lower units (Lower Sediments, Fanglomerate).
- A preliminary numerical flow model has been developed for the Resource zone of the 3Q Project, and it provides a reasonable representation of current conditions. In ongoing work, the model would be further validated, and then applied to support Reserve Estimation and other related applications, for the 3Q Project. A fully validated model would allow prediction of hydraulic effects in the 3Q Salar Complex, in response to future brine pumping scenarios.

RECOMMENDATIONS

Follow-up exploration activities are proposed to address the following objectives:





- 1. To further delineate brine grades within and under the Resource zone identified herein, with particular focus on the northern zone of elevated grade;
- 2. To further assess the distribution of formation permeability and porosity within the Resource zone with particular focus on the northern area of elevated grade;
- 3. To extend drilling in the deeper Fanglomerate unit, for a more complete characterization of thickness and grade along the entire basin, and to potentially upgrade the Fanglomerate to a higher resource category;
- 4. To conduct pumping tests in the deeper units (particularly Lower Sediments and Fanglomerate) to improve the characterization of their hydraulic properties;
- 5. To continue collecting baseline and ongoing information pertaining to 3Q Project meteorology and hydrology;
- 6. To continue collecting environmental baseline information;
- 7. To complete the validation of the hydrogeological numerical model (including a quantitative water balance) for the 3Q Project, and to apply the model in support of reserve estimation and related applications.

It is considered feasible to advance all these activities in the upcoming 2018/19 field season, although some activities (e.g., meteorological and hydrological monitoring, brine evaporation, etc.) would continue beyond one field season.

The cost estimate for the proposed exploration activities is \$7,480,000 USD.





1 INTRODUCTION

1.1 AUTHORIZATION AND PURPOSE

This Report was prepared for Neo Lithium Corp. (the "Company" or "NLC") to document the following for the Tres Quebradas Project ("3Q Project"), located in Catamarca Province, Argentina:

- Background information on the 3Q Project location;
- Methods and results of recent exploration activities on the 3Q Project; and
- Methods and results of an Updated Mineral Resource Estimate prepared for the Company.

Report preparation was supervised by Mark King, Ph.D., P.Geo., F.G.C., a "qualified person" (a "QP") who is "independent" of NLC, as such terms are defined by NI 43-101. This report serves as an update to the Mineral Resource Estimate report previously prepared for the 3Q Project (King, 2017).

The mineral deposits that are the focus of this Report are related to lithium and potassium in brine contained within salar deposits and two brine lakes, in the 3Q Salar Complex.

The Mineral Resource Estimate presented in this Report have been presented in conformance with National Instrument 43-101 (NI 43-101) and Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Resources and Reserves ("CIM Standards"). As defined under these standards, mineral resources that are not mineral reserves do not have demonstrated economic viability.

All figures in this Report were prepared for this Report, unless otherwise indicated.

1.2 Sources of Information

Site studies by qualified contractors and consultants, exploration data from past work by the Company, and claim information documentation supplied by legal counsel used in this Report were made available to the author by NLC.

1.3 SCOPE OF QP INSPECTION AND INVOLVEMENT

The QP conducted the following 3Q Project field and office activities that are relevant to the current Report:

- The QP supervised preparation of two previous Technical Reports for the 3Q Project (King, 2016 and King, 2017);
- The QP contributed certain sections of a third Technical Report for the 3Q Project (Pitts, 2017);
- In advance of all three Field Programs (including the most recent (2017/18)) the QP engaged in frequent discussions with NLC, to ensure acceptability of the dataset.





- The QP visited the 3Q Project during all three Field Programs, including twice during the most recent Program (October 21-23, 2017; April 10-14, 2018). Independent sampling was conducted during all three Programs.
- During the two most recent visits to the site, the QP met with the expert team assembled by NLC to assist in designing the Field Program and interpreting the results. This team included: a seismic specialist (Santiago Grosso), a geochemist and numerical modeler (Dr. Sergio Bea); a stratigraphy specialist (Dr. Sergio Georgieff), and a structural geology specialist (Dr. Jose Sosa Gomez).
- Also, during the most recent field visits, core and cuttings from the most recent Field Program were reviewed with the 3Q expert team.
- From July 10-12, 2018 the QP worked out of the Mendoza office of NLC with Daniel Quiroga. Mr. Quiroga is a geologist with expertise in Vulcan, the software used to quantify the Mineral Resource Estimate documented in the current Report. During this period, the Mineral Resource Estimate was reviewed and finalized.
- Throughout all three Field Programs, the QP was in frequent communication with NLC and the field team, to discuss field methods, performance, and ongoing results.

1.4 Special Considerations for Brine Resources

1.4.1 Overview of Evaluation Framework

NI 43-101 applies to all disclosures of scientific or technical information for mineral properties owned by, or explored by, companies which report these results on stock exchanges within Canada. NI 43-101 defines the term "mineral project" as "any exploration, development or production activity <u>in respect of</u> a natural solid inorganic material, including industrial minerals."

The exploration activity on the 3Q Project is <u>in respect of</u> lithium and potassium, both natural solid inorganic materials, which are industrial minerals. The natural occurrence of the lithium and potassium within a liquid, i.e., brine, does not preclude the application of the NI 43-101 reporting framework, although certain evaluation approaches are required that will be different than those used for solid phase mineralization.

NI 43-101 provides a reasonable and rigorous reporting framework for mineral projects hosted in brine while also providing the necessary flexibility to accommodate the characteristics and analytical parameters specific to brine. Furthermore, reporting on mineral projects hosted in a brine pursuant to NI 43-101 provides the necessary level of protection expected by investors.

The approach used herein to evaluate the Resources of the 3Q Project is based on the framework in the CIM Standards, with some enhancements to accommodate the special considerations of a brine resource.

The CIM Standards define a Mineral Resource as:

"a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction."





And a Mineral Reserve as:

"the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified."

It is the opinion of the supervising QP and NLC, that the CIM definition of Mineral Resource extends to natural solid, inorganic material such as lithium and potassium, which are both industrial minerals that happen to be hosted in a liquid brine.

It is also the professional opinion of the supervising QP and NLC that, subject to taking into consideration certain additional parameters of a brine deposit (including porosity, permeability and boundary conditions), that the CIM framework for evaluating a Mineral Resource and Mineral Reserve is applicable to minerals hosted in a brine.

The evaluation framework used for this Project is shown in Figure 1.1. The figure identifies the primary enhancements to conventional, solid phase, mineral evaluation, namely: 1) characterization of host formation porosity (for Resources), and 2) characterization of host formation permeability and boundary conditions (for Reserves). Certain components of this framework are enhancements of, or otherwise in addition to, those already contained in the CIM Standards as provided by CIM (2014) and in OSC, APGO and TSX (2008).









1.4.2 Brine Resource Estimation – Porosity

Evaluation of the resource potential of a brine deposit includes estimation of two key components:

- The continuity and distribution of brine grade; and
- The portion of host material that contains the brine (i.e., the drainable porosity).

The first of these is analogous to solid deposits. Brine grade is determined through detailed sampling and an understanding of site geology, conceptually similar to solid deposit exploration. The second component (drainable porosity) does not have a direct analogy to solid deposits. The term "porosity" denotes the ratio of the volume of void spaces in a rock or sediment to the total volume of the rock or sediment (e.g., Fetter, 1994). It is relevant to brine deposits because brine occurs in the pore spaces of a rock or sediment. However, not all the brine present in the pore space constitutes a resource. A portion of the brine will not be recoverable due to:

- partial retention of brine by capillary tension within the pore spaces; and
- dead-end pores that are not hydraulically connected to the broader pore network.

For a brine resource estimate, a porosity-related parameter known as Specific Yield ("Sy") has come into common use to estimate the drainable portion of host material. Sy is defined as the ratio of the volume of water a rock or soil will yield by gravity drainage to the bulk volume of the rock or soil (e.g., Fetter, 1994). Meanwhile, Total Porosity (P) is defined as ratio of the total pore space of a rock or soil to the bulk volume of the rock or soil. Consequently, the difference between P and Sy is that portion of the pore space that will not drain under gravitational forces.

Brine resource estimates will generally be supported by the development of a hydrostratigraphic model which, at the resource estimate stage, is primarily used to characterize the distribution of Sy throughout the zone of estimation.

1.4.3 Brine Reserve Estimation – Permeability and Boundary Conditions

A more sophisticated model is required for brine reserve estimation. In addition to the full range of modifying factors, this advanced level of estimation will evaluate the volume of brine that can be recovered from the basin, taking technical considerations into account. These technical considerations will be both site- and deposit-specific, regardless of whether a mineral deposit is solid or brine; however, the two following considerations are unique to brine deposits and would be incorporated into a numerical flow model developed for reserve estimation:

- the continuity and distribution of permeability (a measure of the ease with which brine can be pumped from the brine reservoir); and
- brine reservoir boundary conditions (applicable for brine level and grade).

Permeability will be evaluated through testing to define values for two primary hydraulic properties of the host material:





- hydraulic conductivity—a coefficient of proportionality describing the rate at which water can move through permeable media (e.g., Freeze and Cherry, 1979); and
- specific storage—the volume of water that a unit volume of aquifer releases from storage in response to a unit decline in hydraulic head (e.g., Freeze and Cherry, 1979).

These properties may be evaluated in a preliminary manner with air lift testing results during drilling. They may be evaluated in more detail with aquifer pumping tests and numerical modelling.

Setting the reservoir boundary conditions involves specification of brine levels and grades at a set of boundaries that are relevant to the estimation zone. These specified conditions will affect the predicted response of the brine deposit to production pumping. They are required because they determine the predicted duration and rate at which the brine can be pumped before unacceptable effects occur, which may include (depending on the site):

- 1) recovery of non-economic grades (due to brine dilution),
- 2) excessive drawdown at production wells,
- 3) environmental impacts, or
- 4) impacts to third party property holders.

1.5 UNITS AND CURRENCY

Unless otherwise stated, all units used in this report are metric, and are listed in Section 19. The concentration of dissolved brine constituents, including lithium and potassium are reported in mg/L, unless otherwise noted. All currency values in the report are expressed in dollars (USD).





2 RELIANCE ON OTHER EXPERTS

The preparation of this Report was supervised by the QP, Mark King, Ph.D., P.Geo., F.G.C. Dr. King has 29 years of experience as a consulting hydrogeologist. He has served as technical manager on major groundwater-related projects in Canada, the United States, and South America. His expertise is an appropriate foundation for serving as the QP on lithium brine projects, based on the following:

- He has worked, in various levels of detail, on more than 18 salars in Chile, Argentina and Nevada.
- From 2009 to 2012, Dr. King served as the QP for three rounds of NI 43-101 Reports for Lithium Americas, culminating in a lithium brine Reserve Estimate.
- Over a three year period, concluding in 2016, he directed SEAWAT modeling efforts related to the Albemarle permit application at Salar Atacama.
- In 2011, Dr. King served as the independent QP for work conducted by Talison Lithium, at the Salares Seven Lithium Brine Project in Chile.
- From 2013 to present, he conducted Due Diligence Studies of seven different salars in Argentina and Chile, for four different clients.
- Dr. King prepared the first two NI 43-101 Technical Reports for the 3Q Project (King 2016 and 2017) and contributed certain sections to a 3Q Project Technical Report by Pitts (2017).
- From 2016 to 2018, he directed the development of conceptual and numerical models for the Albemarle Silver Peak lithium brine deposit in Clayton Valley, Nevada.

In many of the subject areas covered in this Report, the QP has relied on other experts, including the following:

- The law firm of Martin and Miguens provided an ownership and claim Title Opinion (May, 2018) summarized in this Report. This opinion states that agreements with third parties are valid, enforceable and comply with local laws. Sections 3.3, 3.4 and 3.6 of this Report rely on the Title Opinion. The QP has not researched title or mineral rights of the Project and expresses no opinion as to the ownership status of the 3Q Project properties.
- Brine processing information (Section 12) was provided by Dr. Claudio Suarez-Authievre, Ph.D., Chartered Chemist (Canada). Dr. Suarez-Authievre has extensive experience in brine processing projects in Argentina, Chile, and Bolivia.
- Initial geological mapping of the site was conducted by the Argentinean company Hidroar. Hidroar also conducted an independent check comparison of the cores and logs.
- Seismic interpretation and a second round of geological mapping and was provided by Mr. Santiago Grosso. Mr. Grosso added to the geological interpretation provided in Section 6; he also led the cross-sectional interpretation that forms the basis of the solids model discretized into Vulcan.
- Vulcan Resource block modeling was done by Argentinean Geologist Mr. Daniel Quiroga, a specialist in that software.
- A numerical groundwater flow and transport model is under development for the site (Section 13) by Drs. Sergio Bea and Maria del Mar Alcaraz, both of Instituto de Hidrogeologia de Llanuras in Tandil, Argentina, with technical involvement of the QP. In ongoing work, the model would be used to support Reserve Estimation, among other applications.





- An extensive range of environmental, land use and climate studies have been conducted for the 3Q Project, by various experts and specialists. These are summarized in Section 3.4.7.
- Details of the 3Q Project field programs were discussed in detail with Waldo Perez, Ph.D., P. Geo. (EGBC, Canada), in advance of the field work. Dr. Perez is CEO and President of NLC. He is a geologist with a technical background in mineral exploration, including lithium brines.





3 PROPERTY DESCRIPTION AND LOCATION

3.1 LOCATION

The 3Q Project is located in the southwestern zone of Catamarca Province, Argentina (Figure 3.1). The closest paved road to the Project is Ruta Nacional 60 ("RN60"), which connects San Fernando del Valle de Catamarca (population 212,000), the capital city of Catamarca Province, to Copiapó and the seaport of Caldera, via Paso de San Francisco.

The 3Q Project is 160 km east of Copiapó, Chile (population 203,000), which can be reached by a circuitous route of paved and dirt roads. Driving time is approximately six hours. The closest population centre to the 3Q Project is the town of Fiambalá, Argentina (population 5,000). It is located 100 km east of the Project and can be reached from the 3Q Project in a driving time of approximately four hours. The capital city of Catamarca Province (San Fernando del Valle de Catamarca) is 280 km southeast of the 3Q Project.

3.2 DESCRIPTION

The 3Q Project includes a designated Mining Group covering 26,691 ha (the core of which will encompass mining activity) and a further 8309.72 ha (that will not carry mining activity), for a total of 35,004.72 ha of tenements in a salar/lake system ("3Q Salar Complex"), as shown in Figure 3.2, and Photos 3.1, 3.2 and 3.3. The NLC properties are oriented northwest-southeast and extend for 40 km along the bottom of the Complex basin. With reference to Figure 3.2, the 3Q Salar Complex includes the following three large areas of open brine (brine lakes):

- A lake in the north, known as Laguna Tres Quebradas ("Laguna 3Q"; inside the Mining Group);
- A lake in the central part of the valley, known as Laguna Verde (inside the Mining Group); and
- A lake in the south, known as Laguna Negra (outside the Mining Group).

The following areas of solid salar surfaces are also part of the 3Q Salar Complex:

- A northern area between Laguna 3Q and Laguna Verde, known as "3Q Salar";
- A southern area between Laguna Verde and Laguna Negra, known as Laguna Negra Salar; and
- A smaller, isolated salar 2 km east of Laguna Verde, known as Salar Escondido.

With the exception of Salar Escondido, the lakes and salars noted above appear to form a single salar system. The connection between Laguna Negra and Laguna Verde is limited to an apparent narrow passage, and Laguna Negra is topographically above Laguna Verde. The 3Q Salar Complex is located in a closed basin, meaning that all flow within the basin is inward to the Complex features noted above, with no apparent outflow. The surface elevations and areas of the brine lakes are somewhat variable, depending on antecedent weather conditions. These are described in more detail in Section 6.6.2.







Figure 3.1: Property Location Map – 3Q Project.







Figure 3.2: Catchment area basin of the 3Q Salar Complex.







Photo 3.1: Southward view of seasonal flooding in northern 3Q Salar.



Photo 3.2: Looking southward from the north end of Laguna 3Q.







Photo 3.3: View of the 3Q Project Camp.

3.3 Type of Mineral Tenure

All information regarding the legal status of the 3Q Project tenements was provided by the law firm of Martin and Miguens (2018), Argentinean legal counsel for NLC. It has not been independently verified by the QP. NLC, through a wholly owned subsidiary, LIEX, has good and marketable title to 11 Mining Claims and 1 Exploration Claim that make up the 3Q Project tenements.

Table 3.1 lists the current 3Q Project Claims, the type, status, and identifying number of each and other related information. Claims are shown in Figure 3.3. These Claims are registered with the mining authority of Catamarca. They are free and clear of any liens or other encumbrances. There are no additional tenements included in the 3Q Project.

Argentinean law provides for the granting of two types of mining rights: an "Exploration Claim", which is limited in duration and which allows for the exploration of a mineral property, and a "Mining Claim", which allows for the exploitation of the minerals on the subject property. The designations of the permits in respect to the 3Q Project are eleven Mining Claims and one Exploration Claim. Mining Claims are unlimited in duration and remain the holder's property as long as the holder meets obligations under the Argentinean National Mining Code, as amended, including annual canon payments and minimum investment commitments.

Further, Argentinean Law allows the assembly of selected mining licences into a "Mining Group". A company may then process all documentation and environmental permits in one single file for the Mining Group rather than individual files for each Mining Claim. The central group of 10 3Q Project properties





has been placed in a Mining Group and the two claims on either end are outside of the Mining Group (Figure 3.3 and Table 3.1). No mining activity is currently planned for the two properties that are outside the Mining Group.

Table 5.1. Status of Milleral claims in the SQ Hojeet

Claim Name	Permit ID	Title	Claim Type	Area (ha)	Status	Included in
		Holder				Mining Group
	22142040			4 000 07		
Lodomar I	23M2010	LIEX	Mining Claim	1,980.87	Registration of LIEX as	Yes
					the owner completed	
Lodomar II	24M2010	LIEX	Mining Claim	1,974.54	Registration of LIEX as	Yes
					the owner completed	
Lodomar III	25M2010	LIEX	Mining Claim	1,750.62	Registration of LIEX as	Yes
					the owner completed	
Lodomar IV	26M2010	LIEX	Mining Claim	1,538.03	Registration of LIEX as	Yes
					the owner completed	
	0=110010					
Lodomar V	27M2010	LIEX	Mining Claim	1,920.47	Registration of LIEX as	Yes
					the owner completed	
Lodomar VI	28M2010	LIEX	Mining Claim	1,091.28	Registration of LIEX as	Yes
					the owner completed	
	212246			2 002 42		
Lodomar VII	3L2016	LIEX	Mining Claim	3,982.13	Granted Property	Yes
Lodomar VIII	2L2016	LIEX	Mining Claim	6,421.22	Granted Property	Yes
			U	,	1 /	
Lodomar IX	68L2016	LIEX	Mining Claim	1,235.80	Granted Property	Yes
	412046			4 70 4 70		
Lodomar X	1L2016	LIEX	Mining Claim	4,784.70	Granted Property	Yes
Lodomar XI	4L2016	LIEX	Mining Claim	3,411.12	Granted Property	No
Frontera	69L2016	LIEX	Exploration	4,913.94	Granted Property	No
			Claim			
			Total Area (ha)	35.004.72		
			·····			







Figure 3.3: Claims held in the 3Q Project.




3.4 MINING RIGHTS OPINION

3.4.1 Overview

It is the opinion of NLC legal counsel that:

- LIEX has good and marketable title to each of the Properties as of the date hereof, free and clear of any liens or other encumbrances registered on title with the Mining Authority;
- there are no competing claims by third parties with respect to the Properties; and
- the Surface Property Option referred to in Section "3.4.3 Surface Access" remains valid, binding and enforceable in accordance with its terms.

NLC legal counsel advises that, up to May 17, 2018, they are not aware of any litigation or undisclosed liabilities involving LIEX. Several specific legal counsel opinions are stated in the subsections below.

3.4.2 Protected Areas

The 3Q Project tenements are not located in a protected area or provincial or national park. The area in which the tenements are located is a "Ramsar" site, that has special interest for conservation, particularly with respect to bird nesting sites. Argentinean environmental legislation does not prohibit the development of a mining project in a Ramsar site, provided that it complies with all environmental law requirements. LIEX has obtained all environmental approvals required, as described below.

3.4.3 Surface Access

Pursuant to the Assignment of Rights Agreement, dated January 11, 2016, between Mr. Amadeo Marino and Waldo Pérez, Pedro González and Gabriel Pindar (collectively referred to as the "Transferors"), whereby Mr. Marino, as the holder of title over the mining rights and as the duly authorized attorney in fact (power of attorney for property) of the third party holder of title over the surface area in which the Properties are located, undertook to grant to the Transferors:

- access easements, occupancy and water use with respect to the surface rights over the Properties; and
- an option to purchase up to 2,500 ha of the surface rights over the Properties, for 15 \$ (US dollars) per hectare (the Surface Property Option).

On December 21, 2016, LIEX requested the granting of legal easements for infrastructure, transit and communication, from the Mining Authority, in regard to future commercial production. This request is recorded under Number 203/16, titled "LIEX S.A. S/ SERVIDUMBRE DE INFRAESTRUCTURA EN EL DPTO. TINOGASTA" and Number 204/16, titled "LIEX S.A. S/ SERVIDUMBRE DE TRÁNSITO Y COMUNICACIÓN EN EL DPTO. TINOGASTA". Through Judgments dated August 31, 2017, the Mining Authority granted to LIEX the requested easements for infrastructure, transit and communication.





The resolutions were duly notified to the third party holder of title over the surface area in which the Properties are located and was not appealed within the legal period allowable. As such it can no longer be appealed and it is final.

3.4.4 Water Rights

Water and Groundwater Rights in Catamarca Province are legislated under the Waters Provincial Law #2577. The use of common or private waters is under the control of the Provincial Body for Hydraulic Resources. LIEX has the right to use water for its activities at the Properties.

3.4.5 Mining Group

On November 27, 2017, LIEX requested the constitution of a Mining Group covering 26,691 ha across 10 claims encompassing Properties Lodomar I to X, (Figure 3.3) which is in process of approval. This is recorded under Number 159/2017, titled "LIEX S.A. s/ GRUPO MINERO TRES QUEBRADAS, MINAS LODOMAR I, II, ETC... EN TINOGASTA".

3.4.6 Royalties

Article 6th of Provincial Law #4757, establishes a mining royalty of 3% over the mineral value at mine mouth (Boca Mina). According to the National Law for the reordering on the Mining sector, the law applies for coordinating and organizing the payment of royalties to the Provincial Tax Collectors, therefore LIEX is required to pay the aforementioned 3% Boca Mina royalty to the provincial government of Catamarca. The royalty is calculated on the value of mineral substances at the mine mouth, after certain allowable deductions. The royalty base is calculated as the total mineral value at the time of production less deductible costs such as mineral processing, transportation and related administration and overhead costs.

An Assignment of Rights Agreement dated April 5, 2016, between the Transferors and LIEX, established a royalty of 1.5%. Pursuant to this agreement, the Transferors sold and assigned to LIEX, all of their respective rights, title and interest in and to the 3Q properties (including, without limitation, Lodomar I to Lodomar VI, and all surface rights in respect thereof), and wherein it was fixed, as a portion of the consideration, a royalty of 0.5% over gross revenues from production from the 3Q properties for each Transferor, totaling an aggregate royalty of 1.5% over gross revenues from production from the 3Q properties, once the production stage starts.

3.4.7 Environmental Liabilities

To comply with the environmental regulations of the province of Catamarca, Argentina and international regulations, LIEX hired GT Ingenieria SA ("GT") for the development of an updated Environmental Impact Report ("EIR") for the exploration stage (already completed), the base line study (also completed and soon to be reported to the authorities), and the development of an EIR for the exploitation stage of the 3Q Project (in progress).





LIEX assigned GT and the geologist Gustavo Baez as environmental managers during the implementation phase of the project, in order to liaise with people who are in charge of the implementation of the activities described above. This group will keep the authorities informed and ensure that activities comply with socio-environmental commitments to the regulatory authority (Ministry of Mining, State of Catamarca; Provincial Directorate of Environmental Management Mining-DIPGAM).

LIEX has developed an environmental base line study for the Project. This document is required for the Exploration Impact Report (EIR), for the exploitation phase once the study of technical and financial feasibility has been completed. Both the baseline study and the EIR will be critical for evaluation of environmental liabilities, which has not yet been formally completed for this Project. These reports will provide early indications of potential impacts associated with production, so that effective mitigation can be achieved though appropriate pro-active management techniques.

GT coordinated field campaigns and basic studies for the 3Q Project, including various reports of accredited professionals. GT members who took part in the baseline study review and in 100% of completed campaigns include Mario Cuello (Geologist), Bernardo Parizek (Biologist), Valeria Angela (Chemical engineer) and Pedro Alcaraz (Agronomist). At the current time, GT is in the final phase of the development of the EIR.

The initial environmental studies began in October 2016. To date, the following baseline studies have been conducted:

- Climate study with updated data from the 3Q weather station and regional data (Zotelo, 2018);
- Monitoring of air quality (PM 10 and gases) (IL & A Ingeniería, 2018);
- New water quality monitoring (Induser Laboratory, 2018);
- Geomorphological geological study (Baez and Grosso, 2018);
- Study of soil (Izquierdo et al, 2018);
- Flora and Fauna (including 4 monitoring campaigns) (Barionuevo, 2018a, b, c; Salinas, 2018, 2017a, b; Burgos, 2017);
- Study of landscape (Izquierdo and Foguet, 2018);
- Hydrological / hydrogeological study Tálamo (2018);
- Paleontological study (Gravriloff and Maruaga, 2018);
- GIS compilation (Manacero, 2018);
- Limnological and microbial study (Farias, 2018);
- Social study and community relations (Cunto, 2018);
- Archaeological study for the three mining components (Ratto, 2017);
- Legal compendium (Melo, 2018); and
- Vehicular transit study (Valdivia, 2018).

It is noted that the biological components of flora, fauna and limnology have been completed for four seasons.

Given the nature of the site, biological studies are an important environmental component to be addressed. Most of the Project area (covering the Mining Group of 26,691 ha, as a priority, and the





remaining land area of 8309.72 where mining will not be conducted) is located on the salt flat and hyperarid sectors with scarce or no vegetation. Although there are some species that are resistant to salinity, the prevailing conditions at this site prevent the establishment and subsequent development of native flora. High hyperosmotic pressures are lethal to plant roots, in addition to the toxicity of the salts in the protoplasm. In the 3Q Project area there is a thin steppe with small Stipa frígida grasses ("*pasto vicuña*"). Fifteen species of vascular plants are recognized in the entire area of influence, mostly associated with Laguna 3Q wetlands.

The largest wetland (also with the highest biodiversity, mainly wetland birds) is located outside the Mining Group area, south of Laguna Negra, in an area where mining will not occur. The meadow in this wetland forms a functionally significant ecosystem where the native grassland has a diversity of flora species, with permanent moisture. A second, much smaller meadow is located inside the Mining Group area, west of Laguna 3Q. A small meadow area also occurs east of this lagoon. A baseline study has been completed for the Mining Group area and no significant challenges were identified than cannot be managed with proper mining practices.

After the mining aspects of the 3Q Project have been defined, the process, financial feasibility, and the environmental impact study for Exploitation Stage will be completed. Based on the general work plan and previous environmental studies, the main impacts have already been identified in relation to the 3Q Project. Environmental impacts are predicted to be moderate during the construction and operation stages of the 3Q Project and can be reverted or mitigated in the short, medium and long term. The following potential impacts were identified:

- Changes in the landscape due to occupation of the physical space in the area of the 3Q Project, on the Project access road and in the area that will be established for the construction and operation of the process plant in Fiambalá;
- Changes in the topography and soils, due to the permanent construction of evaporation ponds;
- Noise level increases caused by the use of equipment, machinery and vehicles in the 3Q Project, on the road connecting the 3Q Project site and the process plant; and due to the operation of the process plant to be constructed in Fiambalá;
- Deterioration of air quality, due to the emission of particles and combustion gas resulting from the operations carried out in the salt flat and in the evaporation ponds, salt removal, construction of landfills, the operation of the process plant in Fiambalá and the use of equipment, machinery and vehicles in both locations;
- Alteration, limited to a specific area, of flora processes and dynamics due to the emission of dust and air-contaminants resulting from the Project operations;
- Alteration to fauna habitats due to partial reduction of vegetation cover, emission of noise and vibrations, and the site camp;
- Diversification of land use and change in the productive matrix of Tinogasta and La Paz department;
- Increase in productive activity, training of personnel, employment and development of local suppliers; and
- Greater control in the remote area and improvement in accessibility to the tourist zones of Pissis and surrounding areas.





3.4.8 Permits

The following permitting activities have been conducted, or are in process, in association with the 3Q Project:

- The initial environmental permit concerning the Properties was obtained by the submission of LIEX's Affidavit of non-invasive prospecting activities required by the Catamarca Mining State Secretary ("SEM") resolution # 450/11. This affidavit indicated required initial activities, in the areas under exploration. The affidavit was delivered to the SEM of Catamarca Province on April 14, 2016.
- On September 9, 2016, by resolution # 738/2016 the SEM issued its Environmental Impact Statement ("EIS"), whereby the EIR submitted by LIEX for the "Tres Quebradas" Project was approved. This EIS permits all exploration and pre-production activities at the 3Q Project up to and including the construction of pilot evaporation ponds and pilot production plant.
- The EIS of September 2016 was renewed on July 2018.
- The company decided to separate the property Lodomar XI from the 3Q mining block. This property will have an independent EIR where only prospect tasks (brine sampling and water quality) will be developed. The environmental monitoring will continue, with special emphasis on migratory birds of wetlands and associated limnological habitat.
- Permits have been renewed as a generator of hazardous waste, solid urban waste management and the permit to collect water for current tasks.
- Specific permits are being generated for the installation of the process plant in Fiambalá and Recreo.

3.4.9 Aboriginal Communities

There are no aboriginal communities (or inhabitants) in the vicinity of the 3Q Project; however, there are communities in the area.

LIEX has developed a Community Participation Plan ("CPP"), designed as a tool for managing community affairs, aimed at strengthening the relationship between LIEX and the communities in Tinogasta department. The purpose of the CPP is to create instances for communication with the local population, as well as strengthening the communication and connection with institutions and public agencies of Fiambalá and Tinogasta municipalities, present in the area of influence of the 3Q Project.

The CPP programs developed by LIEX includes:

- Communication with the community;
- Generation of local employment opportunities;
- Local contract and purchase of goods and services;
- Development of production and training projects;
- Support to sport, cultural and educational activities;
- Support to local culture;
- Coordination of community actions and standardization of collaboration processes;
- Standardization of community policies and programs;
- Support for local purchasing and trade training;





- Transmission of knowledge and technology to promote sustainability; and
- Community visits to the 3Q Project.

LIEX's sustainability policy establishes the following values: quality, safety, health, environment and community. In addition to strict compliance with current legal obligations, the company also emphasizes socio-environmental responsibilities, to provide a satisfactory response to the expectations of 3Q Project stakeholders.

3.4.10 Site Access Risk Factors

Experience from the past two winters has shown that access to the 3Q Project can be maintained during winter conditions, with appropriate management. During the winter months, the access road and camp were operated continuously. Fresh water sources to the camp have remained unfrozen since they were established in October 2016. During the winter months, access occasionally requires heavy equipment work to remove snow from certain creeks along the road where the snow accumulates mostly due to wind. During the past two winters, the company was able to access and keep the camp operational. In the worst winter weather some exploration activities (for example, drilling) were temporarily curtailed.

3.4.11 Closing

There are no other known significant risks to the 3Q Project, besides those noted in this Report, which may affect access, title, or otherwise the right or ability to perform work on the property.





4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 ACCESSIBILITY

The 3Q Project can be accessed from RN60 (Figure 3.1 and Figure 4.1) via a gravel road that meets RN60 at UTM coordinates 582560 mE, 6942335 mN. RN60 is a paved year-round highway that joins the capital city of Catamarca Province (San Fernando del Valle de Catamarca) with the seaport of Caldera in Chile, via Paso de San Francisco. By this route, Caldera is approximately 450 km from the Project.

4.2 CLIMATE

The 3Q Project is located in a high altitude, cold, desert climate. NLC has been collecting meteorological data at the 3Q Project since October 2016, with an automatic "Vaisala" weather station. These data have been compiled and analysed to support pond engineering and other objectives. They are summarized in the following figures:

- Figure 4.2 daily solar radiation;
- Figure 4.3 monthly average air temperature;
- Figure 4.4 monthly precipitation;
- Figure 4.5 monthly average humidity;
- Figure 4.6 monthly average wind speed; and
- Figure 4.7 monthly average evaporation.

The annual rate of evaporation obtained (indirectly) from Vaisala weather station was 1,786 mm/yr. Onsite evaporation was also measured with Class "A" evaporimeter, using a water-brine mixture (20:80) to avoid freezing. The annual rate measured with the evaporimeter was approximately 2600 mm/yr.

As mentioned in Section 3.4, experience from the winters of 2017 and 2018 have shown that access to the site can be maintained during winter conditions, with appropriate management. During the winter months, the access road and camp were operated continuously.







Figure 4.1: Topography and roads in the 3Q Project catchment.







Figure 4.2: Daily solar radiation recorded by the Vaisala weather station - 3Q Project.











Figure 4.4: Monthly precipitation recorded by the Vaisala weather station - 3Q Project.













Figure 4.6: Average wind speed recorded by the Vaisala weather station - 3Q Project.

Figure 4.7: Monthly average evaporation rate obtained by calculation, with data from the Vaisala weather station - 3Q Project.





4.3 LOCAL RESOURCES

The closest population centre to the 3Q Project is the town of Fiambalá, Argentina (population 5,000). It is located 100 km east of the Project and can be reached from the Project in a driving time of approximately four hours. The capital city of Catamarca Province (San Fernando del Valle de Catamarca, population 210,000) is 280 km southeast of the Project.

4.4 INFRASTRUCTURE

Minimal infrastructure currently exists near the 3Q Project. The national highway RN60 comes to within 50 km of the property. Unpaved roads can be used to access the eastern and western sides of the property from RN60. A hotel is located on RN60, near the junction with the site access road.

Regarding other infrastructure considerations (availability of power, water, and mining personnel; potential tailings and waste disposal areas, and processing plants), some preliminary possibilities have been identified:

- Electrical power for the site camp and operational equipment would likely be provided by a combination of solar, wind and diesel generation.
- Freshwater exists in abundance in the northwest sector of the property (Frontera Claim) where flow monitoring in Tres Quebradas River ("3Q River") and Salado River indicates average freshwater flows on the order of 500 L/s each. It is also expected that freshwater sources would be found on one or more of the large alluvial fans that are adjacent to the 3Q Salar Complex.
- The town of Fiambalá offers a potential source for mining personnel which would stay at a camp constructed at the site.
- NLC expects that the storage requirements for tailings and waste materials would be minimal.

Processing and infrastructure details would be further evaluated in follow-up assessment work. NLC currently controls sufficient surface rights and area to support a potential mining operation, including disposal areas, site infrastructure and plant facilities.

4.5 PHYSIOGRAPHY

Topography of the watershed containing the 3Q Project is shown in Figure 4.1. The catchment area of the 3Q Salar Complex is demarcated by some of the highest volcanoes on earth, including Pissis, Tres Cruces, Nacimiento and Ojos del Salado (Section 6). These volcanoes are surrounded by extensive lava and pyroclastic flows.

The 3Q Salar Complex occupies the center of a north-south oriented ovoid catchment area approximately 80 km long and 45 km wide. The brine lakes of the 3Q Project are the lowest points in the catchment. Lake elevations and areas are somewhat dependent on antecedent moisture conditions and are summarized in Section 6.4.2. In brief, the lakes are remarkably close in elevation, with all measurements to date falling in the range of 4085.8 masl +/- 0.8 masl. The maximum elevation within the 3Q Project tenements is approximately 4,650 masl. Some views of the Complex are shown in Photos 4.1 and 4.2.





Areas where the topographic contours show relatively gentle upward slopes from the lakes and salars of the Complex are indicative of alluvial fans encroaching into the lakes and flat-lying salar surfaces. It is expected that the salar deposits extend outward under these fans to some degree. Steeper slopes are indicative of bedrock surfaces that plunge under the edges of the salars and lakes, giving relatively sharp boundaries to the salar deposits.



Photo 4.1: Drilling Platform on 3Q Salar.



Photo 4.2: Pit excavation for shallow brine sampling, on the rough surface of 3Q Salar.





5 HISTORY

A third-party private owner previously staked six lithium and potassium mining claims in the vicinity of Laguna Verde, in what is now known as the 3Q Salar Complex. On January 11, 2016, this owner assigned the mining rights underlying the six lithium and potassium mining claims to Messrs. Waldo Pérez, Pedro Gonzalez and Gabriel Pindar.

On April 5, 2016, Messrs. Pérez, Gonzalez and Pindar assigned all their rights in these properties to LIEX in consideration of a nominal aggregate payment of 10,000 Argentinean pesos (approx. CDN\$890 in the aggregate) and an aggregate 1.5% gross revenue royalty over the claims. Messrs. Pérez and Pindar are both directors of NLC. LIEX staked four additional lithium and potassium mining claims in the same area, in January 2016. The final two claims (of the current package of 12) were also staked by LIEX in January 2016.

Information regarding the legal status of the 3Q Project tenements was provided by the law firm of Martin and Miguens (Argentinean legal counsel for NLC) and is summarized in Section 3. This information has not been independently verified by the QP.

The catchment area of the 3Q Salar Complex has a limited history of mining interest. The only known previous exploration campaigns were for gold and copper, and include the following:

- Work was conducted in 1995 to 1998 by El Dorado Gold Corporation, in the western area of the catchment (vicinity of Valle Ancho River) where they drilled, trenched and conducted a large geophysical and exploration campaign in an area that is spanned both Catamarca and La Rioja Provinces. The access road to the 3Q Project area was constructed at that time.
- Rio Tinto PLC conducted exploration, trenching and drilling in the vicinity of Valle Ancho River from 2004 to 2005.
- East of the salar basin the company Newcrest conducted drilling, trenching and mineral exploration in a porphyry, in 1995 and 1996. Rugby Minerals conducted additional exploration in the same area, in 2011.





6 GEOLOGICAL SETTING AND MINERALIZATION

6.1 REGIONAL GEOLOGY

Geological mapping of the 3Q Project area was conducted by the Argentinean company Hidroar, on behalf of NLC, during the 2016/2017 Field Program. A subsequent geology review and update was led by Santiago Grosso during the 2017/2018 Field Program. The work by Mr. Grosso involved a review of previous and new drilling results, borehole geophysical logs, seismic interpretation, VES interpretation, and Tertiary outcrop mapping.

The area within and just outside the 3Q Project catchment is characterized by volcanic cones reaching heights of 6,000 masl or greater (see Figure 4.1). Notable cones near the Project area include:

- Mount Pissis (6,882 masl) located to the southwest (and outside the Mining Property);
- Negro of the Laguna Verde (5,764 masl);
- Nacimiento del Jagüe (5,824 masl) to the southeast;
- Cazadero (6,433 masl) to the northeast; and
- Ojos del Salado (6,893 masl) also to the northeast.

Successive tectonic episodes and reactivation of hydrogeomorphological dynamics in an extremely arid environment have formed low level drainage networks. This has resulted in conformation of intermountain basin areas and positive relief in the area. The 3Q Project is located in an accumulation basin. The Cerro Negro de la Laguna Verde Volcano, located immediately to the south of the Laguna Verde, occurred recently, possibly sealing a previous route of southward drainage, towards the Jague River.





6.2 SALAR BASIN GEOLOGY

The following geological summary for the 3Q Salar basin and surrounding areas is supported by the geological map provided in Figure 6.1.

El Cuerno Formation, Choiyoi Group (Permian)

This unit is exposed in a large area throughout the western zone between Laguna 3Q, Laguna Verde and the ravine of the Valle Ancho River. It was encountered in wells D-2, D-7, D-10, D16, D-21 and D-22. It forms thick sequences of acidic and meso-silicic volcanic rocks, which come into contact by tectonic activity with evaporitic deposits and brine lakes along the west side of the salar. These rocks are part of a larger outcrop, which is partially dislocated and covered by subsequent volcanic activity. Dacitic rocks were identified from north to south, occasionally associated with rhyolites. They have porphyritic texture, sometimes amygdaloidal, and less commonly brecciated. The rocks are formed by phenocrysts of plagioclase, alkali feldspar and quartz as primary minerals. Accessory minerals include oxidized amphibole.

Andesites and andesitic porphyry were also observed. Subordinate reddish breccias with porphyritic texture, including plagioclases and feldspars, comprise the outcrop mapped on both margins of the 3Q River fan (see Photograph 6.1). The fracturing of these rocks is moderate to low, with a general direction that is almost meridional and a dip of about 40° to the west.



Photo 6.1a-b: (Left) Outcrops of andesitic-dacitic rocks of the El Cuerno Formation, in the northwest of the mapped area. (Right) Brecciated rock in contact with intermediate volcanics.















Figure 6.2: Lithostratigraphic legend for the 3Q Project geological map shown in Figure 6.1.





Sequences of conglomerates, sandstones, dacites and volcanic breccias of this formation were observed in the area of Laguna Verde. Hydrothermal alteration was commonly apparent in the outcrops, with variable intensity.

Further south, outcrops in the ravine of the Valle Ancho River also exhibit hydrothermal alteration. Contrasting colors from dark gray to whitish, and a variety of associated ocher tones were observed. These are volcanic meso-silicic and acidic rocks, with characteristics of lava flows associated with dikes and breccias.

In some areas the rocks are partially covered by volcanics and/or modern scouring, forming large alluvial plains below outcrops. The alluvial fan of the 3Q River to the northwest is an example, as are the alluvial fans that extend into Laguna Verde (see Photo 6.2).



Photo 6.2: Outcrops of the El Cuerno Formation, in the southwest of the mapped area, west of Laguna Verde. Outcrops are partially covered by modern deposits (alluvial fans).

Los Aparejos Formation-Paleogene (Eocene-Oligocene)

This formation consists of sedimentary deposits, including conglomerates with angular fragments of andesites in a sandy-pelitic matrix. Physical weathering can be observed, where the resulting material completely covers the outcrop (Photo 6.3). These rocks could be the Fanglomerates (Section 6.3) encountered as a deep aquifer in wells D-17, D8, D-21, D-22 and D-23.







Photo 6.3: Los Aparejos Formation. Outcrops assignable to this formation have only been identified in the northern end of the mapped area, immediately north of Laguna 3Q, and could possibly form the deep aquifer (Fanglomerate) observed in salar drilling.

Tres Quebradas Formation (Miocene)

This formation includes andesitic porphyry rocks, interrupted in sectors by andesitic dikes with average thickness of 2.5 m (Photo 6.4).



Photo 6.4: Outcrop of the Tres Quebradas Porphyry, in the north zone of the Project.

"Laguna Verde Strata" Member, Tamberías Formation (Calchaqueños Strata), (Paleogene – Miocene)

These rocks are present as outcrops of predominantly sandy and silty epi-clastic sedimentary and subordinated tuffaceous material. They are often partially covered by modern alluvial materials. They outcrop around the eastern sector to Laguna 3Q and the salar, with general orientation NNW-SSE. They





are in tectonic contact with evaporitic deposits to the west, and with volcanics corresponding to Cerro Nacimientos Lavas to the east.

The composition of these sedimentary rocks ranges from fine to coarse sand to very compact conglomeratic strata, with appreciable occurrence of gypsum at some locations. The colour of the deposits varies from greyish to purplish brown (Photo 6.5).

In some locations these rocks are massive, while in others they exhibit a tabular stratification or thin-bed laminations. Other clastic facies also assignable to this formation have been identified in the east area, characterized by alternating sandstones with medium to thick red beds (Photo 6.6). At some locations it is possible to observe an "onyx" level of approximately 20 cm above the stratum of sands.



Photo 6.5: Interbedded sediments corresponding to Laguna Verde Strata. (Left) sandy-silty outcrop; (right) conglomerate facies.



Photo 6.6: Reddish sandstone facies assignable to Laguna Verde Strata, east of 3Q Salar.





Selley Logs were surveyed at two different outcrops along the eastern margin of the salar and results are provided in Appendix 1. One log is located 700 m east of the 3Q Project camp at the "Lomas Blancas", and the other is at borehole D-7. The two logs exhibit similar lithologies allowing stratigraphic correlation across the intervening distance of five kilometres. The lithology observed is a partial section of the Tertiary sediments, where the base is not exposed and the top is eroded. Seven packages of clay-silt-gypsum and sandstones sets are observable, with coarsening upward laminations. Silt sediments are predominant, but some sandstones are present near the top of the section. The sediments are interpreted to belong to the 4a member on Figure 6.1.

Diamond corehole D-21 is located approximately two kilometres east of the Selley Log correlation line midpoint (Appendix 1), providing further insight into the stratigraphy between the two logs. In the lower sediments, at a depth of 557 to 564 m, red sandstones and siltstones interbedded with gypsum were encountered, which were similar to rocks observed in the outcrops.

Volcanic Complex of Pissis (Pliocene), Basal Complex of Pissis and Los Patos (Miocene) and Andean Basalts of Campo Negro (Miocene)

These Tertiary volcanic rocks are prominent in the southern end of the mapped area, southwest of Laguna Verde and Laguna Negra. They are readily apparent as lavas or volcanic mantles of basic-intermediate composition, with black to reddish colorations, often with vesicular structure and cooling fractures. Water may exfiltrate from the base of these units, so that vegetation develops at the foot of coladas (Photo 6.7).



Photo 6.7: Basaltic volcanic mantles of Pissis in the south sector (Valle Ancho River valley).

These rocks correspond to the "Volcanic Complex of Pissis" (Pliocene), and volcanics of the "Basal Complex of Pissis and Los Patos" (Miocene). They are observed in the slopes of Cerro Tres Quebradas. Both complexes correspond to basaltic andesites. Rocks of rhyolitic composition are also occasionally present.





Also identified in the southeast sector are other volcanic mantles corresponding to the "Campo Negro" Andean Basalts unit, which in some sectors were observed as rhyolites. These rocks are of Miocene age.

Cerro Nacimientos Lavas (Pliocene - Quaternary)

The volcanic rocks observed in the eastern sector of the map area generally correspond to this stratigraphic unit of Pliocene - Quaternary age. These rocks are in contact with clastic sequences of the "Laguna Verde Strata", in the vicinity of 3Q Salar. Outcrops identified in the field correspond to rhyolites, andesites and basalts with porphyritic texture. Tabular plagioclase phenocrysts and occasionally volcanic glass fragments in a light aphanitic matrix (Photo 6.8) are observable. These volcanic rocks can be distinguished as lava mantles that generally cover the sedimentary rocks of the Laguna Verde Strata.



Photo 6.8: Volcaniclastic deposits corresponding to "Cerro Nacimientos Lavas".

Salar Basement

The hydrogeological basement of the salar is composed of Permian Volcanics (el Cuerno Formation, Choiyoi Group) in most of the salar area. Fractures can be abundant, but may be infilled with white quartz, reducing their permeability (Photo 6.9). These rocks outcrop on the western margin of the salar. Towards the eastern salar border the basement is composed of Tertiary (Miocene) sandstones, siltstones and gypsum from strata of the Laguna Verde and Tamberías Formations.







Photo 6.9: Core from the hydrogeological basement, with a gentle dip of 5 to 40 degrees.

6.3 SALAR IN-FILL GEOLOGY

Salar in-fill units were differentiated in 3Q Salar and are the target of current exploration. From deepest to shallowest, these units are as follows:

- Fanglomerate;
- Lower Sediments;
- Massive Halite;
- Porous Halite;
- Upper Sediments; and
- Hyper-Porous Halite.

Through tectonic activity, these deposits are in contact with Paleozoic outcrops on the west salar margin. In the east they are also delineated by faults, where they make contact with clastic sequences of "Laguna Verde Strata", effusive Cenozoic volcanics or modern alluvial-colluvial deposits. Discharges of thermal waters (or indirect evidence in temporarily inactive zones) are observed in the northern, southern and western margins of the salar infill deposits.

These salar units have been mapped through an integrated interpretation of borehole cores (Section 9), borehole cuttings (Section 9), seismic survey (Section 8), VES survey (Section 8) and downhole geophysics (Section 9). The resulting interpretations are summarized in six isopach maps, provided in Appendix 2. These maps were used to prepare a series of salar sections that were input to Vulcan, to support the geological modelling component of the Mineral Resource Estimate (Section 13).





In terms of unit distribution, there is a trend of increasing thickness towards the eastern boundary of the salar, for the Massive Halite, Lower Sediments, and Fanglomerate, suggesting a half graben disposition. The Porous Halite and Hyper-Porous Halite units are both thickest in the center of the salar, while the Upper Sediments unit is thickest near the northern alluvial fans and decreases to the south. A brief description of each unit is provided below.

Fanglomerate

The Fanglomerate unit overlies the hydrogeologic basement and is composed of fanglomerates, mediumcoarse sandstones, and sedimentary breccias with 2-20 cm diameter clasts. The supporting matrix of the fanglomerates is composed of fine to coarse sandstone that is generally loose, with a high visual porosity. The sandstones are dark, reddish to black, containing quartz, as well as lithic, and biolithic clasts. This unit is present in the deepest parts of the basin. It represents the early in-fill of the salar, in the form of ancient alluvial fans and fluvial sediments.

Photo 6.10 shows an example of Fanglomerate from the diamond core at well PP1-D22, which included a 133 m thick occurrence of the unit. The core displays a coarsening upwards texture with elongated volcanic clasts ranging in diameter from 0.5-8 cm. The long axes of the clasts are generally vertical, suggesting a subaerial fan that experienced a buoyancy effect during mass wasting.



Photo 6.10: Reddish-gray Fanglomerate in core from PP1-D22, at a depth of approximately 587 m.





Lower Sediments

This unit is composed of sandstones and siltstones, with minor gypsum laminae. It increases in thickness towards the basin center. Lower Sediments deposition occurred before evaporites accumulation in the basin. Generally, this unit exhibits folding, which may be due to synsedimentary tectonic subsidence. Photo 6.11 shows the boundary between the top of the Lower Sediments (reddish-brown) and the base of the Massive Halite, at a depth of 461.5 m.



Photo 6.11: Transition between Lower Sediments (reddish-brown) and white Massive Halite, at 461.5 m.

Massive Halite

The Massive Halite unit consists of fine to coarse-grained halite. It was observed in a range of colours including white, gray, red, and black. The unit has a low visual porosity. In the upper extent, cubic crystals





can be observed. At the base of the Massive Halite (Photo 6.11) individual crystals are not apparent, possibly due to dissolution and re-formation of smaller crystals. Some intercalation of red clay is observable, and also possible organic matter.

Porous Halite

The Porous Halite unit is composed of medium to coarse-grained halite, with granular intervals of loose, white to grey crystals (Photo 6.12). Visual porosity is moderate to high. The greatest thickness occurs in the centre of the salar basin. At well PP1-D17, the transition between the Massive Halite and Porous Halite units was marked by a layer of aeolian sandstone.





Upper Sediments

This unit is composed of reddish sandstones, silty sandstones and plastic shales, mixed with halite crystals. Visual porosity is medium. The Upper Sediments unit forms a clastic wedge that is thickest in the northern sector of the salar and thins toward the south. Grain size displays a similar trend, becoming finer to the south. The probable primary sources areas for these sediments are the catchments of the Salado and 3Q





Rivers, with additional input from smaller creeks. This unit was absent in some central salar locations, such as in wells PP1-D10, D16, and D23.



Photo 6.13: The boundary between Upper Sediments and Hyper-Porous Halite.

Hyper-Porous Halite

The Hyper-Porous Halite unit is composed of medium to coarse-grained halite with high inter-crystalline porosity (Photo 6.13). Some voids were observed near the top of this unit. The unit is generally whitish, although some cycling of colours was observed, from white to red to black. The maximum observed unit thickness was in the center of the salar (89 m in core from well PP1-D17). This unit effectively extends to the salar surface (Photo 4.2), which is typically composed of halite pinnacles with crests trending NNW-SSE. The pinnacles are highest in the north-central area of the salar.





Quaternary Alluvial Deposits

These materials occur mainly as fluvial deposits associated with surficial fans encroaching on the salar and into the lakes. They slope upward from the salar and lake surfaces to varying degrees and were not defined and mapped as a resource unit. These detritic materials may overlie large sandy areas in some sectors around the salar and lakes. They consist mainly of unconsolidated alluvial / colluvial materials, with a range of compositions and granulometric heterogeneity, ranging from blocks of andesites and basalts to fine gravels and sands, and even finer alteration materials.

In terms of areal extent, the largest alluvial fans occur in the north and northwest of the 3Q Salar Complex, associated with the 3Q and Salado Rivers. There are also large fans to the southwest, between Laguna Verde and Laguna Negra (Photo 6.14).



Photo 6.14: Alluvial fan deposits and filling materials in inactive fluvial channels, on the northwest margin of Laguna Verde.

At the downgradient ends of these fan systems, zones of vegas and thermal springs may be present, with general diffuse drainage, wandering channels, vegetation growing in the margins, and development of saline efflorescence. Such is the case for the Salado River fan, whose headwaters are in the vicinity of Nevado Tres Cruces and Cordón de los Arrieros and are partially fed by hot spring systems.

6.4 STRUCTURES

Structural systems in the vicinity of 3Q Salar are shown in plan and section in Figures 6.1 and Figure 6.3, respectively.

Outside the western boundary of the salar, the presence of an inverse fault and two reverse faults is inferred, with approximate NNW-SSE orientation. In the mapped area, these faults generally involve andesitic, rhyolitic and basaltic igneous rocks of the El Cuerno Formation. The sequences are shown in a succession of rhyolitic and andesitic rocks crowned by basaltic mantles. At other locations these structures contact the El Cuerno Formation with Tertiary or modern deposits, including a lineament that contacts 3Q





Salar in-fill materials with these older rocks. There are also points of upwelling thermal waters at these locations.

On the eastern side of 3Q Salar, the most notable structure is a direct fault with a lower edge near the mid-point of the salar. This structure mainly affects sedimentary rocks of Laguna Verde Strata. It is indicated in the field by an escarpment observed in an alluvial fan. It is inferred from satellite images by the presence of outcrops in contact with the most modern evaporite deposits. As in the structures observed on the western side of the salar, the eastern structure also shows an approximate NNW-SSE orientation, aligning with the long axis of Salar 3Q.

Additional evidence of structural lineaments is indicated by the existence of streams oriented E-W to WSW-ENE and NW-SE. One of these is apparent on the north margin of the 3Q River valley and homonym brine lake, where an outcrop of the Los Aparejos Formation and the Tres Quebradas Porphyry underlies the El Cuerno Formation to the southwest.

Significant lineaments are also apparent to the northeast of 3Q Salar, in the ravine that is downstream of Cerro Campo Negro and in the southern sector of the mapped area, coinciding with the layout of Laguna Verde and Laguna Negra, and the alignment of the Valle Ancho River.













6.5 **MINERALIZATION**

Brine Resources in the 3Q Salar Complex are defined relative to two cut-off values: 400 and 800 mg/L lithium (Section 13). The Resource within the 800 mg/L cut-off is limited to approximately the northern third of the Complex, while the 400 mg/L cut-off extends from Laguna 3Q in the north to Laguna Verde in the south. Sampling methods and results are presented in Sections 8 and 9 and zone delineation criteria are described in Section 13.

A summary of the brine volume and chemistry in the Resource zone is provided in Table 6.1. Table 6.2 compares the chemistry from the 3Q Project with information from other lithium brine projects. As indicated in the table, 3Q Project lithium and potassium grades are favourable in terms of the group represented in the table. However, it is noted that mineral resources are not mineral reserves, and do not have demonstrated economic viability. It is further noted that the occurrence of lithium and potassium grades at the 3Q Project that are similar to (or even greater than) grades at other sites (even producing sites) does not infer economic viability for the 3Q Project.

Two other important brine constituents summarized in Table 6.1 and Table 6.2 are sulfate and magnesium. These two parameters are considered brine impurities in that they affect the cost of brine processing. As indicated in the table, both magnesium and sulfate compare favourably with the other brines in the group in that their ratios are at the low ends of both ranges.

Table 6.1: Volume and average composition of the Mineral Resource Estimate defined for the 3Q Project (for 800 mg/L lithium cut-off).

Parameter	Measured + Indicated	Inferred		
Brine Volume (m3)	1.39E+8	2.83E+7		
Lithium (mg/L)	1007	1239		
Mean Potassium (mg/L)	8580	9221		
Magnesium (mg/L)	1718	2079		
Mean Sulfate (mg/L)	384	300		
Mean Boron (mg/L)	1330	1456		
Mean Mg/Li Ratio	1.71	1.68		
Mean SO4/Li Ratio	0.38	0.24		
Mean Density (g/ml)	1.21	1.21		





Table 6.2: Comparison of selected brine chemistry for the Mineral Resource Estimate defined at the 3Q Project (for the 800 mg/L cut-off), with other lithium brine deposits.

Company	Location	mg/l				Density	Ratio	Ratio	
		Li	К	Mg	SO4	В	(g/cm^3)	(Mg/Li)	(SO4/Li)
Comibol	Uyuni, Bolivia [A]	424	8719	7872	10294	242	1.21	18.57	24.29
SQM	Atacama, Chile [B]	1835	22626	11741	20180	783	1.22	6.40	11.00
Lithium Americas Corp.	Cauchari - Olaroz, Argentina [F]	625	5123	1500	18163	1066	1.22	2.40	29.07
Rincon Lithium	Rincon, Argentina [E]	403	8003	3697	12383	488	1.22	9.18	30.76
Zhabuye Lithium	Zhabuye, China [C]	1258	34241	13	67963	3709	1.30	0.01	54.02
FMC	Hombre Muerto, Argentina [A]	747	7435	1024	10279	422	1.21	1.37	13.76
CITIC Guoan	West Taijinair, China [C]	257	101219	8447	183581	380	1.23	32.81	713.05
Orocobre	Olaroz, Argentina [D]	684	5880	1908	-	696	-	2.79	-
Western Mining Group	East Taijinair, China [C]	808	86654	17404	178475	1061	1.26	21.53	220.80
LithiumX	Diablillos, Argentina [G]	501	5512	-	-	556	-	-	-
Lithium One Inc.	Hombre Muerto, Argentina [H]	787	8695	-	-	-	1.19	-	-
Lithium Power	Maricunga, Chile [I]	1143	8292	-	-	-	-	-	-
Neo Lithium	Tres Quebradas [J]	1007	8580	1718	384	1330	1.21	1.71	0.38

Notes

[A] Data from Roskill, 2009.

[B] SQM: US SEC report Form 2 F 2009.

[C] Data from Dr. Haizhou Ma, Institute of Salt Lakes, China.

[D] Houston and Ehren (2010); density of 1.2 was assumed for converting wt% to mg/L.

[E] Fowler and Pavlovic, 2004.

[F] LAC Feasibility Report (King, et al., 2012); results for Total Updated Resource (500 mg/L cut-off).

[G] FloSolutions (2017) (Indicated Resource).

[H] Rosko and Jacks (2012).

[I] FloSolutions (2017) (Measured + Indicated).

[J] Measured + Indicated Resource) at 800 mg/L cut-off; results documented in this Report.

"-" = Not available





6.6 SURFACE WATER

6.6.1 Surface streams

Stream flow rates have been measured approximately monthly since September 2016, at the gauging points shown on Figure 6.4. Measured flow rates are shown in Figure 6.5. Most streams infiltrate to some degree into alluvial fans before discharging into the salar basin, which complicates water balance estimation. Further, most streams may partially freeze during the winter, with the exception of Salado River in the north.

In the northern area, Salado River and 3Q River discharge into the Laguna 3Q (Figure 6.4) with average flow rates of approximately 499 and 599 L/s, respectively (Figure 6.5). Maximum flow in Salado River occurred in September, which is consistent with the maximum extension of the Laguna 3Q surface (Section 6.6.2). Conversely, the maximum flow rate in 3Q River was recorded during the summer (January to March 2017).

Flow rates recorded for the Pissis River, located in the south of the Complex ranged from 2,032 to 692 L/s in 2017. This river completely infiltrates into an alluvial fan before discharging as subsurface flow into the Lagunas Negra and Verde. The maximum flow rate was recorded in October 2017, with similar hydrologic behaviour to Río Salado in the north.







Figure 6.4: Surface stream gauging points in the 3Q Salar Complex.



Figure 6.5: Time series flow rate data for the main surface streams in the 3Q Salar Complex.

6.6.2 Permanent Surface Water Bodies

The 3Q Salar Complex includes three permanent surface water (brine) bodies that exceed 1,000 ha in area (Lagunas 3Q, Laguna Verde and Laguna Negra; Figure 6.6). The bathymetry of Lagunas 3Q and Verde shows that they are relatively shallow, with maximum depths of two metres and 1.5 metres, respectively. The shallowness, chemistry and brine levels of these water bodies suggest a strong hydraulic connection with the shallow brine of the adjacent salar.

Lakes in the 3Q Salar Complex are dynamic in terms of water level and surface area. Three topographic campaigns were carried out in the salar, to obtain accurate absolute lake level measurements. Geodesic GPS was used, and the findings are reported in Table 6.3. Since February 2017, monthly relative lake level measurements have also been carried out. Pressure sensors were installed in Lagunas 3Q and Verde, and and measurements were taken on an hourly basis. Relative measurements are converted to absolute values, using the results from the topographic campaigns.

As shown in Table 6.3, Laguna 3Q showed level fluctuations greater than one metre, varying between 4085.17 and 4086.4 masl. Laguna Verde and Laguna Negra had level fluctuations that were lower, varying between 4085.37 to 4086.03, and 4086.4 to 4086.59 masl, respectively.




Campaign date	Laguna Tres Quebradas [masl]	Laguna Verde [masl]	Laguna Negra [masl]
01/11/2016	4085.17	4085.68	4086.55
13/12/2017	4086.40	-	4086.40
30/10/2017	4085.61	4085.37	-
05/05/2018 to 08/05/2018	4085.31	4086.03	4086.59

Table 6.3: Lake surface levels (meters above sea level).



Figure 6.6: Bathymetry of Laguna 3Q and Laguna Verde.





The temporal evolution of lake surface areas was analyzed through Landsat satellite images from the past twelve years (Figure 6.7), in order to:

- detect evidence of climatic fluctuations that could alter the natural recharge of the system;
- estimate temporal variability of evaporation from the surface water bodies; and
- detect recharge events in the salar hydrologic system.





The surface of Laguna 3Q shows the largest variations, with the maximum surface extension occuring in September and occasionally in July, whereas the minimum occurs in February and March. The surface areas for all three water bodies showed a decreasing trend over the observation period.





6.7 GROUNDWATER

A groundwater monitoring network (shallow and deep) was initiated in October 2017, to better understand groundwater trends in the 3Q Salar Complex. The temporal evolution of piezometric levels is shown in Figure 6.8, along with rainfall records (Vaisala station) and lake levels. These data show a complex and variable range of piezometric trends and responses.

The data in Figure 6.8 show that piezometric levels in Salar 3Q respond quickly to rainfall events, sometimes rising 0.2 m or more, and that the effects tend to dissipate quickly. Meanwhile, the levels of Lagunas 3Q and Verde respond more slowly, and they continue to rise over an extended period. These responses are consistent with direct precipitation input to the salar, versus a lagged and extended effect on the lakes, as they gradually receive the increased outflows from their respective watersheds.

Figure 6.8 shows that the level of Laguna Verde was consistently below the brine levels measured in the salar, indicating a consistent net tendency (over the observation period) for flow from the salar to Laguna Verde. Conversely, the level of Laguna 3Q was variable relative to salar levels: both above and below, depending on location and time. These preliminary measurements indicate the occurrence of a relatively persistent hydraulic gradient from Salar 3Q towards Laguna Verde. The gradient from Salar 3Q to Laguna 3Q appears to be relatively flat at sometimes, and weakly towards the lake at others.

Piezometric surfaces in the salar corresponding to November 2017 and February 2018 are shown in Figure 6.9. The results in this figure capture the range of trends shown in Figure 6.8. The November data indicate a net tendency for flow from the north (Laguna 3Q) into the Salar 3Q and then further to the south (to Laguna Verde). Meanwhile, the February results indicate a tendency for flow from the central area of the salar towards both the north and the south.



Figure 6.8: Recorded groundwater piezometric levels, lakes levels, and rainfall.







Figure 6.9: Piezometric surfaces extrapolated from groundwater monitoring network data.





6.8 WATER BALANCE

A preliminary water balance for the 3Q Salar Complex was performed as part of the development of a numerical groundwater flow model (Section 15). The water balance would eventually be updated with results from the model. Preliminary water balance results are provided in Table 6.4. Recharge to the salar is expected to occur as direct groundwater discharge through alluvial fans, as surface stream flows, and as direct precipitation. Multivariate analysis of salar hydrochemical data suggests that a geothermal contribution in the water balance could be neglected.

Discharge from the system is attributed to evaporation from the lakes and the salar crust. Other potential discharge mechanisms could be related to the presence of regional faults, but specific studies would be required to explore this possibility.

Water Balance 2017	Salar de Tres Quebradas		
Inflows	Average flow (L/s)		
Recharge from precipitation	193		
⁽¹⁾ HEC-HMS (Surface streams + groundwater)	2377		
Total inflows	2569		
Outflows			
Evaporation in lakes	1663		
Evaporation through the salt crust	968		
Total evaporation (lakes + salar crust)	2631		
Licensed abstraction	ND		
Total outflows	2631		
Balance (Inflows – Outflows)	-62		
⁽¹⁾ Surface streams (gauging stations) 1761 l/s			

Table 6.4: Preliminary water balance for the 3Q Salar Complex.





6.9 SURFACE AND SHALLOW BRINE HYDROCHEMISTRY

Surface and shallow brine data from the 2015-2018 sampling campaigns were integrated and analyzed, including brine samples from:

- the salar crust;
- Lagunas 3Q and Verde; and
- the surface streams that discharge to the salar.

This analysis indicates that lithium, potassium, barium, boron, strontium and calcium follow similar spatial patterns, with the highest concentrations occurring in the northern part of the salar (Figures 6.10 and Figure 6.11). Lithium grades exceed 500 mg/L in Laguna 3Q, and also in the brine of the crust. Lithium locally increases to as high as 4,000 mg/L in the Laguna 3Q ponding zone. Sulfate, chloride and sodium show distribution patterns that are affected by mineral equilibrium control with halite (NaCl) and gypsum (CaSO₄.2H₂O) (Figure 6.11).

These chemical trends in surface brine can be observed in a N-S transect along the salar (Figure 6.12). The figure shows a general increasing trend from south to north for all the illustrated chemical components, with a peak occurring in the ponding zone of Laguna 3Q.







Figure 6.10: Surface brine concentration distributions for Li, K, Ba, and B.







Figure 6.11: Surface brine concentration distributions for Cl, Na, Ca, and SO4.







Figure 6.12: North-South transect of surface brine concentrations for Li, K, Mg, Ca, Ba, Sr and B.





Principal Component Analysis ("PCA") was also used to analyzed trends in surface brine chemistry. Results are shown in Figure 6.13, and suggest that dispersion of the data is associated with:

- evaporation;
- mixing between resident brines and freshwater; and
- mineral equilibrium with halite (NaCl), and gypsum (CaSO₄.2H₂O).



Figure 6.13: Principal component analysis for the chemistry of surface brine samples collected in 3Q Salar: (A) surface brine resident in the salar crust, and surface streams, (B) surface brine resident in the salar crust, surface streams, and lakes, (C) deep and surface brines, and surface streams, and (D) deep and surface brines, surface streams, and natural springs.





To better understand the genesis of the lithium-enriched brine, evaporation (by a factor of 100) was simulated for a water sample from the Salado River, using a numerical thermodynamic model for concentrated brines (⁽¹⁾PHREEQC). The starting lithium content of the sample was 35 mg/L. Results are shown in Figure 6.14. Simulated evaporation suggests that lithium-enriched brines in 3Q Salar could be explained through evaporation of Salado River water, by a factor of 20 to 40.



Figure 6.14: Simulated evaporation of a water sample from the Salado River (top). Water and brine samples collected during the last four 3Q Project sampling campaigns, super-imposed on simulation results (bottom).





7 DEPOSIT TYPES

Brine deposits containing economically important quantities of lithium can form in salars where the following favourable conditions are coincident:

- The salar catchment is "closed," which means the outflow of water from the catchment (by processes other than evaporation) is negligible in terms of the catchment water balance.
- A significant portion of the catchment area contains bedrock of suitable composition (i.e., containing lithium that can be leached).
- The rocks in the catchment do not contribute significant impurities (particularly magnesium and sulfates) that could complicate the processing of the brine.
- Geothermal waters have contacted the bedrock through fault systems and have become moderately concentrated in lithium (and other solutes).
- The moderately concentrated waters have accumulated in the low-lying area of the closed catchment.
- The prevailing climate is suitable to promote high rates of evaporation from the accumulated water (i.e., dry air, high winds and minimal precipitation), leading to the formation of evaporite deposits and brine within the salar.
- Given the preponderance of lithium-bearing salars that are defined by fault-bounded dropped basins, this also appears to be an important condition. The process of basin lowering may provide a more prolonged period and a more focused zone for brine accumulation. The bounding faults may also be a direct source of lithium-enriched geothermal waters to the salar.

Information to date indicates that conditions at the 3Q Project meets these conditions. The salar catchment is closed with no apparent outflows. Elevated levels of lithium have been detected in geothermal and cold waters flowing into the Complex. There is clear evidence that evaporation has led to the accumulation of evaporites and lithium brines in the near-surface of the salar, in lakes, and at depth. Despite the occurrence of favourable conditions for brine and lithium accumulation at the 3Q Project, additional economic analysis is required to determine whether the brine is economically viable for development.

In terms of in-fill materials, salars that contain brine deposits are of two principal lithologic types: clasticdominant and evaporite-dominant. The formation of one or the other lithology may depend on the energy of the system during deposition. Evaporite formation may be favoured during relatively dry periods of low inflow, and deposition of clastic materials during higher inflow periods. Similarly, deposition of clastic materials may be favoured around the margins of the salar basin, while the more quiescent central zone may be dominated by evaporites. Consequently, both types of deposits may occur at different levels and zones of a given salar depending on the conditions of deposition.

Evaporite-dominant salars contain mostly halite deposits, which can reach hundreds of metres in thickness (Houston et al., 2011). Within approximately 50 m of the surface, the porosity and permeability of halite may be amenable to economic extraction of brines. However, deposit permeability may decrease





rapidly with depth due to evaporite cementation and recrystallization. Classic examples of evaporitedominant salars include Salar Hombre Muerto (Argentina) and Salar Atacama (Chile).

Clastic-dominant salars are characterized by predominantly clastic strata interbedded with minor evaporites, particularly halite. Porosity and permeability of the clastic layers are controlled by lithology, stratigraphy and structural controls such as faults. Clastic-dominant salars are exemplified by the Silver Peak deposit in Nevada and Argentina's Cauchari and Olaroz Salars.

The 3Q Salar Complex has aspects of both salar types. Within the salar, there is a substantial occurrence of evaporite sequences in excess of 200 m. However, there are also three laterally extensive clastic units (Upper Sediments, Lower Sediments, and Fanglomerate) that show evidence of extended periods of clastic-dominant deposition. Furthermore, there are frequent small clastic layers, ranging from a few to several cm, within the evaporite units. These small clastic layers tend to increase in frequency and/or thickness, with proximity to the formal clastic units, often forming a gradual transition zone from the evaporite units to the clastic units.





8 EXPLORATION

8.1 OVERVIEW

Four sets of field work have been conducted to date at the 3Q Project, to evaluate the lithium development potential of the deposit:

- 1. Reconnaissance ("Recon") 2015 (first reported by King, 2016);
- 2. Program 1 2015/16 (first reported by King, 2016);
- 3. Program 2 2016/17 (first reported by King 2017); and
- 4. Program 3 2017/18 (first reported herein).

Exploration components conducted in the first three sets are summarized in Table 8.1. Components of the last Program (2017/18) are summarized in Table 8.2.

Exploration Component	Purpose	Description
Surface brine sampling in the Salar and Lakes (Recon, Program 1 and Program 2)	To map surface brine distributions	398 samples (including 81 QA/QC samples)
Vertical Electrical Sounding ("VES") Surveys (Program 2)	To map subsurface resistivity trends for use in siting boreholes	35 VES locations, along 8 sections throughout the salar
Diamond Drilling (Program 2)	To collect cores and brine samples; to monitor pumping tests	 1989 m of drilling in 11 boreholes Construction of 11 wells 60 core samples for RBRC
Rotary Drilling (Program 2)	To conduct and to monitor pumping tests in shallow and deep aquifers	 733 m of drilling in 13 boreholes Construction of 9 pumping wells and 4 observation wells
Brine sampling from packers and wells (Program 2)	To map subsurface brine distributions	127 brine samples (including 23 QA/QC samples) from packers and wells
Pumping Trenches (Program 2)	To conduct pumping tests in the near-surface aquifer	Installation of 2 Pumping Trenches
Pumping Test Program (Program 2)	Determine aquifer characteristics and brine chemistry	 Pumping tests at 5 Pumping Wells (4- 72 hr Constant Rate; 1-3 hr Step Test) 2-6 hr pumping tests in Pumping Trenches

Table 8.1: Summary of exploration work reported previously - 3Q Project.





Table 8.2: Summary of exploration work conducted for the 2017/18 Program and first reported in the current Technical Report - 3Q Project.

Exploration Component	Purpose	Description		
Surface brine sampling in	To evaluate lake dynamics and assess	149 samples (including 42		
the Salar and Lakes	low concentration zones	QA/QC + river samples)		
VES Surveys	To evaluate strat and brine conditions near lakes and discharge zones	20 VES locations, along 5 sections surrounding the salar		
Diamond Drilling	To collect cores and brine samples; to monitor pumping tests	 4155.6 m of drilling in 12 boreholes Construction 9 wells 250 core samples for RBRC 		
2D Seismic Survey	To map the salar basement and in-fill deposits	11 Seismic lines, along 49.34 km, inside and outside salar		
Rotary Drilling	To conduct and to monitor pumping tests in shallow and deep aquifers	 1962.6 m of drilling in 13 boreholes Construction of 7 pumping wells and 7 observation wells 		
Brine sampling from boreholes and wells	To map subsurface brine distributions	175 brine samples (including 16 QA/QC samples) from packers and wells		
Pumping Test Program	To obtain hydraulic parameters for developing a numerical flow model	11 72-hours pumping tests.		

8.2 VERTICAL ELECTRIC SOUNDING ("VES") SURVEYS

VES lines conducted to date for the 3Q Project are shown on Figure 8.1. The initial set of eight lines (conducted in 2016 for the 2016/17 Field Program; A-A' through H-H' on Figure 8.1) were implemented to support the design of the initial drilling program. Results were first reported by King (2017). The first VES Survey identified the following geoelectric units and trends:

- A very highly conductive zone was identified which was interpreted as consisting mainly of evaporites and clastic sediments (Unit 1).
- A zone of medium conductivity was interpreted as porous or cavernous evaporitic sequences with possible clastic sequences (Unit 2).
- Units 1 and 2 have a combined thickness of over 90 m in the northern end of the salar.
- A lower conductivity unit was interpreted to consist of evaporites, extending to an average depth of 200 m (Unit 3).
- A lower conductivity zone was interpreted as Tertiary sediments (Unit 4).
- Units 1 and 2 were interpreted as having the best potential for containing brine.







Figure 8.1: Surface geophysics (VES and Seismic) conducted to date - 3Q Project.





A second VES Survey was conducted in 2017, during the 2017/18 Field Program. The objective of this second survey was to investigate stratigraphy and brine conditions adjacent to lakes, and to zones of potential groundwater discharge to the salar. The five new lines conducted for the second VES Survey are shown in Figure 8.1 and the new VES sections are provided in Appendix 3. The key findings from this recent VES Survey are as follows:

- At VES Line 1 the occurrence of basement was inferred, as a U-shaped valley in-filled with alluvial sediments. Salinity increases towards the bottom of the valley. The top of the basement is at a depth of approximately 175 m. Complimentary information indicates that it is composed of Permian Volcanics.
- At VES Line 3 it is inferred that the alluvial fan surface material extends to a depth of 75 m and is underlain by Miocene sediments up to 700 m deep. The Permian volcanic basement was not distinguishable.
- At VES Line 4 (in a southwest alluvial cone) it was inferred that clastic sediments extend to about 125 m and are underlain by Permian Volcanics (basement).
- VES line 5 shows a basement of Tertiary sediments at a depth of about 400 m, forming a valley filled with sand and gravels. Salinity increases downwards.





8.3 SEISMIC SURVEY (2017/18 PROGRAM)

A two-dimensional (2D) Seismic Survey was conducted at the 3Q Project, along 49.3 km length of survey lines (Figure 8.1). The objective was to investigate stratigraphy (basement and in-fill evaporites and sediments), especially at locations that were complementary to the VES Surveys (Section 8.2) and drilling (Section 9).

This Survey was performed by Union Geofisica Argentina S.A. ("UGA") from October 24 to November 1, 2017. A Vibroseis Sercell (62,000lbs) was used, with seismometer spacing of 20m (Photo 8.2). Eleven seismic lines were acquired, with six located within the salar, and the remaining five outside. The eastern





line tiles spanned from within the salar towards the outer limits, to analyze the structure of the border beneath the alluvial fans. The paths used to access the salar were initially constructed the year before, to perform the VES Survey, and were widened for the Seismic Survey.



Photo 8.2: Vibroseis Sercell with seismometers set up at 20 m spacing (left). Interior controls for the seismic equipment (right).

The processing was completed over a 40 day period, by Seiscenter S.A., located in Buenos Aires, Argentina. The following processing methodology was used:

- 1. Static (topographic) corrections were made for each geophone station with a georeferenced survey prepared by UGA. Seismic tomography (seismic refraction method) was interpreted for each line.
- 2. Noise attenuation was used to eliminate ground roll noise and frequencies content.
- 3. Migration processing was incorporated using Pre-Stacking-Time-Migration methodology, where the seismic information signals are shifted, to improve the image of dipping reflectors.
- 4. A velocity was chosen every 50 Common Deep Points, and was estimated at a spacing of every 500 m. It was determined that the first strong (shallowest) signal reflector was due to the P-wave arrival.

Interpretation of the seismic sections is provided in Appendix 4, with integration of VES and drilling results. These interpretations were developed by geophysicist Daniel Soubies and edited by geologist Santiago Grosso. The sections show that the salar is deeper in the center than at the borders, with normal faults dipping towards the basin. The red horizon shown in the sections is interpreted as the "Seismic Basement", which is a reflector beyond which the seismic signal was not able to effectively penetrate.

Line 11 (Appendix 4, Figure A4-7) shows an extensive north-south image of the salar. It shows a reflector that clearly corresponds with the base of Massive Halite and another observable reflector that is the transition between the Porous Halite and Massive Halite. The strong reflection near the surface is noise from the arrival of the P-wave. At the south and north ends of Line 11, Lower Sediments and Fanglomerates are interpreted to thicken and the Massive Halite thins. These trends were confirmed at wells D22 and D17.

Lines 1, 2, 3 and 5 cross the salar from east to west (Appendix 4, Figures A4.1, A4.2, A4.3 and A4.4, respectively). They display a half graben structure with the Permian volcanic (Choiyou group) basement dipping approximately 14 degrees to the east. The Fanglomerate and Lower Sediments both thicken to the east. The eastern border of the salar shows a steep fault generally dipping west, but sometimes east,





trapping salar sequences beneath the border. Line 2 also shows numerous small faults dipping to the center of the salar. The Porous Halite / Massive Halite boundary is interpreted to be at a depth of approximately 170 m below the surface. The deeper halite displays less interbedding in the centre of the salar, away from the influx of alluvial sediments.

Appendix 4, Figure A4-8 shows a composite of seismic lines 10, 11, and 12 which reveal structures both within, and outside of the salar. Tectonic uplifting of the salar basement is evident, possibly the result of reverse basement thrusting.

8.4 SURFACE BRINE SAMPLING PROGRAM

Surface brine sampling has been conducted at the 3Q Project during all four field work sets, with the following activities and evolution of objectives:

- An initial Recon Program was conducted throughout the 3Q Salar Complex during December of 2015, for a general indication of lithium presence at the site (reported by King, 2016).
- A systematic grid program of lake and salar surface sampling was implemented in 2015/16 Program, following favourable results from the Recon Program. The objective of this sampling was to determine the extent and trends of lithium in shallow brine (first reported by King, 2016).
- Additional surface brine samples were collected during the 2016/17 Program, to fill in gaps in the earlier work, and to test for changes to due weather (for example, precipitation inputs (first reported by King, 2017).
- During the 2017/18 Program, sampling was conducted to evaluate lake dynamics and to investigate a low concentration zone in the south surface area of the salar (reported herein, in conjunction with earlier results).

Figure 8.2 shows the chronology of the surface brine sampling in 3Q Salar and the two adjacent brine lakes. Sampling methods are described in Section 10. Interpolations of selected surface brine results are shown in Figures 6.10 (lithium, potassium, barium and boron) and 6.11 (chloride, sodium, calcium and sulfate). The magnesium:lithium ratio in surface brine is shown in Figure 8.3, where a decreasing trend towards the south is apparent. A bathymetric map of the Lagunas 3Q and Verde is shown in Figure 6.6, and shallow brine chemistry results are discussed in Section 6.9.







Figure 8.2: Chronology of surface brine sampling in the 3Q Salar Complex.







Figure 8.3: Interpolation of the magnesium-lithium ratio in surface brine samples.





8.5 PUMPING TEST PROGRAM

8.5.1 Summary of Previous Work (2016/17 Program)

During the 2016/17 Program, pumping tests were performed on 5 wells and 2 shallow trenches by Cohidro, an Argentinean company. The objective of this work was to provide results for initial characterization hydraulic properties of the salar units and to eventually support development of a numerical reserve model (Section 15). These results were first reported by King (2017).

8.5.2 Pumping Tests in the 2017/18 Program

Eleven 72-hour pumping tests were conducted during the most recent Field Program, to further improve the hydraulic parameter characterization of hydrostratigraphic units in 3Q Salar. Test locations are shown in Figure 8.4. The hydraulic parameter values determined with the pumping test data were used for additional characterization of salar hydrostratigraphic units.

To obtain representative hydraulic parameter values for the complex salar hydrogeology, the numerical model MODFLOW was used, in conjunction with a parameter estimation program known as PEST. In this approach, numerous MODFLOW model iterations were run by PEST while the hydraulic parameters were adjusted for each hydrostratigraphic unit in the model. This process was used to determine the hydraulic values that provided the best overall fit between the simulated results and drawdown measured during pumping tests.

The strength of this interpretation method is that it uses simultaneous hydraulic response (pumping test) data from multiple hydrostratigrapic units. In other words, the model is used to match data from observation wells in the pumped unit, and also from wells in other units. In this way, a single pumping test can be used to estimate hydraulic parameters for multiple units. The results also provide insight into the potential for leakage between aquifers.

Calibrated hydraulic parameters are summarized in Table 8.3. For two pairs of pumping wells (PB3 and PB2 on Platform 7; PB1 and PB2 on Platform 15) only one set of hydraulic parameters are provided. In these two cases, a single calibration was conducted for each closely-spaced pair of pumping wells, to determine the calibrated values that provide the best overall fit for the data from both pumping tests. Simulated and observed drawdown at Platform 7 are shown in Figure 8.5 to illustrate calibration performance.

8.6 DATA PROCESSING

Laboratory data and borehole log information were compiled in a Microsoft Access database and processed using Microsoft Excel spreadsheet software. All relevant spatial site information and mapping is compiled in ESRI ArcGIS. Google Earth satellite imagery was used to identify topographic and hydrologic features.







Figure 8.4: Pumping tests conducted during the 2017/18 Program.





Table 8.3: Aquifer hydraulic properties determined from pumping tests, using MODFLOW and PEST.

	Hydraulic conductivity [m/d]									
	Platform	2	3	4	5	7	15	17	18	23
	Pumping well	PB1-R2	PB1-R3	PB1-R4	PB1-R4	PB3-R7 PB2-R7	PB1-R15 PB2-R15	PB2-R17	PB1-R18	PB1-R23
Unit	Hyper-Porous Halite	265	975	324	300	1000	220	200	270	260
	Upper Sediments	9.5	5	5	30	5	1.1	-	5	-
	Porous Halite	-	-	0.04	-	0.19	0.5	0.04	-	0.5
	Massive Halite	-	-	-	-	0.0003	-	-	-	-
	Lower Sediments	-	-	-	-	-	-	-	-	-
	Fanglomerate	-	-	-	-	-	-	-	-	-
Specific yield [-]										
lit	Hyper-Porous Halite	NR	NR	NR	0.14	0.14	NR	NR	0.14	0.1
	Upper Sediments	-	-	-	-	-	-	-	-	-
	Porous Halite	-	-	-	-	-	-	-	-	-
5	Massive Halite	-	-	-	-	-	-	-	-	-
	Lower Sediments	-	-	-	-	-	-	-	-	-
	Fanglomerate	-	-	-	-	-	-	-	-	-
			Speci	ific storag	e coeffici	ent [1/m]			
	Hyper-Porous Halite	1.0E-06	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-07	1.0E-07	1.0E-05	1.0E-05
	Upper Sediments	1.0E-05	1.0E-05	1.0E-05	1.0E-03	1.0E-05	1.0E-03	-	5.0E-05	-
Unit	Porous Halite	-	-	1.0E-05	-	5.0E-05	1.0E-03	1.0E-09	-	1.0E-07
	Massive Halite	-	-	-	-	1.0E-05	-	-	-	-
	Lower Sediments	-	-	-	-	-	-	-	-	-
	Fanglomerate	-	-	-	-	-	-	-	-	-

NR (No Reliable from pumping tests)













9 DRILLING

9.1 OVERVIEW

The location and chronology of boreholes installed to date at the 3Q Project are shown on Figure 9.1. Borehole and well specifications, including packer sampling intervals, are summarized in Appendix 5. Two rounds of drilling have been conducted:

- The first round was done during the 2016/17 Field Program, from January to April, 2017; and
- The second round was done during the 2017/18 Field Program, from October 2017 to April 2108.

The drilling objectives were as follows:

- To obtain samples for characterizing subsurface brine chemistry;
- To characterize salar geology with continuous cores, downhole geophysics, and other drilling information;
- To install pumping and observation wells for hydrogeological characterization.

Boreholes were planned and grouped in "platforms" where, if feasible, a diamond borehole was installed first on each platform and used to guide the subsequent installation of rotary boreholes and wells. This approach involved the following planning at a typical platform:

- The diamond borehole was drilled first. The core was logged and downhole geophysics were performed, to obtain a detailed and reliable representation of the subsurface at the platform location.
- Packer samples were collected from the diamond boreholes during drilling, for discrete monitoring of brine at different levels.
- Diamond boreholes were completed as deep observation wells, for use in subsequent pumping tests.
- Based on the diamond core logs, downhole geophysics, and field monitoring of the brine, the remaining wells to be located on the platform were designed. One or more pumping wells were designed and installed by rotary methods to test potentially important brine aquifers.
- If more than one pumping well was installed on the platform (for example, if both a shallow and a deep aquifer were to be tested) then an additional observation well would be installed to monitor the test of the second pumping well (the diamond drill well would already be configured to monitor the first pumping well).
- If it was not feasible to drill a diamond borehole on the platform (i.e., due to flowing sands) then the pumping well was designed on the basis of recovered rock chips and downhole geophysics. In that case, the associated observation well would be installed by rotary method.
- In some cases, only a diamond borehole was drilled on the platform, with potential to install one or more pumping wells at a later date.

It is noted that all boreholes are vertical.







Figure 9.1: Drill platform and borehole locations and chronology – 3Q Project.





9.2 DIAMOND DRILLING

The wells installed with diamond drilling are summarized in Table 9.1. The diamond boreholes were drilled in HQ diameter, to the target depth or to the depth that the equipment was able to penetrate. If additional penetration was required, the gear was changed to NQ diameter for drilling to the target depth. Core was recovered during drilling and transferred to core boxes. A range of biodegradable additives were used for the drilling, including: Toqueez, Sand Drill, AMC Superlube-Lubricante, AMC Ezee Pac R, AMC CR 650, and Amc Xan Bore.

During the 2016/17 Program, drilling logs were prepared by Conhidro personnel and supervised by Hidroar. An independent review of all cores and logs was conducted by Hidroar. A final review of all cores and logs was conducted by the QP. During the 2017/18 Program, logs were prepared by geologists from LIEX. An independent review of all cores and logs was conducted by Santiago Grosso, with an inspection of cores by the QP.

Field Program	Contractor	Wells installed with Diamond Drilling
2016/17	AGV Drilling	PP1-D-3, PP1-D-4, PP1-D-7 and PP1-D-8
	Energold Drilling	PP1-D-5, PP1-D-6, PP1-D-9, PP1-D-10, PP1-D-11, PP1-D-12 and PP1-D-13
2017/18	Energold Drilling	PP1-D-14, PP1-D-15, PP1-D-16, PP2-D-16, PP1-D-18 and PP1-D-20
	Hidrotec	PP1-D-17, PP1-D-19, PP1-D-19, PP1-D-19, PP1-D-21, PP1-D-22 and PP1-D-23

Table 9.1: Summary of diamond drilling contractors and well installation – 3Q Project.

Cores were sampled for analysis of Relative Brine Release Capacity ("RBRC") during core logging. Samples were collected with the purpose of obtaining an approximate thickness-weighted coverage of the lithological units encountered in the cores. Core samples were placed in 2–inch diameter PVC sleeves, caps were tightly fitted on both ends, and plastic foil was wrapped around the entire sample.

Core samples were shipped to D.B. Stephens and Associates Laboratory in Albuquerque, New Mexico, USA, for RBRC analysis, according to a methodology developed by the laboratory. The RBRC method provides an estimate of the standard hydrogeological property known as Specific Yield ("Sy"), which is the volume of pore solution that will readily drain from a geologic material (see Section 1.4.2).





To conduct the analysis, the undisturbed (or remolded) sample is saturated in the laboratory using a sitespecific brine solution. The bottom of the sample is attached to a vacuum pump using tubing and permeable end caps. The top of the sample is fitted with a perforated latex membrane that limits atmospheric air contact with the sample, to avoid evaporation and precipitation of salts. The sample is then subjected to a suction of 0.33 bars for 18 to 24 hours.

The volumetric moisture (brine) content of the sample is calculated based on the density of the brine, the sample mass at saturation, and the sample mass at 'vacuum dry'. The difference between the volumetric moisture (brine) content of the saturated sample and the volumetric moisture (brine) content of the saturated sample and the volumetric moisture (brine) content of the 'vacuum dry' sample is the "relative brine release capacity". A total of 307 RBRC samples were used from the two rounds of diamond drilling. A summary of results is provided in Table 9.2.

Lithological Unit	RBRC (%)	Number of Samples
Hyper-Porous Halite	14.74	66
Upper Sediments	9.12	14
Porous Halite	6.33	97
Massive Halite	3.85	84
Lower Sediments	5.18	12
Fanglomerate	11.23	33
Hydrological Basement	1.73	1
		TOTAL 307

Table 9.2: Summary of RBRC results from the diamond cores.

As the drilling progressed, brine sampling was conducted with double and simple packer systems, depending on the lithological conditions (Section 10.2.2). Observation wells were constructed in the diamond boreholes with two inch PVC casing and screen. After construction, the wells were developed and cleaned by air lift methods, evacuating the brine until clear fluid was produced.

Monitoring, logging and downhole geophysics services (short and long normal resistivity) for the diamond drilling program was provided by Conhidro. A standard diamond drilling setup at the 3Q Project is shown in Photo 9.1, and review of the core is shown in Photo 9.2.







Photo 9.1: Aerial view of diamond drilling platform.



Photo 9.2: Reviewing diamond core, at a storage warehouse in Fiambala.





9.3 ROTARY DRILLING

Andina Perforaciones SRL was responsible for the rotary drilling and also the pumping tests, during the 2016/17 Program. AGV carried out the rotary drilling during the 2017/18 Program. The drilling was traditional, with circulation of bentonite mud, prepared with brine that was obtained at each drilling platform. This method was used for installation of both pumping wells, and for any observation wells that were required in addition to those installed by diamond drilling.

The pumping wells were drilled with a tri-cone bit, at 8, 12 and 15-inch diameter, with installation of 8inch PVC casing and screen. Gravel was placed around the screen. After installation, wells were cleaned with a four inch submersible pump, until clear fluid was produced. Observation wells were drilled at 6 or 8 inch diameter and were installed with 2 inch PVC screen and casing.

Monitoring, logging and downhole geophysical services for the rotary drilling program was provided by Conhidro. Downhole geophysical surveys included normal resistivity (short and long), single point resistance, and spontaneous potential. A rotary drill setup on 3Q Salar is shown in Photo 9.3.



Photo 9.3: Rotary drill setup on 3Q Salar.





10 SAMPLE PREPARATION, ANALYSES AND SECURITY

10.1 OVERVIEW

All field program oversight (for example, sample collection, drilling, well construction, QA/QC, and secure transport) was performed by Waldo Perez, Ph.D., P. Geo. Based on a review of these components, the QP considers that the 3Q Project dataset and QA/QC procedures are acceptable for evaluation of a brine resource, with no significant and systematic bias.

10.2 SAMPLE COLLECTION

10.2.1 Surface Brine and Stream Methods

The chronology of surface brine sampling is shown in Figure 8.2. Surface brine sampling methods have been comparable for all field programs, and were as follows:

- The salar surface crust was excavated with a pick and shovel or with heavy equipment, to a depth of approximately 1 m (Photo 10.1).
- The excavated hole was purged of brine and the brine level was allowed to recover.
- Samples were collected in 500 mL plastic bottles that were rinsed with brine before sample collection.



Photo 10.1: Collecting brine samples from shallow hand-excavated pits.:





The methods for collecting lake brine samples have also been comparable for all program. They were as follows:

- Samples were collected at mid-depth.
- Deeper sectors were sampled from an inflatable boat; shallower sectors with hip waders (Photos 10.2 and 10.3).
- A 2.2 L water collection device was used which could be closed at the desired depth by dropping a weight down the suspension line (Photo 10.3)
- When the sample was retrieved from depth, it was transferred to a 500 mL bottle.
- The depth to the bottom of the lake was measured, with a weighted rope.



Photo 10.2: Collecting samples and performing soundings in Laguna 3Q, with hip waders.







Photo 10.3: Collecting samples from Laguna 3Q, from a boat.

Sampling and flow monitoring of surface water streams and rivers was conducted throughout the area that drains to the 3Q Complex. These measurements continue to be collected on an ongoing basis. The methods are as follows:

- Water velocity is measured at several points across a suitable stream reach, using a current meter (Photo 10.4).
- Back in the office, the velocity measurements and the associated cross-sectional areas are used to calculate flow through the reach.
- A streamflow sample is collected in a 500 mL plastic bottle.
- Field parameters are measured (pH, Eh, temperature, conductivity) (Photo 10.5).







Photo 10.4: Measuring streamflow in 3Q River.



Photo 10.5: Measuring field parameters in streamflow.





10.2.2 Subsurface Brine Sampling

Packers were used to collect brine samples from discrete formation levels in the diamond boreholes (Photo 10.6). Samples were collected primarily with a simple packer apparatus, with some use of a double packer. The simple packer method for brine sampling from the diamond drill boreholes is as follows:

- When the diamond machine drills to the bottom of the desired sampling interval, the bars are raised to just above the top of the target sampling interval.
- A fluorescein dye solution sufficient to tint the water in the sampling interval is injected through the bars, to tint all the brine in the bottom several metres of the borehole.
- The packer is lowered by wireline to the top of the desired sampling interval. It is then inflated from the surface, which isolates the sampling interval from the remaining (higher) section of the borehole.
- Brine is purged from the packed interval using a compressor-driven airlift apparatus, until at least three packed interval volumes are removed, and the fluorescein tint is no longer evident in the purged brine (Photo 10.7).
- A brine sample is collected into a 500 mL container.

The double packer method is as follows:

- When the diamond machine drills to the target depth of the borehole, the bars are raised to some distance above the top of the desired sampling interval. This distance may depend on any concerns that the driller may have with regard to borehole caving.
- A fluorescein dye solution sufficient to tint the brine inside and outside the sampling interval, is injected through the bars.
- The double packer is lowered so that it straddles the desired sampling interval. It is then inflated from the surface, which isolates the sampling interval from the remaining (higher and lower) sections of the borehole.
- Brine is purged from the packed interval using a compressor-driven airlift apparatus, until at least three packed interval volumes are removed, and the fluorescein tint is no longer evident in the purged brine.
- A brine sample is collected into a 500 mL container.






Photo 10.6: Packer assembly being placed in PP1-D-17.



Photo 10.7: Progressive clearing of the tracer from the packed interval, as purging proceeds.





10.2.3 Pumping Tests

The methodology for pumping tests is as follows:

- A step test is conducted to determine an effective pumping rate for the constant rate test.
- During the tests piezometric levels are measured in the pumping well and in all observation wells and other pumping wells that are available at the given platform, with data loggers and manual measurements.
- Test data are interpreted with specialized software (Infinite Extent, full version 4.1.0.1; Stepmaster version 2.1.0.0 (both by Starpoint Software Inc.,) and Well Functions from the program GWW version 1.10; see King (2017)) or by calibration with MODFLOW and PEST (see Section 8.7)
- During some pumping tests an attempt was made to determine effective porosity, by injecting a fluorescein tracer into an observation well and recording the time of travel to the pumping well. Initial results indicated that the wells were too distant from each other for tracer capture to occur during the pumping period. Subsequent tests have achieved some limited success in evaluating effective porosity with this method.
- During the 2016/17 Program, trench pumping tests were performed for hydraulic testing of the shallow crust (King 2017). For the trench tests, pumping was conducted from a "pumping trench", with drawdown monitoring in two smaller "observation trenches". A fluorescein tracer was used in one of these tests, to provide an estimate of effective porosity, for comparison with laboratory RBRC measurements.

The apparatus for a typical pumping test conducted at the site is shown in Photo 10.8.



Photo 10.8: Pumping test setup at well PB2-R-3.





10.3 SAMPLE PREPARATION

No preparation was required for the brine samples. Samples were delivered by NLC company personnel to Andesmar Transport Company in La Rioja, in the province of Rioja. Andesmar delivered the samples by truck to Alex Stewart Laboratories ("ASL") in Mendoza, Argentina, for analysis.

10.4 BRINE ANALYSIS

ASL is an independent commercial ISO 9001-2008-certified laboratory and was selected for assaying all brine samples from the 3Q Project. ASL used the following analytical methodologies:

- ICP-OES (inductively-coupled plasma—optical (atomic) emission spectrometry) was used to quantify boron, barium, calcium, lithium, magnesium, manganese, and potassium.
- An argentometric method was used to assay for chloride.
- A gravimetric method was used to analyze for sulfate.
- A volumetric analysis (acid/base titration) was used for evaluation of alkalinity (as CaCO₃).
- Density and total dissolved solids were determined through a gravimetric method.
- A laboratory pH meter was used to measure pH.

10.5 FIELD QA/QC PROGRAM

10.5.1 Summary

QA/QC procedures used for the 2017/18 Program were comparable to the earlier Programs (King, 2016 and 2017). Primary components of the field QA/QC program for the 3Q Project included the following:

- A high-range reference sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from the southeast shoreline of Laguna 3Q where high grades were known to occur (through previous sampling).
- A mid-range reference sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from the eastern shoreline of Laguna 3Q where mid-range grades were known to occur (through previous sampling).
- A Round Robin analysis of the high- and mid-range bulk reference samples was conducted by ASL.
- A low-range reference sample (essentially a field blank) was inserted at a frequency of approximately 1 in 15 samples. The bulk sample used for this purpose was obtained from municipal tap water at the Project office in Fiambalá, the nearest town to the site.
- A field duplicate sample was inserted into the sample stream at a frequency of approximately 1 in 15 samples.
- A program of laboratory duplicate sampling was conducted by ASL.
- Sets of independent field duplicate samples were collected by the QP during the last three field programs (Section 11).





QA/QC results presented in the following subsections relate to samples collected during the 2017/18 Program, except for the bulk reference samples, which were the same as those used for the 2016/17 Program.

10.5.2 Round Robin Analysis of Bulk Reference Samples

The bulk reference samples described above were used as a means of evaluating analytical precision and drift, as the program proceeded. As a first step in using these bulk samples, a Round Robin was conducted by ASL for the mid-range and high-range samples, as part of the 2016/17 Field Program. The purpose was to certify the average content and standard deviation of lithium, potassium and calcium using ICP-EOS analysis from certified laboratories. The same reference samples were used for the 2017/18 Program. Details of the Round Robin analysis of these samples was first reported by King (2017).

The mid-range reference sample was analyzed by the following laboratories: ASL (Mendoza), ASL (Jujuy), SGS, Segemar and Induser. The high-range reference sample was analyzed by ALS (Mendoza), ALS (Jujuy), SGS, ACTLABS, Sherrit, Segemar and Induser.

The results of the Round Robin analysis provide certified mean values and standard deviations for the three tested analytes, in the mid- and high-range reference samples. These statistics are useful for evaluating analytical precision and potential drift as the field program proceeds.

10.5.3 Reference Sample Performance in the Sampling Program

As described above, reference samples were used as a benchmark for ongoing evaluation of analytical drift. Mid- and high-range reference sample performance results for lithium are shown in Figures 10.1 and 10.2, respectively. Figures 10.3 and 10.4 show mid- and high-range results (respectively) for potassium. As shown in the high-range figures, most reference sample results fall within ± two standard deviations of the mean, which is considered the primary control limit for the project. The medium-range samples for both lithium and potassium display results that are skewed high but mostly fall within the three standard deviation boundaries.

Results from the field reference sample program are considered to be within acceptable ranges and show no evidence of unacceptable analytical drift over time.







Figure 10.1: Lithium results for mid-range reference samples, compared with Round Robin Mean and Standard Deviation.



Figure 10.2: Lithium results for high-range reference samples, compared with Round Robin Mean







Figure 10.3: Potassium results for mid-range reference samples, compared with Round Robin Mean.



Figure 10.4: Potassium results for high-range reference samples, compared with Round Robin Mean.

10.5.4 Field Duplicate Sample Performance

Lithium, potassium and magnesium results for 20 field duplicate samples are plotted in Figures 10.5 to 10.7, respectively, against their original counterparts. All sample datasets plot close to the respective 1:1 Line; however, a single magnesium data point is an outlier (Figure 10.7). The overall precision of the data is considered acceptable.







Figure 10.5: Field duplicates versus original sample results for lithium (mg/L).



Figure 10.6: Field duplicates versus original sample results for potassium (mg/L).







Figure 10.7: Field duplicates versus original sample results for magnesium (mg/L).

10.5.5 Field Blank Performance

Lithium and potassium results for 36 field blank samples (low-range reference samples) are shown in Figures 10.8 and 10.9, respectively. The results assess for cross-contamination in the laboratory and the field (for example, whether the instrumentation was cleaned sufficiently between analysis of samples). Lithium and potassium were not detected in any blank sample, although a single blank sample came close to the detection limit for potassium (Figure 10.9). Overall, field blank performance is considered acceptable.







Figure 10.8: Blank sample results for lithium.



Figure 10.9: Blank sample results for potassium.

10.6 LABORATORY DUPLICATE ANALYSIS

ASL conducts internal laboratory checks on overall analytical accuracy for selected primary parameters. Results for lithium and potassium are shown in Figures 10.10 and 10.11, respectively, for all 50 laboratory





duplicate analyses performed by ASL during the 2017/18 Program. The QP is satisfied that these results fall within an acceptable range and are considered acceptable.



Figure 10.10: ASL internal laboratory duplicate results for Lithium.



Figure 10.11: ASL internal laboratory duplicate results for potassium.





10.7 SAMPLE SECURITY

An established chain of custody procedure was used for 3Q Project sampling, storage, and shipping. Samples were periodically driven in Project vehicles to La Rioja, approximately a seven-hour drive from the 3Q Project. In La Rioja, the samples were delivered to Andesmar Transport for immediate truck shipment to ASL in Mendoza, Argentina. Samples were under the control of qualified staff at all times. The QP considers that the sample security measures used for the program are acceptable.





11 DATA VERIFICATION

11.1 PROJECT REVIEW AND INTERACTION

Dr. Mark King (QP) provided review and input to the design and execution of three rounds of field exploration at the 3Q Project. The QP visited the 3Q Project during all three Field Programs, including twice during the most recent Program (October 21-23, 2017; April 10-14, 2018). Independent sampling was conducted during all three Programs, with previous results first documented in earlier reports (King 2016 and King 2017).

During all site visits, sample collection, packaging, and transport as well as field QA/QC procedures and data recording were reviewed. Field methods were observed, including: packer sampling, sample handling and shipping, diamond drilling, pumping tests, core logging and handling, and shallow trenching. Previous drilling locations were visited, results available to date were reviewed, and future exploration plans were discussed. For all programs, the QP reviewed laboratory results and maintained ongoing technical discourse with Dr. Waldo Perez and other NLC technical staff and contractors.

Project cores and cuttings (and associated logs) were systematically reviewed on several occasions. For both the current and previous Mineral Resource Estimate tasks, the QP worked out of the Mendoza office of NLC, to observe and participate in solid model and brine model development.

Based on these activities, it is the opinion of the QP that an acceptably rigorous set of field and data interpretation methods were used in preparing the 3Q Project Mineral Resource Estimates.

Claim and permitting information has not been verified by the QP. This information was received in the form of a Title Opinion document prepared by the legal offices of Martin and Miguens, based in Buenos Aires (Section 3).

11.2 INDEPENDENT DUPLICATE SAMPLING

Independent QA/QC duplicate sampling was conducted by the QP during the 2015/16 Program and the 2016/17 Program and were first reported in King (2016) and King (2017), respectively. All results were considered acceptable. The QP also collected independent sampling during the 2017/18 Program and results are reported herein. Samples were collected from selected wells, surface water bodies and field standards. Sampling methodology used by the QP was identical to that used by NLC personnel for the original samples. Samples collected by the QP were submitted with regular field program samples (collected by NLC personnel) with sample numbering and locations that were known only to the QP.

The results of lithium, potassium, manganese and magnesium concentrations of the original samples and the duplicate samples are shown in Figure 11.1 through Figure 11.4, relative to a 1:1 line. Overall, these duplicate data are in reasonable agreement with the original samples and considered acceptable.







Figure 11.1: Independent duplicate lithium samples versus original samples, relative to a 1:1 line.











Figure 11.3: Independent duplicate magnesium samples versus original samples, relative to a 1:1 line.









12 MINERAL PROCESSING AND METALLURGICAL TESTING

12.1 INTRODUCTION

NLC has conducted a complete characterization study for the 3Q Project brine to develop the necessary process for producing battery grade Lithium Carbonate (Li₂CO₃). This section (Section 12) was prepared by Claudio Suarez of NLC.

12.2 BRINE CHEMISTRY INTERACTIONS

Average 3Q Project brine composition for the 400 and 800 mg/L lithium (Li) cut-offs is shown in Table 12.1. These data indicate that the brine is saturated in sodium chloride (NaCl). The brine has a high calcium (Ca) content which produces natural precipitation of $CaCl_26xH_2O$ (Antarctite) in cold weather. At the 3Q site, temperatures in this range could occur at night during the summer, and all day (24 hours) during the winter. This precipitation phenomenon has been observed at pan and pond scale. Further extraction of calcium is achievable by adding an external source of sulfate (SO₄). This addition precipitates calcium as gypsum. Due to the low sulfate content of the brine, the risk of lithium loss due to Li_2SO_4 precipitation is insignificant.

Cut-off	H ₂ O	H ₃ BO ₃	Na⁺	K⁺	Mg⁺⁺	Ca++	Li⁺	CI	SO4	Sr++
400 mg/L Li	72.67%	0.38%	7.08%	0.48%	0.17%	2.52%	0.051%	16.58%	0.026%	0.048%
800 mg/L Li	71.50%	0.63%	6.09%	0.71%	0.14%	3.56%	0.083%	17.20%	0.032%	0.064%

Table 12.1: Average Chemical Composition (%) of 3Q Brine with 400 and 800 mg/l Li cut-off.

Magnesium (Mg) content can also affect recovery of lithium, due to the potential formation of lithium carnallite salts in the ponds. However, the magnesium concentration in the brine is not high enough to cause this loss. Nevertheless, magnesium must be removed from the brine because during the production of Li_2CO_3 in the chemical plant, the occurrence of magnesium increases the soda ash (Na_2CO_3) requirement.

Boron (B) is also an important element to consider in brine processing, because it contaminates the final product, similar to magnesium and calcium. For this reason, boron must be reduced by precipitating H_3BO_3 in CaCL₂ ponds. To accomplish this, the pH will be adjusted in order to saturate the H_3BO_3 with HCl. Boron remaining downstream can be completely removed by solvent extraction method ("SX") in a stage previous to carbonation in the chemical plant.





Strontium (Sr) is removed in ponds by precipitation of $SrCl_2x2H_2O$. Strontium may also precipitate in the form of $SrSO_4$ due to the natural sulfate content of the brine.

12.3 BRINE PROCESSING

NLC is developing a processing plan for the 3Q Project, to:

- develop an appropriate system for brine processing; and
- obtain a final product of lithium carbonate with 99.9% of purity.

The plan includes:

- simulation of brine evaporation processes;
- brine evaporation laboratory tests;
- pilot assays of brine evaporation in ponds; and
- identification of reference stage sequences (benchmarking).

Through simulations and lab tests, the most likely stage sequence for brine processing has been identified (Figure 12.1).







Figure 12.1: Block diagram of the brine processing procedure.

12.4 SOLAR EVAPORATION POND CONSTRUCTION

The evaporative process is a cost–effective means for concentrating large brine volumes in an arid setting like that of the 3Q Project. Evaporation takes place in solar ponds. The size of the ponds depends on the grade of the brine, the evaporation rate, and the desired throughput. Since the 3Q Project contains a core of elevated grade in the north, it is reasonable to start brine extraction in the north and follow later with an increased number of ponds as grade decreases.





Brine would be transferred from brine extraction ponds to evaporation ponds by pumps. Once the brine starts the evaporation process in ponds, the brine concentrates, and highly concentrated saline species precipitate along the pond system. As the brine continues to concentrate, lithium concentration eventually reaches the desired value.

A typical pond cross section is shown in Figure 12.2 and wall details are shown in Figure 12.3. Ponds would be built on the salt flat, and the membrane would be isolated from the salt crust and the phreatic level, to avoid membrane damage. To facilitate the operation of salt harvesting, maintenance, and other activities, the walls of the ponds would be constructed to provide a secure access. Ponds would consist of three wall types:

- perimeter wall;
- shared wall (between two ponds); and
- harvesting main wall.



Figure 12.2: Typical pond cross section.







Figure 12.3 Schematic of the pond walls.

12.5 EVAPORATION POND OPERATION

The solar evaporation process can be described by the phase diagram shown in Figure 12.4, which represents the different saline species that 3Q Project brine will produce during evaporation. It is important to note that this diagram does not consider the calcium coordinate, and the solid phases associated with that species. The green line on Figure 12.4 indicates the evaporation route, which is the precipitation sequence that will provide the following salts:

- NaCl KCl; and
- NaCl SrSO₄ SrCl₂x2H₂O CaCl₂x6H₂O H₃BO₃ KClxMgCl₂x6H₂O.

The pond design has taken the evaporation route into account and considers three groups of ponds (Figure 12.5):

- Pre-Concentration Ponds ("PC ponds") where NaCl KCl will precipitate;
- CaCl₂ Ponds where NaCl SrSO₄ SrCl₂x2H₂O CaCl₂x6H₂O H₃BO₃ KClxMgCl₂x6H₂O will precipitate; and
- Ca extraction ponds where CaCl₂6xH₂O (Antarctite) precipitates and is mechanically removed.

The process starts with pumping brine from the production wells to the pre-concentration ponds, where NaCl (halite) and KCl (sylvite) are removed. Subsequently, concentrated brine with lower NaCl content is transferred to the CaCl₂ ponds. The primary role of these ponds is to precipitate calcium chloride (CaCl₂) salts, thus concentrating lithium. Photos 12.1, 12.2 and 12.3 show evaporation ponds that have been constructed for evaporation and process testing, at the 3Q Project.







Figure 12.4: Phase Diagram and brine behaviour for the 3Q Project brine.



Figure 12.5: Block diagram of the solar evaporation pond system for the production of high lithium concentration brine.







Photo 12.1: Three pre-concentration ponds connected in series with four CaCL2 ponds.



Photo 12.2: Two evaporation ponds connected in series, on the 3Q Salar core.



Photo 12.3: Precipitation of antarctite within the ponds.

12.6 LITHIUM CARBONATE PLANT

Concentrated brine will be transported in trucks from the 3Q Salar sector of the 3Q Project to the chemical plant, where lithium carbonate will be produced. The Company has identified a suitable location and is





working on an agreement to convert the area into an industrial park. At the plant, the concentrated brine will go through purification stages before entering a carbonation stage. For this purpose, the conventional process currently used by lithium carbonate plants indicates the following steps:

- removal of residual calcium by addition of anhydrous sodium sulfate;
- boron removal by SX;
- treatment of boron-free brine with mother liquor; and
- subsequent treatment of the purified brine with a mix of slaked lime and soda ash solution, to eliminate magnesium.

Addition of Anhydrous Sodium Sulfate (Na₂SO₄)

Once the brine has been concentrated in K/CaCl₂ ponds, it is transferred to the calcium removal stage by adding anhydrous sodium sulphate (Na₂SO₄). This results in gypsum and halite as precipitated salts. Other sulphate sources may be used, provided they are free of magnesium, calcium, and boron. This reduction of calcium content in the brine is required to increase lithium concentration, and to reduce the amount of soda ash required in the chemical plant. The reaction caused by the addition of anhydrous sodium sulphate is as follows:

 $Ca^{2+} + Na_2SO_4 + 2H_2O \rightarrow CaSO_4 \cdot 2H_2O$

Boron Solvent Extraction

The lithium carbonate production process starts with the removal of boron content at an SX Plant. Brine is sent to SX units where it is mixed with a specific extractant dissolved in an appropriate thinner. Subsequently, boron-free brine can be neutralized with mother liquor of lithium carbonate. The stripping (re-extraction) of boron from the organic phase is carried out by means of an alkaline aqueous solution. This solution is a mixture of mother liquor coming from the Lithium Carbonate Plant, and a 50% v/v of NaOH solution, dosed to keep alkaline pH in re-extraction (pH between 10 and 11). The solution containing boron is discharged into a high-boron tank, and subsequently it is discarded in the disposal ponds.

Removal of Residual Magnesium

Boron-free brine is transferred to the chemical plant, where it is subjected to three processing stages:

Stage 1: The purpose of this stage is to completely remove calcium content and part of the magnesium content in the boron-free brine. The boron-free brine is the product from the SX boron removal process. In this stage boron-free brine is combined with mother liquor (which contains carbonate solution) from the lithium carbonate precipitation stage (Stage 3) at 60°C. This dilutes the lithium content from 4% to 1%, and eliminates part of the magnesium which combines with the carbonate of the mother liquor. All calcium content is removed as calcium carbonate. Magnesium and calcium solids are separated from brine by means of a filtration process.





• Stage 2: Brine from Stage 1 is transferred to Stage 2, where it is combined with a solution of slaked lime and soda ash at a temperature of 65°C, to remove residual magnesium. Magnesium and calcium solids are separated from the brine by means of a filtration process.

Lithium Carbonate Precipitation

Stage 3: The brine from Stage 2 contains approximately 1% of lithium by weight, dissolved as lithium chloride (LiCl). The brine is transferred to three reactors in series, where lithium carbonate is precipitated by adding a sodium carbonate solution (at 28% weight). The reaction takes place at a temperature of 70°C, to favor lithium carbonate solubility. The product of the reaction is filtered, to separate the liquid phase (mother liquor) from the solid phase, which is the lithium carbonate (Li₂CO₃) product.

The lithium carbonate product is washed with soft water (water with sodium and chloride, less than 50 ppm), to meet the expected purity of 99.9%, which is considered battery grade product. The product is then dried, classified and packed.





13 MINERAL RESOURCE ESTIMATE

13.1 METHOD OVERVIEW

A Mineral Resource Estimate was developed for the 3Q Project using the three-dimensional block modeling software known as Vulcan. The software was operated by Argentinean Geologist Daniel Quiroga, a specialist in Vulcan modelling. The model was supported by geological, hydrogeological and geochemical data and interpretations provided by 3Q Project geologists and the QP. A targeted check of Vulcan results was conducted with Leapfrog software.

The modeling procedure and results were reviewed by the QP and are considered valid and appropriate for a Measured, Indicated and Inferred Mineral Resource Estimate, as defined by the CIM and referenced by NI 43-101. The modeling method consisted of the following steps:

- 1. The footprint of the Resource zone was defined, based on the interpreted boundaries of the salar, and the deposit characteristics.
- 2. Drilling, seismic and VES results were interpreted to map the distribution and thickness of primary hydrostratigraphic units represented in 3Q Salar. This step represented an update and revision to the unit mapping conducted for the 2017 Mineral Resource Estimate (King, 2017).
- 3. The mapped salar units were interpreted along a series of two dimensional (2D) sections, which were then input to Vulcan.
- 4. Interpolation between the 2D sections was conducted within Vulcan, to develop a full 3D geological model.
- 5. The 3D geological model was discretized into blocks (block model).
- 6. The total volume of each layer was calculated.
- 7. RBRC samples were assigned to each layer, and the data were used to estimate the average drainable volume of each unit.
- 8. Brine sample results were used to interpolate 3D concentration distributions throughout the geological model.
- 9. Brine distributions were mapped according to a range of cut-off values.
- 10. Brine grade and drainable volume were used to determine the quantity of brine constituents in each layer.
- 11. Measured, Indicated and Inferred categories were assigned based on numerical criteria for the degree of certainty in the 3D brine interpolation.
- 12. A targeted check on the hydrostratigraphic and brine models was conducted by Mercator Geological Services Ltd. using Leapfrog software. The total volume of each hydrostratigraphic unit was recalculated, brine data were re-interpolated, and lithium mass was re-calculated.





The QP has reviewed the model construction, including:

- layer surfaces and volumes,
- brine interpolations, and
- comparison of Vulcan and Leapfrog results.

The QP considers the work to be reasonable and appropriate for Resource Estimation. Additional detail on each step is provided in the subsections below.

13.2 Hydrostratigraphic Model Development

The surface footprint of the Resource Zone was based on interpreted salar unit boundaries, deposit characteristics, and surface geophysics. The footprint is shown in Figure 13.1, and is described as follows:

- The east and west boundaries were defined as the interpreted outer limits of the salar basin;
- The northern boundary (i.e., in the vicinity of Laguna 3Q) is generally defined by the southern shore of Laguna 3Q, except for the Upper Sediments unit which extends under the lake and into the alluvial fans on the north, east and west shores of the lake; and
- The Resource Zone extends to the south boundary of Laguna Verde, except for the Upper Sediments unit, which extends some distance south of Laguna Verde.

In the next step, drilling (Section 9) and geophysical results (Seismic and VES; Section 8) were interpreted to define the distributions of primary hydrostratigraphic units within the Resource Zone. Geologic and hydrogeologic information sources considered in this step included:

- A visual assessment of relative porosity and permeability in cores, and downhole geophysics;
- Laboratory analytical results for RBRC (indicative of Sy, as discussed in Section 9);
- Borehole logs; and
- Seismic and VES Surveys.

The overlying geological materials in the Resource Zone were delineated into six primary hydrostratigraphic units, as presented in Section 6. Basement rock was excluded from the Resource Zone, based on the assumption that it did not contain brine. The interpreted plan view distribution of each unit is shown in Appendix 2. The units are briefly described as follows (from upper to lower) with additional detail provided in Section 6:

- 1. Hyper-Porous Halite medium to coarse halite crystals with a high inter-crystalline porosity;
- 2. Upper Sediments sandstone, gravel, and siltstone; medium visual porosity;
- 3. Porous Halite medium to coarse crystals with moderate visual porosity;





- 4. **Massive Halite** fine to very coarse white, gray, red, and black cubic crystals, with low visual porosity; some intercalation of reddish clay and possibly organic matter;
- 5. Lower Sediments sand and siltstones containing minor gypsum laminae; and
- 6. **Fanglomerate** clasts of fanglomerates, medium-coarse sandstones, and sedimentary breccias ranging from 2-20cm in diameter with a red-gray, sandy-shale matrix.

The first five units are lithologically similar to the five units used in the previous Mineral Resource Estimate (King, 2017), with some minor nomenclature changes. Meanwhile, the deepest unit (Fanglomerate) is a new addition to the hydrostratigraphic conceptualization for the 3Q Project. This unit was encountered in six boreholes in the 2017/18 Program. Earlier drilling encountered this unit but did not extend far enough into it to conclusively identify it as a discrete unit.

Transverse and longitudinal sections were developed across the salar, for the six primary hydrostratigraphic units. The sections were then input to Vulcan, and interpolated to produce a full 3D hydrostratigraphic model, with upper and lower surfaces for each unit. The final unit delineations are shown in Figure 13.1. The volume and average thickness of each unit are provided in Table 13.1. In this process, the northern and southern lakes (Lagunas 3Q and Verde) were mapped as "units" in Vulcan, on the basis of depth soundings throughout the lakes (Section 8).

Primary	Average	Volume	Volume	Average	Resource (%) ⁴	
Hydrostratigraphic	Thickness	(m³)1	(% of Total	Specific		
Unit	(m)1		Model) ¹	Yield		
				(%) ²		
Hyper-Porous Halite	28.2	1,873,280,000	5.7	14.74	11.74	
Upper Sediments	47.4	4,360,000,000	13.2	9.13	19.57	
Porous Halite	94.9	7,428,160,000	22.7	6.33	19.04	
Massive Halite	140.4	10,001,120,000	30.5	3.85	15.21	
Lower Sediments	55.4	4,567,040,000	13.9	5.18	10.21	
Fanglomerate	67.1	4,535,520,000	13.8	11.23	22.95	
Laguna 3Q	1.0 ³	13,600,000	0.4	100	0.89	
Laguna Verde	0.5 ³	11,040,000	0.3	100	0.40	

Table 13.1: Summary of primary hydrostratigraphic units in the Vulcan model.

Notes:

1. Unit thicknesses and volumes are from the Vulcan geological model. "Volume" is the bulk volume of the unit, not reflective of porosity.

2. Specific Yield is estimated as the average of all RBRC results collected from the unit. Additional information on RBRC results is provided in Section 9

3. These values pertain to lake depth.

4. Total resource within 400 mg/L Li cut-off







Figure 13.1: Configuration of primary units in the Vulcan Mineral Resource model.





13.3 BRINE MODEL DEVELOPMENT

Results for brine samples collected from throughout the Resource Zone were interpolated in Vulcan using the method of Inverse Distance. Distributions were mapped for brine parameters of primary interest, including:

- Lithium;
- Potassium;
- Magnesium;
- Calcium;
- Boron; and
- Sulfate.

Details of the brine samples used for brine chemistry interpolation were as follows:

- Samples used in the brine model were collected from observation wells, pumping wells, discrete level packers (from diamond drill boreholes during drilling), and directly from the two lakes in the Resource zone (Laguna 3Q and Laguna Verde).
- Samples from surface pit sampling were not used in the brine model.
- A total of 193 brine samples were used in the interpolations, including samples from wells, boreholes (packers), and lakes.

The distributions of lithium and potassium within the Vulcan model are shown in Figures 13.2 and 13.3, respectively. Figure 13.2 shows that within the Resource zone, there is a decreasing trend from north to south, with grades ranging from greater than 1000 mg/L in isolated northern locations to less than 400 mg/L in isolated southern locations. The general orientation determined for the mineral body is as follows:

- Azimuth = 170;
- Plunge = 0; and
- Dip = -90.







Figure 13.2: Distribution of lithium in the top layer of the Vulcan Resource model.









13.4 MINERAL RESOURCE ZONES AND CUT-OFF

The Vulcan software was used to delineate Measured, Indicated and Inferred Mineral Resource zones within the block model, according to the search specifications in Table 13.2.

Resource	Dimensi	ons of the Search E	Minimum Number		
Category	Major Axis	Semi-Major Axis	Minor Axis	of Samples	
Measured	600	50	600	3	
Indicated	1200	100	1200	2	
Inferred	6000	500	6000	1	

Table 13.2: Sample search specifications for Mineral Resource categorization.

A cut-off analysis was then conducted, to determine the following, relative to a range of cut-off grades:

• equivalent lithium carbonate tonnage;





- average lithium grade; and
- Resource category configuration.

The results of this analysis are shown in plan view in Figure 13.4.



Figure 13.4: Resource category configuration, for a range of cut-off values.

13.5 MINERAL RESOURCE MODEL COMPONENT CHECKS

An independent check of targeted Resource model components was conducted by Mercator Geological Services Ltd. ("Mercator", Dartmouth, Nova Scotia, Canada), a company specializing in Mineral Resource Estimation. The check was based on the following information provided to Mercator:

- Geological unit surfaces from the Vulcan model; and
- The brine dataset that was used as input to Vulcan.

This work consisted of the following checks:

- Mercator used Leapfrog software to re-calculate the total volume of the geological model, based on unit surfaces exported from Vulcan.
- Lithium data were re-interpolated using the Radial Basis Function in Leapfrog. Based on this re-interpolation, the average grade within the geological model was calculated.

The primary results from this targeted check were as follows:

• The total volume difference between the original model (Vulcan) and the reconstructed model (in Leapfrog) was -0.23% (slightly larger volume in Leapfrog). The volume discrepancies between





individual units were both negative and positive; these were primarily due to surface irregularities arising from the transfer between software packages.

• The average lithium grade within the Leapfrog model was 2.1% greater than that in the Vulcan model.

These results show no indication of systematic, non-conservative bias in the Vulcan determinations for model volume and average grade.

13.6 MINERAL RESOURCE ESTIMATE

Mineral Resources were estimated according to the methods described in Sections 13.1 to 13.4. They are summarized in Table 13.3 for two cut-off grades: 400 and 800 mg/L. As shown in Figure 13.4, the Mineral Resource defined by the 400 mg/L cut-off extends for the full extent of the Mineral Resource zone, from Laguna 3Q in the north to Laguna Verde in the south. Meanwhile, the Mineral Resource within the 800 mg/L cut-off is limited to approximately the northern third of the Mineral Resource zone. The percent of the Resource within each of the primary hydrostratigraphic units is shown in Table 13.1.

The presentation of Mineral Resources in this Report conforms with NI 43-101 and CIM Standards. As defined under these standards, mineral resources that are not mineral reserves do not have demonstrated economic viability. Some of the key economic considerations that relate specifically to brine resources include factors such as:

- Potential for in situ brine dilution (mixing) with freshwater, during production pumping;
- Long term sustainability for brine production from the salar aquifers;
- Potential environmental effects of brine pumping; and
- Confirmation of aquifer Sy and permeability trends.

At this time, these factors represent sources of mining uncertainty to the 3Q Project, and to any brine project at the Resource stage. They would be further evaluated as part of any follow-up assessment of economic viability, along with more universal sources of mining uncertainty, such as:

- Process design and cost;
- Engineering design and cost; and
- Future demand for mined products.





Table 13.3: Summary of the Mineral Resource Estimate at lithium grade cut-off values of 800 and 400 mg/L (Effective Date: August 15, 2018)

	Lithium Grade Cut-Off 800 mg/L					Lithium Grade Cut-Off 400 mg/L					
	Measured Indicated M&I Inferred					Measured	Indicated	M&I	Inferred		
	Volume (m3)					Volume (m3)					
	4.54E+07 9.38E+07 1.39E+08 2.83E+07					1.52E+08	1.07E+09	1.22E+09	9.39E+08		
	Average Concentration (mg/L)					Average Concentration (mg/L)					
Lithium	1,010	1,006	1,007	1,239		701	602	614	584		
Boron	1,320	1,335	1,330	1,456		927	793	810	770		
Potassium	8,636	8,553	8,580	9,221		6,479	5,793	5,878	5,650		
Magnesium	1,782	1,688	1,718	2,079		1,894	2,034	2,017	2,637		
Calcium	43,679	43,037	43,246	48,421		32,777	30,251	30,565	32,519		
Strontium	776	772	773	873		613	579	583	605		
Sodium	73,242	74,212	73,896	70,769		83,948	86,264	85,976	84,861		
Sulfates	360	396	384	300		341	309	313	331		
		Tonn	age ¹			Tonnage ¹					
Lithium	46,000	94,000	140,000	35,000		107,000	646,000	752,000	548,000		
Lithium Carbonate	244,000	502,000	746,000	186,000		569,000	3,436,000	4,005,000	2,917,000		
Boron	60,000	125,000	185,000	41,000		141,000	850,000	991,000	723,000		
Boric Acid	342,000	716,000	1,058,000	235,000		808,000	4,862,000	5,670,000	4,134,000		
Potassium	392,000	802,000	1,194,000	261,000		987,000	6,211,000	7,197,000	5,304,000		
Potash	747,000	1,529,000	2,276,000	497,000		1,882,000	11,843,000	13,724,000	10,114,000		
Magnesium	81,000	158,000	239,000	59,000		288,000	2,181,000	2,470,000	2,476,000		
Calcium	1,981,000	4,036,000	6,017,000	1,368,000		4,992,000	32,433,000	37,425,000	30,526,000		
Calcium Cholride	5,486,000	11,177,000	16,663,000	3,788,000		13,824,000	89,810,000	103,634,000	84,530,000		
Sulfates	16,000	37,000	53,000	8,000		52,000	331,000	383,000	311,000		
	Ratios					Ratios					
Mg/Li	1.76	1.68	1.71	1.68		2.70	3.38	3.28	4.52		
K/Li	8.55	8.50	8.52	7.44		9.24	9.62	9.57	9.68		
SO4/Li	0.36	0.39	0.38	0.24		0.49	0.51	0.51	0.57		
Ca/Li	43.24	42.77	42.93	39.09	Γ	46.73	50.24	49.74	55.70		

Note 1. Tonnage values are rounded





14 ADJACENT PROPERTIES

There are no known properties adjacent to the 3Q Project where lithium prospecting has been conducted. The only known previous exploration campaigns were for gold and copper, and include the following:

- Work was conducted in 1995 to 1998 by El Dorado Gold Corporation, in the western area of the catchment (vicinity of Valle Ancho River) where they drilled, trenched and conducted a large geophysical and exploration campaign in an area that is spanned both Catamarca and La Rioja Provinces. The access road to the 3Q Project area was constructed at that time.
- Rio Tinto PLC conducted exploration, trenching and drilling in the vicinity of Valle Ancho River from 2004 to 2005.
- East of the salar basin the company Newcrest conducted drilling, trenching and mineral exploration in a porphyry, in 1995 and 1996. Rugby Minerals conducted additional exploration in the same area, in 2011.

The two nearest lithium brine prospects are at Maricunga Salar and Laguna Verde (both in Chile). Maricunga is located 56 km to the northwest, in Chile. An NI 43-101 Report was prepared on behalf of Lithium Power International (Flo Solutions, 2017) which documented a Measured, Indicated and Inferred Resource for Maricunga. The Laguna Verde Project is located 50 km NNE, also in Chile. Hinner (2009) prepared an NI 43-101 report for Etna Resources Inc., documenting an evaluation of this lithium prospect.

Further north, in the same Province in which the 3Q Project is located (Catamarca), are the Fenix Lithium Mine and the Sal de Vida Project. Both operations are located within the Hombre Muerto Salar, 250 km NNE of the 3Q Project.

It is noted that information on any property other than the 3Q Project is not indicative of the mineralization on the 3Q Project.





15 OTHER RELEVANT DATA AND INFORMATION

15.1 NUMERICAL MODEL OVERVIEW

A numerical groundwater flow and transport model is currently under development for the 3Q Project which, in the next stage of work, would be used to support a Reserve Estimate.

The model is being developed in FEFLOW, by Drs. Sergio Bea and Maria del Mar Alcaraz, both of Instituto de Hidrogeologia de Llanuras in Tandil, Argentina, with technical involvement of the QP. To date, the model has been advanced to the preliminary calibration stage. In ongoing work, the model will be further validated and then applied to address the following objectives, all of which support Reserve Estimation:

- To evaluate and optimize various production pumping scenarios for the 3Q Project;
- To evaluate potential environmental effects of pumping on surface water bodies at the 3Q Project; and
- To support a quantitative Estimate of 3Q Project Reserves.

These objectives would be addressed as part of a multi-disciplinary team, to ensure that any "modifying factors" are appropriately represented and evaluated in the numerical model. Model construction and calibration work conducted to date is summarized in the following subsections.

15.2 NUMERICAL MODEL DOMAIN

The groundwater model domain encompasses the 3Q Salar basin, as represented in the Vulcan Resource model (Section 13). The topographic surface applied to the top of the domain is shown in Figure 15.1. This surface was interpolated from a set of topographic level points collected in the last topographic campaign (May 2018). The bathymetry of the lakes (Lagunas 3Q and Verde) was obtained from previous surveys (Section 6.6.2).

The six primary hydrostratigraphic units (Section 13.2) are represented in the domain. Their configurations were obtained directly from the Vulcan model. Relatively small differences (up to a few percent) in unit volumes were incurred through the process of exporting the unit surfaces from Vulcan and importing to FEFLOW. The configuration of the FEFLOW model domain and the primary units is shown in Figure 15.2.

15.3 SPATIAL DISCRETIZATION

Each hydrostratigraphic unit was discretized into 2,511 nodes and 4,708 elements, resulting in a total of 15,066 and 28,248 nodes and elements, respectively. The average size of each triangular element is 222 m. Each unit extends across the entire domain. Thus, the height of each prismatic element in the mesh represents the thickness of the hydrostratigraphic unit, with a minimum thickness of one metre used in those zones of the model domain where the unit is not present.







Figure 15.1: Topographic surface imposed on the top of the FEFLOW model domain.






Figure 15.2: Profile and sections illustrating the FEFLOW model domain.





15.4 FLOW MODEL PARAMETERIZATION

Hydraulic properties assigned to the hydrostratigraphic units were obtained by calibration to 72-hour pumping tests, as described in Section 8.7. Hydraulic conductivity zones were inferred by the distribution of the tests. The zone distributions in each layer are shown in Figure 15.3. At this stage, an isotropic hydraulic conductivity tensor was assumed for all layers ($K_{xx} = K_{yy} = K_{zz}$). This assumption will be further tested in ongoing model validation.

A constant value of $5x10^{-5}$ 1/m was used for Specific Storage Coefficient ("S_s)" in all layers. This value is consistent in order of magnitude with those obtained through the pumping tests. An Sy of 0.14 was applied to the top layer (Hyper-Porous Halite), which is considered to be an unconfined aquifer. This value is similar to those obtained from the pumping tests and from RBRC testing (Section 9.2).

15.5 FLOW BOUNDARY CONDITIONS

Inflow to the basin is simulated to occur through the following two routes:

- Subwatersheds surrounding the salar Inputs from the contributing subwatersheds were imposed as
 prescribed flow to the first layer of the model domain. The output from each subwatershed was
 initially estimated with HEC-HMS. These outputs were simulated as constant for all the
 subwatersheds, except for Salado River and 3Q River. The values for these two were adjusted to
 approximate the annual observed water level fluctuations in Laguna 3Q.
- Precipitation directly to the top of the model domain this was imposed as a repeating annual function, based on data recorded at the 3Q Project weather station.

Initial inflow values were determined as described above, and then adjusted through the calibration process. The inflow values specified in the calibrated model are shown in Figure 15.4.

Outflow from the model occurs only through evaporation from the salar crust and from both lakes, with the assumption that the salar exists in a closed basin. For the salar surface, evaporation was adjusted with a function (f_{ev}) that depends on the difference between hydraulic head (*head*), and the local topographic level (*topo*) according to:

$$E(head) = E_0 \cdot f_{ev}(head) = E_0 \cdot e^{-c(topo-head)}$$
 Equation 1

where E_0 is the free water evaporation rate, and c is a calibration constant (c = 5 in the present model). This function is shown graphically in Figure 15.5. A value of 5.8 mm/d was used for E_0 , which was estimated based on in-situ pan data, and pond evaporation data. The distribution of evaporation (outflow) in the calibrated model is shown in Figure 15.4.







Figure 15.3: Hydraulic conductivity zones in the FEFLOW model.







Figure 15.4: Annual inflows (specified) and evaporative outflows (determined by the model).









15.6 STRATEGY FOR MODEL CALIBRATION AND TEMPORAL DISCRETIZATION

The model was run for two consecutive time periods:

- A Run-up Period boundary conditions were imposed, and the model was allowed to run until it approached steady-state conditions (true steady state would not occur, since some specified parameters have an annual cycle).
- Calibration Period piezometric levels that were output from the Run-up Period were used as the initial condition for this period.

The Calibration Period was from April 1st, 2017 to March 31st, 2018, based on available calibration data (i.e., piezometric heads, lakes levels and lake extension (see Sections 6.6 and 6.7). The time step is variable through the simulated period, with a maximum size of one day.

The calibration process involved adjusting the evaporation calibration constant (c in

Equation 1) and specified flow from contributing watersheds, to match observed well levels, lake levels, and the Laguna 3Q surface area.

15.7 PRELIMINARY CALIBRATED MODEL

A comparison of observed levels with those obtained from the calibrated FEFLOW model is shown in Figure 15.6. Reasonable agreement was obtained with the calibrated model. Additional calibration and model validation is in progress. Results available to date suggest that in the short term (up to several days)





piezometric heads are mainly controlled by direct precipitation to the salar. In the longer term (weeks to months) they are controlled by the dynamics of input from the rivers and output through evaporation.

Simulated piezometric surfaces at selected times in 2017 and 2018 are shown in Figure 15.7. These results provide a preliminary indication that the central zone of the salar may act as a hydraulic barrier between Laguna 3Q and Laguna Verde, which is consistent with site measurements (Section 6.7). The results represent the very low hydraulic gradients that occur in the system. This is due mainly to the high permeability of the shallow unit, which readily allows the dissipation of flow inputs.

In ongoing work, the model would be further validated, and then applied to support Reserve Estimation for the 3Q Project. A fully validated model would allow prediction of hydraulic effects in the 3Q Salar Complex, in response to future brine pumping scenarios. Preliminary results from the model indicate that it will help to reduce uncertainty in evaluating the output and effects of brine production.

15.8 CLOSING FOR OTHER RELEVANT DATA AND INFORMATION

In October 2017, the Company announced the positive results of a preliminary economic assessment ("PEA") conducted on the 3Q Project (Pitts, 2017), based on the Company's initial Resource Estimate. The Company has advised the author it has not yet completed an economic study of the 3Q Project taking the new, larger Mineral Resource Estimate into account.

The Company has advised the QP it expects to continue to advance the Project in terms of process refinement, weather data collection and hydrogeological model completion. New information from this ongoing work, combined with the increase in the Mineral Resource Estimate and developments in the lithium market from the effective date of the release of the PEA results to the effective date of this report may result in the re-evaluation of certain economic and other parameters that apply to the PEA.

Therefore, the Company has advised the QP that for the reasons described above, the Company is not treating the PEA as a current preliminary economic assessment of the 3Q Project or as material information relevant to the 3Q Project. The Company advises that readers should do likewise.

The QP is aware of no other data and information that are relevant for reasonable assessment of the 3Q Project.







Figure 15.6: Comparison of simulated and observed piezometric heads - calibrated FEFLOW model.







Figure 15.7: Simulated piezometric surfaces (with FEFLOW) in 2017 and 2018.





16 INTERPRETATION AND CONCLUSIONS

This report on Updated Mineral Resource Estimate for the 3Q Lithium Deposit updates a previous Mineral Resource Estimate completed in 2017 (King, 2017). The current Mineral Resource Estimate, having an effective date of August 15, 2018, was prepared by Mark King, Ph.D., P.Geo., F.G.C., who is responsible for all items in this report. The mineral deposits that are the focus of this Mineral Resource Estimate Report are related to lithium and potassium in brine contained within salar deposits and two brine lakes in the 3Q Salar Complex.

The Mineral Resources conform with National Instrument 43-101 (NI 43-101) and Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Resources and Reserves (CIM Standards). As defined under these standards, mineral resources that are not mineral reserves do not have demonstrated economic viability.

The 2017/18 Field Program has substantially improved the characterization of salar stratigraphy, brine distribution, hydrogeology and surface water hydrology for the 3Q Project. The following interpretations and conclusions are indicated by information from the information and data collected to date, for the 3Q Project:

- It is apparent that conditions in the 3Q Salar Complex have led to the accumulation of brine with elevated grades of lithium. However, economic viability of the deposit should not be inferred. Additional evaluation would be required to confirm that development and exploitation of the deposit is viable.
- The data indicate a trend of increasing lithium grade towards the north, in all levels of the Resource zone. An evaluation of evaporation pathways indicates that the lithium accumulation in the northern lake (Laguna 3Q) could be explained by evaporation of the inflowing rivers, especially Salado River.
- The thickness of the deep Fanglomerate unit remains mostly unknown. It was intercepted by six boreholes but only two reached the bottom of the unit.
- The northern area of elevated grade was drilled to 250 m but, due to technical difficulties, brine samples were only collected in the upper 100 m. It is necessary to drill additional boreholes in the northern area to more fully characterize the depth of elevated grade in the area.
- A trend of decreasing magnesium to lithium ratio is also indicated towards the north. This trend is shown in surface brine and deeper brine.
- A range of hydraulic testing results are now available for preliminary hydraulic characterization of the upper four units in 3Q Salar (Hyper-Porous Halite, Upper Sediments, Porous Halite, Massive Halite). Targeted tests have not yet been conducted to characterize the hydraulics of the lower two units (Lower Sediments, Fanglomerate).
- A preliminary numerical flow model has been developed for the Resource zone of the 3Q Project, and it provides a reasonable representation of current conditions. In ongoing work, the model would be further validated, and then applied to support Reserve Estimation and related applications, for the 3Q Project. A fully validated model would allow prediction of hydraulic effects in the 3Q Salar Complex, in response to future brine pumping scenarios.





17 RECOMMENDATIONS

Follow-up exploration activities are proposed to address the following objectives:

- To further delineate brine grades within and under the Mineral Resource Zone identified herein, with particular focus on the northern zone of elevated grade;
- To further assess the distribution of formation permeability and porosity within the Resource Zone with particular focus on the northern zone of elevated grade;
- To extend drilling in the deeper Fanglomerate unit, for a more complete characterization of thickness and grade along the entire basin, and to potentially upgrade the Fanglomerate to a higher resource category;
- To conduct pumping tests in the deeper units (particularly the Lower Sediments and Fanglomerate) to improve characterization of their hydraulic properties;
- To continue collecting baseline and ongoing information pertaining to on-site meteorology and hydrology;
- To continue collecting environmental baseline information;
- To complete the validation of the hydrogeological numerical model (including a quantitative water balance) for the site, and to apply the model in support of reserves estimation and related applications.

Proposed exploration activities, and associated cost estimates, are summarized in Table 17.1. The cost of the engineering program to develop the Project is beyond the scope of this Report and these recommendations. Consequently, engineering is not addressed herein. It is considered feasible to advance all these activities in the upcoming 2018/19 field season, although some activities (e.g., meteorological and hydrological monitoring, brine evaporation, etc.) would continue beyond one field season.





Table 17.1: Proposed exploration components and estimated budget.

Proposed Exploration Component	Estimated Cost (USD)
Diamond drilling (250 US\$/m) – 1000 m	\$250,000
Rotary drilling (12", 1000 US\$/m) – 3000 m	\$ 3,000,000
Rotary Drilling (8", 500 US\$/m) – 3000m	\$ 1,500,000
Mob/Demob, Maneouvering, Camp, Gas, Logistics	\$ 1,000,000
Geochemistry and RBRC studies	\$ 500,000
Long-term pumping tests on 6 Pumping Wells – to evaluate deep aquifer permeability	\$200,000
Technical analysis, numerical modeling, and water balance	\$350,000
Contingency (10%)	\$660,000
TOTAL	\$7,480,000





18 REFERENCES

Baez, G. and Grosso, S., 2018. Geología – Geomorfología Proyecto Tres Quebradas. Report prepared for LIEX.

Barrionuevo, C., 2018a. Línea Base Ambiental, Fauna de Vertebrados Terrestres. Report prepared for LIEX.

Barrionuevo, C., 2018b. Fauna de Vertebrados Terrestres Tramo: Fiambala- Ingreso al Puesto La Coipa (RN 60). Primavera de 2017. Report prepared for LIEX.

Barrionuevo, C., 2018c. Fauna de Vertebrados Terrestres a través de un gradiente altitudinal. Recorrido: Ingreso al Puesto La Coipa (RN 60) – Ingreso al Campamento Minero. Primavera de 2017. Report prepared for LIEX.

Burgos, F., 2017. Fauna, Proyecto Tres Quebradas, Departamento Tinogasta Provincia de Catamarca. Report prepared for LIEX.

Canadian Securities Administrators, 2005. National Instrument 43-101, Standards of Disclosure for Mineral Projects. 13p.

CIM Standing Committee on Resource and Reserve Definitions, 2014. CIM Definition Standards-For Mineral Resources and Mineral Reserves.

Cunto, V., 2018. Estudio de Línea de base Socioeconómica, Micro región Tinogasta, Provincia de Catamarca, República Argentina, Marzo 2018. Report prepared for LIEX.

Farias, M. E., 2018. Linea de base Limnologia Proyecto Tres Quebradas. Report prepared for LIEX.

Fetter, C.W., 1994. Applied Hydrogeology. Prentice Hall Inc., Upper Saddle River, New Jersey.

Fowler, J. and Pavlovic, P., 2004. *Evaluation of the Potential of Salar Del Rincon Brine Deposit as a Source of Lithium, Potash, Boron and Other Mineral Resources.* Report for Argentina Diamonds, Ltd.

Flo Solutions, 2017. *Technical Report for Resource Estimate for Lithium & Potassium Sal de los Angeles Project.* Report for Lithium X.

Flo Solutions, 2017. *Technical report on Lithium & Potassium Resource Estimate Maricunga Joint Venture, III Region, Chile.* Prepared for: Lithium Power International, Minera Salar Blanco S.A., and Bearing Lithium Corp.

Freeze, R.A., and Cherry, J.A., 1979. Groundwater. Prentice Hall Inc., Englewood Cliffs, New Jersey.

Gravrilloff, I. and Muruaga, C., 2018. Estudio de Línea de Base Paleontológico, Proyecto 3Q- Tres Quebradas. Report prepared for LIEX.





Hinner, J. E., 2009. Technical Report on the Laguna Verde Salar Project and other Salar Properties held by South American Lithium Company S.A. Cerrada Third Region, Copiapo, Chile

Houston, J. and Ehren, P. 2010. *Technical Report on the Olaroz Project, Jujuy Province, Argentina*. NI 43-101 report prepared for Orocobre Ltd. NI 43-101 technical report filed on the Canadian Securities Administrators System for Electronic Document Analysis and Retrieval (SEDAR)

Houston, J., Butcher, A., Ehren, P., Evans, K, and Godfrey., L. 2011. *The evaluation of brine prospects and the requirement for new filing standards.* Economic Geology, V 106 no. 7, pp. 1225-1239.

IL & A, Ingeniería laboral y Ambiental S.A.; Enero 2018. Estudio línea de base de calidad de aire proyecto Tres Quebradas, departamento Tinogasta- Catamarca. Report prepared for LIEX.

Induser Laboratory, 2018. Calidad de Agua. Report prepared for LIEX.

Izquierdo, A., Vaieretti, M.V., Harguindeguy, N.P., Foguet, N., Chiappero, F. and Navarro, C., 2018. Paisaje y Suelo, Informe final Línea de base Proyecto Tres Quebradas, Marzo 2018. Report prepared for LIEX.

Izquierdo, A. and Foguet, J., 2018. Informe Final, Línea de base Proyecto Tres Quebradas, Paisaje, Marzo 2018. Report prepared for LIEX.

King, M., 2016. Technical Report on the Tres Quebradas Lithium Project, Catamarca Province, Argentina. Prepared for POCML 3 INC. and Neo Lithium Corp. by Groundwater Insight Inc.; NI 43-101 technical report filed on the Canadian Securities Administrators System for Electronic Document Analysis and Retrieval (SEDAR); 81p.

King, M., 2017. *Mineral Resource Estimate Technical Report on the Tres Quebradas Lithium Project Catamarca Province, Argentina.* Prepared for Neo Lithium Corp. by Groundwater Insight Inc.; NI 43-101 technical report.

King, M., Kelley, R., and Abbey, D., 2012. *Reserve Estimation and Lithium Carbonate and Potash Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina*. NI 43-101 Feasibility Report prepared for Lithium Americas Corporation. Report filed on the Canadian Securities Administrators System for Electronic Document Analysis and Retrieval (SEDAR)

Ma, Haizhou, 2010. Professor at Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, China. Personal Communication with, and presentation to, Waldo Perez of Lithium Americas Inc.

Manacero, M., 2018. GIS compilation by LIEX Staff.

Martin and Miguens, 2018. Oficina Abogados. LIEX Title Opinion, Buenos Aires.

OSC, APGO and TSX, February 29, 2008. *Mineral Project Disclosure Standards - Understanding NI 43-101.* Presentation at PDAC Conference, Toronto, Ontario.





Pitts, R., 2017. *Preliminary Economic Assessment (PEA) 3Q Project NI 43-101 Technical Report Catamarca, Argentina*. NI 43-101 Technical Report. Prepared for NEO Lithium Corp.

Ratto, N., 2016. Caracterizacion arqueologica del area del proyecto Tres Quebradas, Minas Lodomar I a la XI, departamento Tinogasta, Catamarca. Report prepared for LIEX

Ratto, N., 2017. Estudio de Línea de impacto arqueológico del proyecto Tres Quebradas, Fiambala Departamento Tinogasta, Catamarca, Noviembre 2017. Report prepared for LIEX.

Roskill, 2009. *The Economics of Lithium*, 11th Ed.

Rosko, M. and Jaaks, J., 2012. *Measured, Indicated, and Inferred Resource Estimate for Lithium and Potassium Resource, Sal de Vida Project, Salar del Hombre Muerto, Catamarca-Salta, Argentina*. NI 43-101 Technical Report prepared on behalf of Lithium One Inc.

Salinas, R.S., 2018. Flora- Vegetación, Proyecto Tres Quebradas, Minas: LODOMAR I a X, Departamento Tinogasta, Provincia Catamarca, Argentina. Marzo 2018. Report prepared for LIEX.

Salinas, R., 2017a. Flora y Vegetación, Tramo Fiambala- La Ciopa, dpto. Tinogasta, Catamarca, Argentina. Report prepared for LIEX.

Salinas, R., 2017b. Flora y Vegetación, Tramo La Ciop- Campamento Tres Quebradas , dpto. Tinogasta, Catamarca, Argentina. Report prepared for LIEX.

SQM - US SEC Report Form 2-F.

Tálamo, E., 2018. Hydrogeological Study, Proyecto 3 Quebradas. Report prepared for LIEX.

Valdivia, O., 2018. Estudio de Linea de Base Transito Vehicular, Proyecto 3 Quebradas, departamento Tinogasta, Provincia de Catamarca, Enero 2018. Report prepared for LIEX.

Vila M. J., 2018. Normativa Legal, Proyecto Tres Quebradas – Liex S.A., Departamento de Tinogasta, Catamarca, Argentina. Junio 2018. Report prepared for LIEX.

Zotelo, C.H., 2018. Informe Meteorológico y climatológico para informe Impacto ambiental (IIA) Tres Quebradas – Fiambala, provincia Catamarca, Argentina. Report prepared for LIEX.





19 LIST OF ABBREVIATIONS

% : percentage °C : temperature in degrees Celsius B : boron B5O : borate Ca : calcium CaCO3 : calcium carbonate Cl : chloride Cl-: chloride ion cm : centimetre CO3 : carbonate g/cm3 : grams per cubic centimetre g/L : grams per litre GPS : global positioning system H3BO3 : boric acid ha : hectare HCO3 : bicarbonate **ICP: Inductively Coupled Plasma** K : potassium K/Li : potassium to lithium ratio kg : kilogram km: kilometre km2 : square kilometer L : litre Li : lithium Li2CO3 : lithium carbonate m : metre mg : milligram Mg(OH)2 : magnesium hydroxide mg/L : milligrams per litre Mg/Li : magnesium to lithium ratio pH : measure of acidity or alkalinity QA/QC : quality assurance/quality control **RC** : reverse circulation SO4 : sulfate SO4/K : sulfate to potassium ratio SO4/Li : sulfate to lithium ratio SO4/Mg : sulfate to magnesium ratio SO4= : sulfate ion Sy: specific yield TDS: total dissolved solids USD : United States dollar





UTM : Universal Transverse Mercator coordinate system WGS : World Geodetic System wt% : weight percent





20 DATE AND SIGNATURE PAGE

As supervising author of the "Updated Mineral Resource Estimate Technical Report on the Tres Quebradas Lithium Project, Catamarca Province, Argentina" with an effective date of August 15, 2018, prepared for Neo Lithium Corp. (the "Report"), I, Mark W.G. King, do hereby certify that:

- 1. I am employed as President and Senior Hydrogeologist with Groundwater Insight Inc., 3 Melvin Road, Halifax, Nova Scotia, B3P 2H5, telephone 902 223 6743, email <u>king@gwinsight.com</u>.
- 2. I have the following academic and professional qualifications and experience:
 - a. Academic
 - i. B.Sc. (Geology), Dalhousie University, Halifax, Nova Scotia, 1982
 - ii. M.A.Sc. (Civil Eng.), Technical University of Nova Scotia, 1987
 - iii. Ph.D. (Earth Science), University of Waterloo, Waterloo, Ontario, 1997
 - b. Professional
 - i. Registered Professional Geoscientist of Nova Scotia (membership #84); Serving on Admissions Board of the Association
 - ii. Member of Association of Groundwater Scientists and Engineers (membership #3002241)
 - iii. Member and a Director for the International Association of Hydrogeologists
 - c. Experience and Areas of Specialization Relevant to this Report
 - i. Technical involvement in lithium brine projects, in various levels of detail, on more than 18 salars in Chile, Argentina and Nevada
 - ii. Numerical modelling of groundwater flow and solutes in groundwater
 - iii. Field delineation and monitoring of solutes in groundwater
 - iv. Organic and inorganic groundwater geochemistry
 - v. 31 years of experience in groundwater quality and quantity projects.
- 3. I am a "qualified person" for the purposes of National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (the "Instrument").
- 4. While working on the current Technical Report, I visited the Tres Quebradas Lithium Project in October 2017 and April 2018. I also visited the Project on four previous occasions, in association with two previous Technical Reports (see point 7., below).
- 5. I am responsible for technical review and supervising the preparation of all Items of this Report.
- 6. I am independent of Neo Lithium Corp. as described in Section 1.5 of the Instrument.
- The scope of my previous involvement with the Tres Quebradas Salar Complex was in connection with the preparation of two previous Technical Reports on the Project, dated June 6, 2016 and May 23, 2017.
- 8. I have read the Instrument and this Report has been prepared in compliance with the Instrument.





9. As of the effective date of this Report, and to the best of my knowledge, information and belief, this Report contains all scientific and technical information that is required to be disclosed to make this Report not misleading.

Effective Date: August 15, 2018

Date of Signing: September 4, 2018

"Original signed and stamped by"

Mark W.G. King, Ph.D., P. Geo., F.G.C.





APPENDIX 1: SELLEY LOG - LOG AND CORRELATION LINE LOCATIONS



Figure A1.1: Selley log locations and correlation line.







Figure A1.2: Correlation of two outcrop Selley Logs, on the eastern margin of 3Q Salar.





APPENDIX 2: ISOPACH MAPS FOR THE SIX SALAR UNITS







Figure A2.1: Isopach map for the Fanglomerate unit.







Figure A2.2: Isopach map for the Lower Sediments unit.







Figure A2.3: Isopach map for the Massive Halite unit.







Figure A2-4: Isopach map for the Porous Halite unit.







Figure A2.5: Isopach map for the Upper Sediments unit.







Figure A2-6: Isopach map for the Hyper-Porous Halite unit.





APPENDIX 3: VES SECTIONS FROM THE 2017/18 PROGRAM







Figure A3.1: VES Section 1.







Figure A3.2: VES section 3.







Figure A3.3: VES section 4







Figure A3.4: VES section 5.





APPENDIX 4: INTERPRETED SEISMIC SECTIONS







Figure A4.1: Section interpretation of seismic line 1.







Figure A4.2: Section interpretation of seismic line 2.







Figure A4-3: Section interpretation of seismic line 3.






Figure A4.4: Section interpretation of seismic line 5.







Figure A4.5: Section interpretation of seismic line 7.







Figure A4.6: Section interpretation of seismic line 9.







Figure A4.7: Section interpretation of seismic line 11.







Figure A4.8: Section interpretation of a composite of seismic lines 10, 11, and 12.





APPENDIX 5: SUMMARY OF ALL DRILLING SPECIFICATIONS





Table A5.1: Summary of drilling specifications – diamond and rotary methods (vertical holes)

Platform	Borehole ID	Depth (m)	Drilling Method	Well Construction			Packer Sampling Interval During	
			J. J	Screen/Sand P	ack Interval	Type of Well	From (upper; m)	To (lower; m)
				From (upper; m)	To (lower; m)			
1	PB1-R-01	126.00	Rotary	31.00	52.00	Pumping Well	_	_
2	PP1-R-02	75.00	Rotary	0.00	75.00	Obs Well	-	_
2	PB1-R-2	82.00	Rotary	1.00	82.00	Pumping Well		—
3							16.00	17.00
			Diamond		195.00	Obs Well	28.00	29.00
	PP1-D-3	195.50		0.00			40.00	41.00
							50.00	51.00
							90.00	91.00
							150.00	192.00
	PB1-R-3	43.00	Rotary	0.00	43.00	Pumping Well	_	—
	PB2-R-3	42.00	Rotary	0.00	42.00	Pumping Well	_	—
	PP1-D-4	69.50	Diamond	0.00	69.50	Obs Well	43.00	49.70
4	PB1-R-4	156.00	Diamond	0.00	70.38	Pumping Well	_	-
	PP2-R-4	72.00	Diamond	0.00	72.00	Obs Well	—	-
	PP1-D-5	62.90	Diamond	0.00	62.90	Obs Well	13.60	20.20
5							31.85	55.25
	PB1-R-5	42.00	Rotary	0.00	42.00	Pumping Well	_	_
							10.00	28.00
		338.30	Diamond			Obs Well	32.00	62.45
6	PP1-D-6			0.00	29.90		65.00	100.00
							110.00	165.00
							165.00	200.00
							206.00	251.40
	PP1-D-7	197.50	Diamond	155.00	197.50	Obs Well	10.00	44.00
							45.00	100.00
							110.00	160.00
							110.00	197.00
7	PB1-R-7	204.00	Rotary	145.00	194.00	Pumping Well		
								_
	PB2-R-7	132.00	Rotary	28.00	125.70	Pumping Well	_	_
	PP2-R-7	130.00	Rotary	40.00	126.67	Obs Well	_	_
	PB3-R-7	36.00	Rotary	1.00	34.13	Pumping Well	_	_
	PP3-R-7	37.00	Rotary	1.00	35.05	Obs Well	_	_
	PP1-D-8		Diamond	0.00		Obs Well	10.00	30.50
							50.00	95.00
		357.50					105.00	128.00
					46.37		135.00	175.00
							200.00	242.00
							245.00	287.00
8							290.00	329.00
	PP2-D-8	252.00	Diamond	444.00	552.00	Obs Well	10.50	30.00
							40.00	84.00
							93.00	150.00
							150.00	195.00
							240.00	300.00
							312.00	372.00
							402.00	432.00
							441.00	470.50
							480.00	510.00
							510.00	536.00
							536.00	552.00





Platform	Borehole ID	Depth (m)	Drilling Method	Well Construction			Packer Sampling Interval During	
				Screen/Sand Pack Interval		Type of Well	From (upper; m)	To (lower; m)
				From (upper; m)	To (lower; m)			,
							10.50	45.00
9							45.00	85.00
	PP1-D-9	197.75	Diamond	145.00	189.73	Obs Well	85.00	120.00
							130.00	170.00
							170.00	197.75
10	PP1-D-10	219.00	Diamond	0.00	36.50	Obs Well	10.00	39.65
							44.75	83.85
							95.00	135.00
							145.00	181.45
							185.00	219.00
						Obs Well	10.25	30.10
							40.00	80.45
11	DD1 D 11	251.25	Diamand	0.00	41.00		85.00	120.10
11	PP1-D-11	251.25	Diamond	0.00	41.00		125.00	161.25
							161.25	194.80
							195.00	236.00
12	PP1-D-12	89.95	Diamond	0.00	5.89	Obs Well	_	_
13	PP1-D-13	13.40	Diamond	0.00	11.78	Obs Well	_	-
			Diamond			Obs Well	16.15	19.15
	PP1-D-14	320.60		238.00	310.00		56.85	61.85
14							117.75	122.75
14							172.45	177.45
							252.40	257.40
							271.00	320.00
	PP1-D-15	270.45	Diamond	6.00	30.00	Obs Well	16.30	21.30
							16.30	21.30
							64.00	67.80
15							76.30	87.30
							140.00	151.80
							179.30	189.80
							232.00	238.80
	PP2-R-15	67.00	Rotary	22.50	60.00	Obs Well	_	-
	PP3-R-15	218.60	Rotary	62.00	216.10	Obs Well	_	-
	PB1-R-15	32.00	Rotary	4.00	30.30	Pumping Well	_	-
	PB2-R-15	67.00	Rotary	25.80	59.40	Pumping Well	_	-
	PB3-R-15	221.00	Rotary	63.00	217.44	Pumping Well	—	-
16	PP1-D-16	324.55	Diamond	Not enabled		Obs Well	16.00	22.35
							33.90	41.90
							67.50	75.60
							86.00	102.85
							106.00	132.85
							162.30	175.75
							227.30	238.25
							247.25	272.75
	L						290.00	324.55
1	PP2-D-16	34.10	Diamond	0.00	34.10	Obs Well	30.00	72.00





			·					
Platform	Borehole ID	Depth (m)	Drilling Method	Well Construction			Packer Sampling	g Interval During
				Screen/Sand P	ack Interval	Type of Well	From (upper; m)	To (lower; m)
				From (upper; m)	To (lower; m)			
							87.00	89.00
							132.00	134.00
							72.00	74.00
							144.00	169.00
							48.00	50.00
							33.00	35.00
	PP1-D-17	592.00	Diamond	479.00	587.10	Obs Well	18.00	20.00
							186.00	200.00
17							201.00	220.00
							223.00	241.00
							479.00	484.00
							486.00	505.00
							491.50	530.00
	PP2-R-17	108.00	Rotary	1.20	104.10	Obs Well	-	-
	PP3-R-17	260.00	Rotary	109.50	258.00	Obs Well	-	-
	PB2-R-17	107.60	Rotary	3.00	105.60	Pumping Well	-	-
	PB3-R-17	260.00	Rotary	108.00	258.80	Pumping Well	—	_
			Diamond	3.00			28.50	30.80
18	PP1-D-18	84.00			71.20	Obs Well	61.00	67.00
10							76.00	84.00
	PB1-R-18	216.00	Rotary	0.50	99.84	Pumping Well	_	-
19	PP1-R-19	177.00	Rotary	37.00	85.00	Obs Well	_	-
20	PP1-D-20	38.50	Diamond				7.00	13.00
				Not enabled		Obs Well	19.00	20.50
							26.00	29.00
	PP1-D-21	647.50	Diamond	577.40	625.10	Obs Well	22.00	28.00
							36.00	60.00
							288.00	309.00
							328.00	357.00
21							393.00	453.00
21							556.00	580.00
							588.00	606.00
							601.00	631.00
							601.00	647.50
							577.40	625.00
	PP1-D-22	643.00	Diamond	460.00	625.10	Obs Well	16.00	28.50
							58.00	87.00
							149.00	204.00
22							501.00	542.50
							455.00	468.00
							533.00	623.00
							616.00	643.00
		423.50	Diamond	5.00	100.10	Obs Well	14.00	26.00
23	PP1-D-23						32.00	71.00
							75.00	116.00
							125.00	170.00
							175.00	206.00
							230.00	302.00
							311.00	386.00
							407.00	421.50
	PP2-R-23	100.10	Rotary	0.50	100.00	Obs Well		_
	PB1-R-23	100.00	Rotary	0.50	99.90	Pumping Well	_	_