TECHNICAL REPORT SUMMARY

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

April 2022

TECHNICAL REPORT SUMMARY

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

WSP-SQM0011-TRS-Salar-Rev1

April 2022

WSP

Av. Las Condes 11.700, Vitacura.

Santiago, Chile

TELÉFONO:

+56 2 2653 8000

wsp.com

This report was prepared by WSP Ambiental S.A. for SQM in accordance with the Professional Services Contract. The disclosure of any information contained in this report is the sole responsibility of the recipient. This material is part of the best criteria of WSP in relation to the information available at the time of preparation. Any use by a third part of this report, or any dependencies or decisions made based on it, are the responsibility of such third parties. WSP is not responsible for damages, if any, suffered by third parties as a result of decisions taken or actions based on this report. This statement of limitations is considered in this report.

The original technology-based document sent here has been authenticated and will be kept by our company for a minimum of ten years. Since the transmitted file is beyond our control and its integrity can no longer be guaranteed, no guarantee can be given with respect to any modifications made to this document.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDIX

1 EXECUTIVE SUMMARY

1.1 Property and Mineral Rights

The operations of Sociedad Química y Minera de Chile (SQM) in the Salar de Atacama (the "Project") are located in the Antofagasta Region of Chile that covers El Loa Province and the San Pedro de Atacama commune. The Salar de Atacama salt crust (hereafter referred to as "nucleus") is owned by the Corporación de Fomento de la Producción (CORFO) of Chile and grants special operating contracts, or administrative leases, to private companies for the extraction of brine over a certain period. SQM has a lease agreement with CORFO, signed in 1993, to extract and generate lithium (Li) and potassium (K) products from brines in the Salar de Atacama deposit.

In 2018, SQM and CORFO performed a reconciliation process that modified the pre-existing lease and project contracts. The expiration date of the current SQM-CORFO lease agreement is December 31, 2030. SQM holds leases with a total area of approximately 1,400 square kilometers (km^2) in the Salar de Atacama and possesses permission to extract brines from an area of approximately 820 km^2.

1.2 Geology and Mineralization

The general geology of the Salar de Atacama Basin is characterized by Paleozoic to Holocene igneous and sedimentary rocks as well as recent, unconsolidated clastic deposits and evaporitic sequences. The salt flat resides in a tectonic basin, where important subsidence and sediment deposition have historically occurred. Over time, evaporation precipitated salts; and at depth, evaporitic, clastic, and volcanic ash deposits host brine and are delimited by local fault systems. Further, several structural blocks were identified, resulting in the displacement and deformation of the identified geological units.

According to Houston, et. al. (2011), the Salar de Atacama is a mature salt flat with mineralization characterized by Li- and K-rich brine, residing in the porous media of the subsurface reservoir along with elevated concentrations of other dissolved constituents (e.g., boron and sulfate). The explored reservoir covers an area of 1,100 km^2 and a depth of 900 meters (m), where a thick section of halite (> 90%) and sulfate can be found in addition to a minor percentage of clastic sediments, volcanic ash, and interbedded evaporites (Bevacqua, 1992; Xterrae, 2011). The mean concentrations of Li and K from all brine samples (and all units) are 0.187 weight percent (wt.%) and 1.867 wt.%, respectively.

1.3 Mineral Resource Estimate

This sub-section contains forward-looking information related to Mineral Resource estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction.

SQM's Mineral Resource estimate for the Salar de Atacama comprises in-situ Li- and K- enriched brine situated below the surface of the salt flat. The Mineral Resource estimates include consideration of brine concentration, reservoir geometry, and drainable, interconnected pore volume. Within SQM's mining concessions, the Mineral Resource is supported by extensive exploration and a large dataset of depth-specific brine and porosity samples from each unit. A geological model was developed, using Leapfrog Geo software, from which the block model and Mineral Resource estimate were performed, using Leapfrog Edge.

The Mineral Resource was classified into Measured, Indicated, and Inferred categories, according to the amount of information from the hydrogeological units as well as geostatistical criteria. Hydrogeological knowledge was prioritized based on exploration, monitoring, and historical production data while geostatistical variables were used as secondary criteria.

The in-situ Li and K Mineral Resource estimate, exclusive of Mineral Reserves (without processing losses), is summarized in Table 1-1. Mean Li and K grades are reported above the designated cut-off grades of 0.05 wt.% for Li and 1.0 wt.% for K. This indicates that the prospective extraction of the Mineral Resource is economically feasible (see Section 11.2 of this Technical Report Summary [TRS] for additional discussion on the cut-off grades).

Table 1-1. SQM's Salar de Atacama Lithium and Potassium Mineral Resources, Exclusive of Mineral Reserves (Effective December 31, 2021)

Resource Classification	Brine Volume (Mm^3)	Mean Grade (wt. %)		Mass (Million tonnes)	
		K	Li	K	Li
Measured	2254	1.80	0.20	49.8	5.4
Indicated	1435	1.70	0.16	30.0	2.8
Measured + Indicated	**3689**	**1.77**	**0.18**	**79.8**	**8.2**
Inferred	1614	1.77	0.13	34.9	2.6
Total	5303	1.77	0.17	114.7	10.8

Notes:

(1) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves upon the application of modifying factors.

(2) Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported LOM (Chapter 12) and real declared extraction from 2021 were subtracted from the Mineral Resource inclusive of Mineral Reserves. A direct correlation between Proven Reserves and Measured Resources, as well as Probable Reserves and Indicated Resources was assumed.

(3) Effective porosity was utilized to estimate the drainable brine volume based on the measurement techniques of the SQM porosity laboratory (Gas Displacement Pycnometer). Although specific yield is not used for the estimate, the QP considers that the high frequency sampling of effective porosity, its large dataset, and general lack of material where specific retention can be dominant permits effective porosity to be a reasonable parameter for the Mineral Resource estimate.

(4) The conversion of brine volume to Li and K tonnes considered the estimated brine density in each block model cell.

(5) Comparisons of values may not add due to the rounding of numbers and differences caused by use of averaging methods.

(6) The mineral resource estimate considers a 0.05 wt.% cut-off grade for Li based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040, a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin is considered with a small increase to accommodate the evaporation area and use of additives. A similar pricing basis and analysis was undertaken for K, where the cut-off grade of 1 wt.% was set by SQM based on respective costs, sales, and margin (Section 16 and Section 19).

(7) Álvaro Henriquez is the QP responsible for the Mineral Resources.

1.4 Mineral Reserve Estimate

This sub-section contains forward-looking information related to Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes and grade, modifying factors including pumping and recovery factors, production rate and schedule, equipment and plant performance, commodity market and prices and projected operating and capital costs.

A groundwater flow and solute transport model was developed using the Groundwater Vistas interface and Modflow-USG code to evaluate the extraction of Li and K-rich brine from pumping wells during the 9-year life-of-mine (LOM). The numerical model was constructed based on the geometry of the geological and resource block model parameters. The transfer of relevant resource estimate parameters (concentrations and effective porosity) was performed to ensure consistency between the resource and reserve model properties. To confirm sufficient calibration of the aquifer parameters (e.g., hydraulic conductivity) and representation of the water balance components in the salt flat nucleus, the numerical model was calibrated to observed brine levels and extracted brine concentrations during the 2015 to 2020 period.

The Mineral Reserve estimate considers the modifying factors of converting Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency (e.g., location and screen), environmental considerations (e.g., pumping scheme), and recovery factors for Li and K. The simulated mass of extracted Li and K after 9 years of pumping is summarized in Table 1-2. The table considers process recovery factors, where the model extracted mass at the production wellheads, was multiplied by a pond recovery factor associated with the type of extracted brine. Thus, the reserve was estimated from the point of reference of processed brine after passing through the evaporation ponds (rather than at the production wellheads).

The Mineral Reserve was classified into Proven and Probable Reserves based on industry standards for brine projects, the Qualified Person's (QP's) experience, and the confidence generated by SQM's historical production in the Salar de Atacama. A majority of the extracted mass is sourced from Measured Resources; nonetheless, Proven Reserves were specified by the QP for the first 5 years, given the adequate model calibration during the 2015-2020 period and yearly production goals, while Probable Reserves were conservatively assigned for the last 4 years of the LOM, considering that the numerical model will be continually improved and recalibrated in the future, due to potential changes to neighboring pumping, hydraulic parameters, and the water balance, among other factors.

Table 1-2. SQM's Salar de Atacama Lithium and Potassium Mineral Reserves, Factoring Process Recoveries (Effective December 31, 2021)

Classification	Brine Volume (Mm^3) Pumped	Average Extracted Lithium Grade (wt.%)	Extracted Mass		Average Extracted Potassium Grade (wt.%)	Extracted Mass	
			Li (Million tonnes)	LCE (Million tonnes)		K (Million tonnes)	KCl (Million tonnes)
Proven Reserves	183	0.20	0.22	1.20	2.29	3.91	7.45
Probable Reserves	107	0.20	0.14	0.75	2.13	2.12	4.04
Total	290	0.20	0.36	1.95	2.22	6.03	11.49

(1) The process efficiency of SQM is summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation, the average process efficiency is approximately 51% for Li and approximately 74% for K.

(2) Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.323 multiplied by the mass of lithium metal and potassium chloride equivalent ("KCl") is calculated using mass of KCl = 1.907 multiplied by the mass of potassium metal.

(3) The values in the columns for "Li" and "LCE", as well as "K" and "KCl", above are expressed as total contained metals.

(4) The average lithium and potassium concentration is weighted by the simulated extraction rates in each well.

(5) Comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

(6) The mineral reserve estimate considers a 0.05 wt.% cut-off grade for Li based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040, a projected lithium carbonate price of $ 11,000 USD/metric ton with the corresponding cost and profit margin is considered with a small increase to accommodate the evaporation area and use of additives. A similar pricing basis and analysis was undertaken for K where the cut-off grade of 1 wt.% has been set by SQM based on respective costs, sales, and margin (Section 16 and Section 19).

(7) This reserve estimate differs from the in-situ *base reserve* previously reported (SQM, FORM 20-F 2020) and considers the modifying factors of converting mineral resources to mineral reserves, including the production wellfield design and efficiency, as well as environmental and process recovery factors.

(8) Álvaro Henriquez is the QP responsible for the Mineral Reserves.

It is the QP's opinion that the declared reserve estimate and corresponding methods conform with the SEC regulations. Furthermore, the reserve classification is believed to be conservative, given that SQM's brine production has been ongoing for decades. The presented analysis includes a detailed calibration process and time-based reserve classification to account for potential future changes in hydraulic parameters (with more field data and testing), the water balance, and neighboring pumping among other factors.

1.5 Mining Method

SQM's mining method in the Salar de Atacama corresponds to brine extraction. Production is characterized by the construction of pumping wells capable of extracting brine from different aquifers of interest. Subsequently, the brine extracted from each of the wells is accumulated in different gathering ponds that allow it to be distributed to evaporation ponds and metallurgical plants.

Due to limitations of the SQM-CORFO lease agreement, the current mine life ends on December 31, 2030. Until this date, the expected brine production had been evaluated with a decreasing total extraction rate from 1,280 L/s (2022) to 822 L/s (2030).

1.6 Metallurgy and Mineral Processing

1.6.1 Metallurgical Testing

The test work developed is aimed at estimating the response of different brines by concentration, via solar evaporation, and the overall metallurgical recoveries of the process plants, as well as to assess raw material treatability for finished lithium and potassium products.

SQM employees collect brine samples regularly and complement this by considering temporal, geological, spatial and operational criteria of the wells, focusing on updating chemical element concentrations in the wells to generate a dataset that provides more accurate estimation of brine chemical characteristics. The Salar de Atacama laboratory, through its facilities, generates digital metallurgical assay databases that include chemical composition, density, and porosity test results, among other assays which allow for process control and planning.

Historically, SQM has analyzed the different plant and/or pilot scale tests through its Research and Development area which has allowed it to improve the recovery process and product quality. Currently, there is a plan in place to increase yield at the Salar de Atacama which consists of a series of operational improvement initiatives, development and expansion projects, and new process evaluations to recover a greater amount of lithium in the LiCl production system.

1.6.2 Brine and Salt Processing

SQM has developed a process model to convert the brine extracted from available salt properties containing potassium, lithium, sulfates, boron, and magnesium into commercial potassium and lithium salts products. The process follows industry standards, considering the stages of pumping the brine from the reservoirs to concentrate it by sequential evaporation, treating the harvested potassium salts to obtain refined salts, and treating the brine concentrate in a plant to produce high quality lithium carbonate and lithium derivatives.

Thus, the objective of the site is to produce potassium salts, such as potassium chloride (KCl) and potassium sulfate (K_2SO_4), and lithium salts such as lithium carbonate (Li_2CO_3) and lithium hydroxide (LiOH). Thus, there are two production lines, one focused on obtaining potassium products (SQM Salar de Atacama process plants), and the other focused on the production of lithium carbonate and hydroxide (SQM Carmen Lithium Chemical Plant), two facilities that make up the SQM Salar de Atacama operations.

SQM's production process is characterized by being integrated (i.e., exchanging raw materials and products with each other). The Carmen Lithium Chemical Plant (PQC) has production facilities that comprise a Lithium Carbonate Plant and a Lithium Hydroxide Plant. The Production capacity of the lithium carbonate plant at Carmen

Lithium Chemical Plant (PQC) is 120,000 metric tons per year, with plans to increase to 180,000 metric tons per year. The lithium hydroxide plant has a production capacity of 21,500 metric tons per year (Mtpy) by 2022, with plans to increase production capacity to 30,000 Mtpy by 2022.

1.7 Capital Costs, Operating Costs and Financial Analysis

1.7.1 Capital and Operating Costs

This section contains forward-looking information related to capital and operating cost estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this section including prevailing economic conditions continue such that unit costs are as estimated, projected labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

SQM is the world's largest producer of potassium nitrate and iodine, and one of the world´s largest lithium producers. It also produces specialty plant nutrients, iodine derivatives, lithium derivatives, potassium chloride, potassium sulfate, and certain industrial chemicals (including industrial nitrates and solar salts). The products are sold in approximately 110 countries through SQM's worldwide distribution network, with more than 90% of the sales derived from countries outside Chile.

The facilities for lithium and potassium production operations include brine extraction wells, evaporation and harvest ponds, lithium carbonate and lithium hydroxide production plants, dry plants and wet plants for potassium chloride and sulfate as well as other minor facilities. Offices and services include, among others, common areas, hydrogeology assets, water resources, supply areas, powerhouse, laboratories, and research areas.

At the end of 2020, the capital cost that had been invested (reposition cost) in these facilities is close to 2,300 million dollars. The cost of capital distributed in the areas related to lithium and chloride and sulfate potassium production is shown in Table 1-2. As indicated, the main investments in lithium and potassium production are the "Lithium Carbonate and Lithium Hydroxide Plants", as well as the "Evaporation and Harvest Ponds", accoutning for about 55% of the total investment.

Table 1-3. Capital cost, Lithium and Potassium Operations

Lithium and Potassium Operations		Capital Cost %
1	Lithium plants	28%
2	Evaporation and harvest ponds	27%
3	Wet Plants	17%
4	Brine extraction wells	13%
5	Dry Plants	7%
6	Offices, services, warehouses, others	8%

SQM produces lithium carbonate at the PQC facilities, near Antofagasta, Chile, from highly concentrated lithium chloride produced in the Salar de Atacama. The annual production capacity of the lithium carbonate plant at PQC is 120,000 Mtpy and is in the process of increasing the production capacity to 180,000 metric tonnes by 2022-2023.

The main investment in the lithium carbonate plant, which represents about 81% of the lithium plants, are in buildings, mechanical equipment, such as filters, pumps, valves, pipes, ponds, and drying equipment. For the Evaporation and Harvest Ponds, the main investments are in the MOP (Muriate of Potash) I and II, and SOP (Sulfate of Potash) ponds, accounting for 83% of the total investment in the ponds.

SQM has plans to continue the capacity expansion of its plants, complying with the CORFO quota agreements. The Lithium Carbonate plant will be upgraded and expanded to reach 180,000 metric tonnes in 2022 to 2023, and 250,000 metric tonnes in 2026. Investments in the Lithium Hydroxide plant are underway to increase production up to 30,000 Mtpy from which it is expected to reach the noted capacity in 2022 to 2023.

The major investments in the twelve months ended in June 2021, and the future investments projected through June 2022 in the Potassium and Lithium operations were distributed as follows:

1. Wells: Lithium wells: Future investments for MMUSD 17.
2. Ponds and Harvest: USDMM 9 in Lithium Ponds and future investments.
3. Wet Plants: USDMM 10, in MOP H I and MOP H II Plants.
4. Lithium Plants:
    a. Lithium Carbonate Plant: USDMM 106 and future investments by USDMM 179.
    b. Lithium Hydroxide Plant: USDMM 41 and future investments by USDMM 56.
    c. Lithium Sulfate Plant: USDMM 0.5 and future investments for USDMM 8.

The highest operating cost is in raw material and consumables, employee benefit expenses, depreciation expense, and contractor works, representing 69% of the operating cost. The other major item is the CORFO rights and other agreements, representing about 14% for 2021.

Regarding the forecast for 2021, the cost operating is close 700 million of dollars, due mainly to greater production of lithium carbonate and hydroxide, increasing the consumption of raw materials and consumables that have increased in price as well as higher contributions to CORFO (due to higher prices and higher volume of sales).

1.7.2 Economic Analysis

This section contains forward-looking information related to economic analysis for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including estimated capital and operating costs, project schedule and approvals timing, availability of funding, projected commodities markets and prices.

To obtain an income flow in relation to the production of Li_2CO_3, LiOH, and KCl for the period 2022 to 2030, the investments projected for a 180 ktpy plant and its expansion to 250 ktpy have been considered, taking the latter within the base case.

In turn, the income from sales of each of the products was considered as well as the current projection prices. In the case of the price of Li_2CO_3, a base value of USD/ton of 11,000 was considered. For the price of KCl, a value of USD/ton between 300 and 400 was considered. The LiOH price was assumed to be 5% higher than the Li_2CO_3 price.

Table 1-4 shows the main assumptions taken for the base case.

Table 1-4. Assumptions for the Base Case

Base Case		
Assumptions	Units	Quantity
Production Plant	ktpy	250
Lithium Carbonate Price	US$/tonne	11,000
Lithium Hydroxide Price	US$/tonne	5% over Lithium Carbonate Price
Potassium Chloride Price	US$/tonne	300 to 400
Estimated Cost + CORFO Rights and other agreements	US$/tonne	5,700 + calculate (16.1% of Revenues)
Taxes	%	28
Discount rate	%	10

The projected sales of lithium carbonate, lithium hydroxide and potassium chloride for the LOM until 2030 is presented in Table 1-5.

Table 1-5. Projected Sales of Lithium and KCl

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate	ktpy	95	130	150	220	220	220	220	220	200
Lithium Hydroxide	ktpy	21	25	30	30	30	30	30	30	30
Potassium Chloride	ktpy	1,548	1,483	1,406	1,380	1,305	1,224	1,139	1,050	960

Note: Reserves of Chapter 12 are declared based on brine recovery factors associated with the evaporation ponds (i.e. the point of reference being after passing through the evaporation ponds), while the final sales product is presented here; note that values are rounded if comparing totals.

The Net Present Value (NPV) estimates for Salar de Atacama and PQC production are provided in Table 1-6.

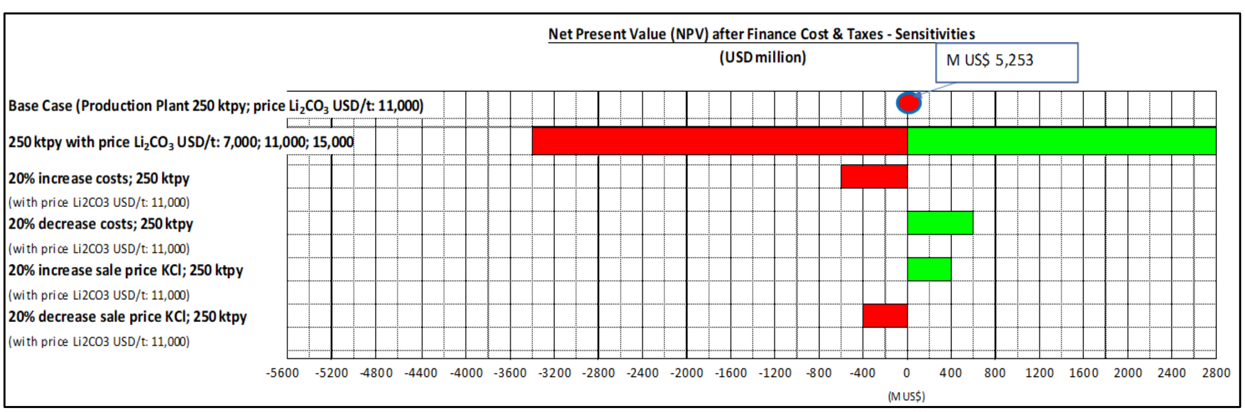
Table 1-6. Estimated Cashflow Analysis

			2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	1,768	2,199	2,357	3,127	3,127	3,127	3,127	3,127	2,907
Costs	M US$	-	-929	-1,106	-1,217	-1,534	-1,534	-1,534	-1,534	-1,534	-1,443
Investments	M US$	-	-300	-250	-350	-60	-60	-60	-30	-30	-30
Depreciation	M US$	-	116	122	126	136	136	136	136	136	133
Cashflow before Financial Costs and Taxes	M US$	-	655	965	915	1,668	1,668	1,668	1,698	1,698	1,566
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28 %	-172	-259	-245	-456	-456	-456	-464	-464	-427
Cashflow after Financial Costs and Taxes	M US$	-	443	666	630	1,172	1,172	1,172	1,194	1,194	1,099

Net Present Value (NPV) before Financial Cost & Taxes. (M US$)	10 %	7,526
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)	10 %	5,253

Table 1-7 shows the sensitivity of NPV, depending on the key assumptions the varying value ranges around assumed base values.

Table 1-7. Li2CO3 Price, Costs, KCl Price – NPV Sensitivities



1.8 Conclusions and Recommendations

This study concludes that the Salar de Atacama Project in operation for the treatment of brines to obtain Li and K salts is economically feasible, according to financial and reserve parameters. SQM has vast experience in the treatment of brines and salts. Their track record includes knowledge of the Mineral Resources and raw materials during the different processing stages, including operational data on reagent consumption and costs.

WSP considers that the exploration data accumulated by the company is reliable and adequate for the purpose of the declared Mineral Resource and Reserve estimates. All reported categories were prepared in accordance with the resource classification pursuant to the SEC's new mining rules under subpart 1300 and Item 601(96)(B)(iii) of Regulation S-K (the "New Mining Rules").

2 INTRODUCTION AND TERMS OF REFERENCE

This Technical Report Summary (TRS) was prepared for the Sociedad Química y Minera de Chile (SQM) and its aim is to provide investors with a comprehensive understanding of the mining property based on the requirements of Regulation S-K, Subpart 1300 of the United States Securities Exchange Commission (SEC), which hereafter is referred to as the S-K 1300.

2.1 Terms of Reference and Purpose of the Report

SQM produces a wide variety of commercial chemicals from the naturally occurring brines in the Salar de Atacama salt crust found in northern Chile. Products derived from the brines include potassium nitrate, lithium derivatives, iodine derivatives, potash, and other industrial chemicals.

This TRS provides technical information to support Mineral Resource and Mineral Reserve estimates for the operations of SQM in the Salar de Atacama. It also details related brine processing information in the PQC.

The effective date of this TRS Report is April 8, 2022, while the effective date of the Mineral Resource and Mineral Reserve estimates is December 31, 2021. It is the QP's opinion that there are no known material changes impacting the Mineral Resource and Mineral Reserve estimates between December 31, 2021, and April 8, 2022.

This TRS uses English spelling and Metric units of measure. Grades are presented in weight percent (wt.%). Costs are presented in constant US Dollars (USD), as of December 31, 2021.

Except where noted, coordinates in this TRS are presented in Metric units, using the World Geodetic System (WGS) 1984 Universal Transverse Mercator (UTM) ZONE 19 South (19S).

The purpose of this TRS is to report Mineral Resources and Mineral Reserves for SQM's Salar de Atacama operation.

Table 2-1 details the acronyms and abbreviations used in this TRS.

Table 2-1. Acronyms and Abbreviations

Abbreviation/Acronym	Definition
°C	degrees Celcius
AA	atomic absorption
AAE	Authorized Areas of Extraction
AAS	Atomic Absorption Spectrometry
acQuire	acQuire
ADI	Indigenous Location Area
ADUP	Analytical duplicates
AR	average
B	boron
BLK	blanks
CCHEN	Chilean Nuclear Energy Commission
CCTV	closed-circuit TV
CM	counter sample
CONAMA	Comisión Nacional del Medio Ambiente
CORFO	Corporación de Fomento de la Producción
DDH	diamond drill hole
DICTUC	Dirección de Investigaciones Científicas y Tecnológicas de la UC
DPS	salt deposit
EDA	exploratory data analysis
ER	error ratio
ERT	Electrical Resistivity Tomography
ETS	Evapotranspiration Segments
ETFA	Enforcement Technical Entity
FDUP	Field Duplicates
GHS	SQM's Hydrogeology Department
GHS	Gerencia Hidrogeología Salar
GPS	Salar de Atacama Production Management
GU	geological units
Ha (with capital H)	Recent Alluvial and Fluvial Deposits
ha	hectare
ICP	inductively coupled plasma analysis
IGS	specific yield
IIG	Instituto de Investigaciones Geológicas
K	potassium
K2SO4	potassium sulfate
KCL	potassium chloride or potassium chloride equivalent
Kh	hydraulic conductivity
km^2	square kilometer
Kt	kilotonnes

Abbreviation/Acronym	Definition
ktpy	kilotonnes per year
kV	kilovolt
Kv/Kh	vertical-horizontal anisotropy
KvA	kilovolt amperes
L/s	liter per second
Lab POR	Porosity Laboratory
Lab POR	Laboratorio de Porosidad del Salar de Atacama
Lab SA	Laboratorio Salar de Atacama
Lab UA	laboratory of the University of Antofagasta
LCE	Lithium carbonate equivalent
LFP	Lithium Ferro Phosphate
Li	lithium
Li2CO3	lithium carbonate
LIMS	laboratory information management system
LiOH	lithium hydroxide
LNG	Natural gas
LOM	life-of-mine
LPG	Liquefied gas
LSC	Salar del Carmen Laboratory
m	meter
M	million
m/d	meters per day
m2	square meter
m3	cubic meter
Mm3	million cubic meters
MINSAL	Sociedad Minera Salar de Atacama Limitada
mL	milliliter
mm	millimeters
mm3	cubic millimeters
MOP	muriato de potasio (potassium chloride product)
Mt	metric tonnes
MT	Magnetotelluric
Mt	million tonnes
Mtpy	metric tonnes per year
MW	megawatt
MWh	megawatt hour
Na2CO3	Sodium Carbonate
NCM	Nickel, Cadmium and Manganese
NMR/BMR	Natural Gamma, and Borehole Nuclear Magnetic Resonance
NNW-SSE	north-northwest-south-southeast

Abbreviation/Acronym	Definition
Nobody's Land	Tierra de Nadie
NPV	Net Present Value
NW	northwest
OK	Ordinary Kriging
OMA Exploration	SQM's distinct areas of exploration
OMA Extraction	SQM's distinct areas of extraction
PCA	Environmental control points
PdC	compliance program
Pe	Effective Porosity
PlHa	Alluvial Deposits
PlHs	Salar de Atacama Saline Deposits
PPR	Possible Pollution Ratios
PQC	Carmen Lithium Chemical Plant
PSA	Environmental monitoring plan
QA/QC	quality assurance and quality control
QC	duplicate samples
QP	Qualified Person
RC	reverse circulation
RCA	Resolución de Calificación Ambiental
RIL	liquid waste
RIS	solid waste
RM	reference materials
RMS	Root Mean Square
RS	Reference Samples
Salar	Salar
SCL	Sociedad Chilena de Litio
SEC	Securities Exchange Commission
SERNAGEOMIN	Servicio Nacional de Geología y Minería
SING	Sistema Interconectado Norte Grande
S-K 1300	Subpart 1300 of the United States Securities Exchange Commission
SMA	Enforcement Authority
SOC	Samples Out of Control
SOP	sulfato de potasio (potassium sulfate product)
SQM	Sociedad Química y Minera de Chile
SQM Salar	SQM subsidiary SQM Salar S.A
SRK	SRK Consulting (U.S.), Inc.
Ss	specific storage
SW	southwest
Sy	specific yield

Abbreviation/Acronym	Definition
t/h	tonnes per hour
t/y	tonnes per year
TEM	transient electromagnetic method
Thousand United States Dollars	KUSD
TRS	Technical Report Summary
UA	Unit A
UB	Unit B
USD	United States Dollars
USD/t	United States Dollars per tonne
UTM	Universal Transverse Mercator
V	volt
WGS	World Geodetic System
wt.%	weight percent or %
ZAE	Zona Autorizada de Extracción, or Authorized Extraction Zone

2.2 Source of Data and Information

This TRS is based on information provided by SQM. All the utilized information is cited throughout this TRS and is referenced in Chapter 24 (References) at the end of this Report.

2.3 Details of Inspection

The details of the site inspections by the QPs are summarized in Table 2-2.

Table 2-2. Site visits

Qualified Person (QP)	Expertise	Date of Visit	Detail of Visit
Alvaro Henriquez	Exploration, Resources, Reserves	Several visits between 2008 - 2020	Operations, extraction wells, evaporation ponds, processing plants
Gino Slanzi G	Process	15 Nov 2021	Operations, extraction wells, evaporation ponds, processing plants
Rodrigo Riquelme	Resources and Reserves	Several visits between 2018 - 2020	Operations, extraction wells, evaporation ponds, processing plants

During the various site visits, the group toured the general areas of mineralization, the historical and current mine, and drill sites. The group also reviewed existing infrastructure, evaporation ponds, processing plants, wells, drill cores, and project data files with SQM technical staff.

2.4 Previous Reports on Project

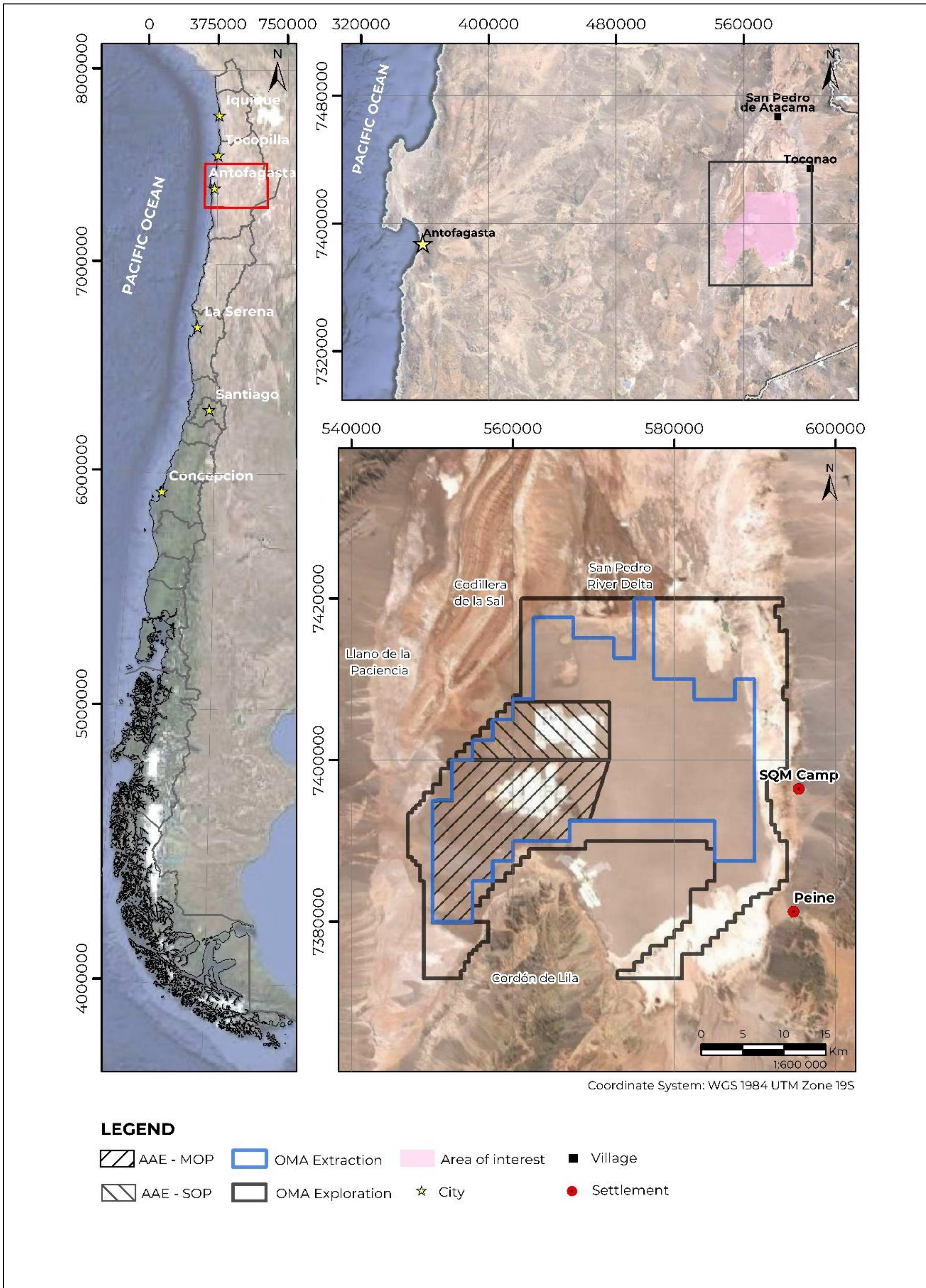
This is the first TRS prepared for SQM's Salar de Atacama brine deposit. This TRS is not an update of a previously filed TRS.

3 PROPERTY DESCRIPTION

3.1 Property Location

The Salar de Atacama Basin is located in the El Loa Province, within the Antofagasta Region of northern Chile, between 548,420 mE and 589,789 mE and 7,394,040 mS and 7,393,788 mS (Coordinate Reference System WGS84, UTM 19S). As shown on Figure 3-1, the mining property operated by SQM extends between approximately 550,000 mE and 593,000 mE, and 7,371,000 mS and 7,420,000 mS (Coordinate Reference System WGS84, UTM 19S). SQM's distinct areas of exploration (OMA Exploration) and extraction (OMA Extraction) are detailed in the following subsection.

Figure 3-1. Location of SQM's Salar de Atacama Project



3.2 Lease Agreement and Mineral Rights

In 1993, SQM entered a lease agreement with the Corporación de Fomento de la Producción or Production Development Corporation of Chile (CORFO), the governmental agency that owns the mineral rights in the Salar de Atacama. The lease between CORFO and SQM will last until December 31, 2030, granting SQM exclusive rights to Mineral Resources beneath 140,000 hectares (ha) (28,054 mineral concessions) of the Salar de Atacama. SQM is permitted to extract minerals from a subset of 81,920 ha (16,384 mineral concessions), corresponding to 59.5% of the total area of the leased land. The 140,000 ha of land leased by CORFO to SQM are referred to as the "OMA" concessions, a name devised by CORFO in 1977. SQM refers to the 81,920-ha subset, where extraction can occur as the "OMA Extracción" (OMA Extraction) Area. The remaining 58,350 ha are termed the "OMA Exploración" (OMA Exploration) Area, where only mineral exploration can occur. The terms of the agreement established that CORFO will not allow any other entity aside from SQM to explore or exploit any Mineral Resource in the indicated 140,000 ha area of the Salar de Atacama.

In 2018, SQM and CORFO undertook a reconciliation process that modified the pre-existing lease and project contracts. As part of this Arbitration Agreement, SQM generated additional resources for the state and local communities of Antofagasta as well as for research and development. The expiration date of the lease (December 31, 2030) was not modified. Regarding brine production, in the lease agreement, Comisión Chilena de Energía Nuclear, or Chilean Nuclear Energy Commission (CCHEN) established a total accumulated sales limit of up to 349,553 metric tonnes of metallic lithium (1,860,670 metric tonnes of lithium carbonate equivalent) in addition to approximately 64,816 metric tonnes of metallic lithium (345,015 metric tonnes of lithium carbonate equivalent) remaining from the originally authorized quantity of the CORFO Arbitration Agreement of 2018.

3.3 Environmental Impacts and Permitting

The environmental permit, "Resolución de Calificación Ambiental, RCA N° 226/2006," issued on October 19, 2006, by the Comisión Regional del Medio Ambiente, or Regional Environmental Commission (COREMA), authorizes SQM to extract brines via pumping wells from a specific portion of the OMA Exploration Area. SQM refers to these brine extraction areas as Áreas Autorizadas para la Extracción, or Authorized Areas of Extraction (AAE) zones, and they are further divided based on the products historically generated in each sector (Figure 3-1). The northern portion is denominated the AAE-SOP, where "SOP" signifies sulfato de potasio (potassium sulfate product) and covers a surface area of 10,512 ha equivalent to 29.27% of the total AAE area. The southern portion is referred to as AAE-MOP, where "MOP" indicates muriato de potasio (potassium chloride product), covering a surface area of 25,399 ha equivalent to 70.73% of the total AAE area.

The water that SQM uses for its mineral production in the Salar de Atacama is obtained from wells located in the alluvial aquifer on the eastern edge of the Salar, for which the company has rights to use groundwater as well as the corresponding environmental authorization (RCA 226/2006). As part of the voluntary sustainability commitment assumed by SQM in 2020, the company will reduce its water consumption by up to 50% in 2030 (SQM I, 2021).

3.4 Other Significant Factors and Risks

SQM's operations are subject to certain risk factors that may affect the business, financial conditions, cashflow, or SQM's operational results. Potential risk factors are summarized below:

- The potential inability to extend, or renew, mineral exploitation rights in the Salar de Atacama beyond the defined expiration date (December 31, 2030) in the CORFO-SQM lease agreement.
- Risks related to being a company based in Chile; potential political risks as well as changes to the Chilean Constitution and legislation may affect development plans, production levels, and costs.
- Risks related to financial markets.

3.5 Royalties and Agreements

SQM made payments to the Chilean government for the exploration and exploitation concessions, including those which are leased from CORFO of approximately US $ 7.9 million in 2019 and US $ 6.5 million in 2020. These payments do not include those made directly to CORFO by virtue of the lease agreement, according to the established percentages related to the sale value of the resulting products of brine exploitation.

SQM does not have contracts that require other payments for: licenses, franchises, or royalties (not contemplated in the Royalty Law of Chile). SQM carries out its own operations through mining rights, production facilities, as well as transportation and storage facilities.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography, Elevation, and Vegetation

The Salar de Atacama salt crust covers an area of approximately 2,200 square km with a greater north-south distance of 85 km and maximum west-east width of 50 km. The average elevation of the salt flat nucleus is approximately 2,300 meters above sea level (masl).

There are four main vegetation types in the basin that correspond to crops, vegas, tamarugos, and bofedales. Vegetation is mainly found along the marginal zone of the basin and is associated with a desert ecosystem and low-precipitation environment (SRK, 2020).

4.2 Accessibility and Transportation to the Property

The SQM facilities of Salat de Atacama Project are located 35.6 km from Peine and at 57.4 km from Toconao. The closest cities are Calama, 160 km to the west of the basin, and Antofagasta, located 230 km to the west.

It is possible to travel to site by plane, via the Loa Airport, or Andrés Sabella Airport, located in Calama and Antofagasta, respectively. From Calama, the road to the site is through Route R-23 over 220 km, and from Antofagasta, it is via Route B-385 for 272 km. It is also possible to access the area through two public roads, Route B-355 that runs from Toconao to Peine, as well as Route B-385 that connects the Salar de Atacama to Baquedano.

4.3 Climate

The temperatures registered at the SQM station Campamento Andino vary between -6 degrees Celsius (°C) and 33°C, with an annual average lower than 18°C, characteristic of a cold desert environment.

Precipitation is registered both in the winter and summer, with a majority of the precipitation occurring in summer (December, January, and February). Maximum values range between 29.3 mm (KCL Station, March 2002) and 88 mm (Toconao Station, February 2012). Operations occur year-round (continuously), with higher evaporation rates in the summer and lower rates in winter.

4.4 Infrastructure Availability and Sources

Since 2017, the operations at Salar de Atacama are connected to the national electrical system that provides energy to most of the cities and industries in Chile. Most energy needs are covered by the Electric Power Supply Agreement that was enacted with AES Gener S.A. on December 31, 2012. For natural gas, SQM has a five-year contract with Engie since 2019, and liquid gas is supplied by Lipigas. The freshwater supply for the Salar de Atacama is obtained from nearby freshwater wells in the basin for which the company has the corresponding rights and environmental authorization.

5 HISTORY

Between 1994 and 1999, SQM invested in the development of the Salar de Atacama project to produce potassium chloride, and lithium carbonate among other products (SQM, FORM 20-F 2020). Prior to SQM's involvement in the project, numerous historical studies were completed in the Salar de Atacama Basin to investigate the geology, surface and groundwater hydrology, hydrogeochemistry, and water and brine resources. The most relevant technical studies, previous operations, and relevant exploration and development work are summarized below:

- Brüggen (1942): General description of the geology setting of the Atacama salt flats and their surroundings.
- Dingman (1965): Surface geological mapping of the Salar de Atacama Basin.
- Dingman (1967): In collaboration with the IIG and CORFO, the first published analysis of brines in the nucleus of the Salar de Atacama which reported the high concentrations of potassium and lithium.
- Díaz del Río, Bonilla, and Peralta (1972): Evaluation of the brine resource and the groundwaters to the east and north of the salt flat nucleus for the IIG and CORFO.
- Moraga et al. (1974): Built on the work of Díaz del Río et al. (1972), including: (a) the preparation of an economic evaluation of the brine resource; and (b) the development of topographic cartography of the Salar de Atacama Basin at a 1:250.000 scale.
- Ide (1978): University of Chile Thesis for the degree of Mining Engineer (sponsored by CORFO), which provided an estimate of the mass of the various crystalline salts within the nucleus of the Salar de Atacama and presented a brine resource characterization based on the analysis of over 400 samples.
- Harza Engineering Company Ltd (1978): Water Resources Evaluation, including the completion of hydrogeological investigation wells in the marginal zone to the east and north of the nucleus of the Salar de Atacama. Study associated with the United Nations Project CHI-69/535 titled, "Desarrollo de los Recursos Hídricos en el Norte Grande de Chile" (Development of the Water Resources of the Norte Grande of Chile).
- Dalannais (1979): Católica del Norte University, Antofagasta, Chile. Thesis for the degree of Geologist titled, "Hidrogeología del Borde Oriental del Salar de Atacama" (Hydrogeology of the Eastern Border of the Salar de Atacama).
- During the 1980s, the Chilean National Petroleum Company, or Empresa Nacional del Petróleo (ENAP), conducted seismic reflection surveys in the Salar de Atacama Basin. This data was subsequently analyzed and interpreted by several different groups that concluded that the data demonstrated good lateral continuity of the deposited sediment and evaporite units in the Salar de Atacama Basin over the last 23 million years, between the Miocene Epoch and present day.

- Ramírez and Gardeweg (1982): Sernageomin geological map of the Salar de Atacama Basin at 1:250,000 scale with an accompanying 117-page memoir (Carta Geológica de Chile, Serie Geología Básica, N° 54, Hoja Toconao).
- Hydrotechnica (1987). Evaluation of Brine Reserves in the Salar de Atacama. Report that summarizes a drilling campaign, hydraulic test, and drainable porosity studies to characterize hydraulic parameters in the nucleus of Salar de Atacama as well as the reserves.
- Bevacqua (1992): Universidad Católica del Norte, Antofagasta, Chile. Geology thesis titled, "Geomorfología del Salar de Atacama y Estratigrafía de su Núcleo y Delta" (Geomorphology of the Salar de Atacama and Stratigraphy of its Nucleus and Delta). Includes the evaluation of hydraulic parameters of the salt flat nucleus based on data from field campaigns, conducted by MINSAL and CORFO. Information analyzed includes diamond core data, pumping test results, and drainable porosity estimates.
- SQM (1993): In 1993, based on an agreement with MINSAL, SQM implemented a project to produce potassium chloride from the Salar de Atacama for use in fertilizer production. A pilot production wellfield began brine extraction in 1994, and was expanded in 1996, with technical support provided by the consulting firm, Water Management Consultants (WMC).
- Water Management Consultants. (1993). Salar de Atacama. Southwest Corner Investigation. 1150/2, Prepared for Minsal S.A. Geological and hydrogeological characterization of the southeast corner of Salar de Atacama. Includes drainable porosity characterization.
- Alonso & Risacher (1996): Evaluation of the water balance and geochemistry of the Salar de Atacama Basin.
- Carmona (2002): Doctoral thesis (2002) that further develops the evaluation of the water balance and geochemistry of the Salar de Atacama Basin.
- EIA (2005): EIA submitted by SQM in January 2005 in support of the project titled, "Cambios y Mejoras de la Operación Minera en el Salar de Atacama" (Changes and Improvements of the Mining Operation in the Salar de Atacama). SQM received the corresponding environmental approval (RCA 226/2006) for the project in October 2006. A numerical model was developed to evaluate how the hydrological system of the Salar de Atacama would react over time from the extraction of (a) brine from the salt flat nucleus for mineral extraction; and (b), fresh groundwater from the marginal zone to supply SQM's mining operation.
- Jordan et al (2002; 2007), and Arriagada, Cobbolds & Roperch (2006): Evaluation of seismic reflection data obtained out by ENAP during the 1980s. The analysis identified compressive deformation and a correlation between sediment deposition and tectonic events.

- Geohidrología Consultores (2007): Supervision of the construction of monitoring wells in accordance with the conditions of the environmental permit awarded with respect to the 2005 EIA.
- AMPHOS XXI Consulting (2008): Hydrogeological analysis of data collected during the 2007 monitoring well construction campaign, and development of a hydrogeological model to support the hydrogeological evaluation of the Soncor wetland system in the marginal zone to the northeast of the nucleus of the Salar de Atacama.
- Xterrae Geología (2011): Preparation of a digital model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin based on field and laboratory data compiled by SQM. Model prepared by Xterrae Geología, a consulting firm based in Santiago, Chile.
- Niemeyer (2013): Geological mapping of the high ground of the Cordón de Lila, to the south of the nucleus of the Salar de Atacama, at a scale of 1: 100,000.
- Becerra et al. (2014): "Geología del área Salar de Atacama, región de Antofagasta. Servicio Nacional de Geología y Minería" (Geology of the Salar de Atacama Area, Antofagasta Region, Sernageomin). Conducted a geological survey of the Salar de Atacama areas (scale 1: 100,000).
- Henriquez et al. (2014): "Geología del Área San Pedro de Atacama, Región de Antofagasta. Servicio Nacional de Geología y Minería" (Geology of the San Pedro de Atacama Area, Antofagasta Region, Sernageomin). Conducted a geological survey in San Pedro de Atacama (scale 1: 100,000).
- Xterrae Geología (2015): Update of the model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin, incorporating field and laboratory data compiled by SQM since completion of the 2011 model.
- SQM (2018): Updated estimate of the Salar de Atacama brine resource, supported by the development of a detailed model of the hydrogeological stratigraphy within the salt flat nucleus.
- SQM (2019): Update of the model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin, incorporating field and laboratory data compiled by SQM since the 2015 update of the model by Xterrae Geología. The data set for this update includes information from SQM drilling campaigns up until January 2019 and the local detailed model of the hydrogeological stratigraphy within the nucleus of the salt flat developed by SQM in 2018.

6 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

The focus of the mineralization for the project is lithium and potassium bearing brine, occurring within the aquifer in SQM's mining concessions of the Salar de Atacama. The following subsections summarize the regional, local, and property geology as well as the mineralized zones and deposit type.

6.1 Regional Geology

The general geology in the vicinity of the Project is characterized by Paleozoic to Holocene igneous and sedimentary rocks, as well as recent unconsolidated clastic deposits and evaporitic sequences. The salt flat itself resides in a tectonic basin of important subsidence and recent compressive-transpressive behavior. It is bounded by high angle reverse and strike-slip faults that have affected the Paleozoic basement to current cover (Jordan et.al., 2002; Mpodozis et.al., 2005; Arriagada et.al., 2006; Jordan et.al., 2007). Toward the south of the salt flat, the Cordón de Lila igneous-sedimentary complex is found; and in the north-central portion, surficial sediments are present that are associated with the San Pedro River Delta.

Since the Mesozoic Era, the space generated from regional faults movements has controlled the deposition of the distinct geological formations in the area, as well as current morphology (Mpodozis et.al., 2005; Arriagada et.al., 2006). The basement rock represents the oldest consolidated units of the Salar de Atacama Basin that outcrop in the higher peaks of the Cordillera de Domeyko and Cordón de Lila. It is constituted by Paleozoic to Paleocene intrusive rocks, Paleozoic fluvial and marine deltaic sequences, as well as Paleozoic to Cretaceous continental and volcanic sequences. These outcrops are partially covered by continental sedimentary sequences.

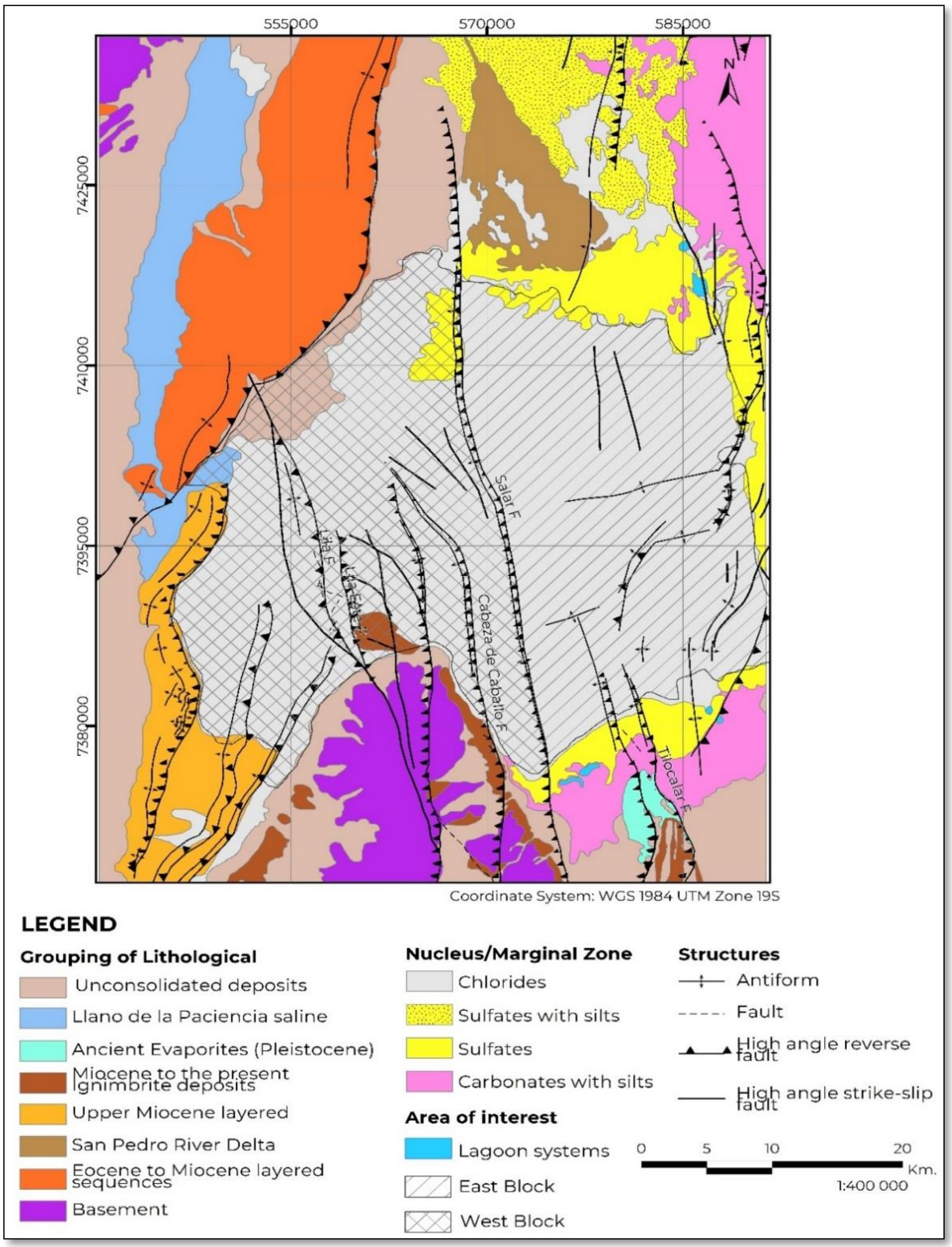
Consolidated ash flows from ignimbrite deposits of the Miocene age to present day unconformably overlie basement rock and cover large areas of the Cordillera Occidental and slopes of the Cordón de Lila. Furthermore, Oligocene to Holocene unconsolidated deposits of alluvial, fluvial, and eolian origin outcrop Llano de la Paciencia, west of Cordillera de la Sal, as well as along the slopes of Cordón de Lila.

6.2 Local Geology

The surficial geology in the Salar de Atacama area comprises recent evaporitic deposits, where over time, the process of evaporation has precipitated salts, as well as unconsolidated surficial sediments along the salt flat margins (Figure 6-1). The salt crust principally comprises halite, sulfates, and occasional organic matter. With depth, evaporitic, clastic, and thin volcanic ash deposits host brine delimitated and cut by local fault systems. Several structural blocks were identified due to observed displacement and deformation of the geological units (Chapter 7).

The north-northwest-south-southeast (NNW-SSE) trending Salar Fault System is the most important structural system, spanning from the southern limit of the San Pedro River Delta and deepening toward the north (Arriagada, 2009). Within the Salar de Atacama, the high angle reverse Salar Fault represents the most important structural feature with significant displacement of the lithologic units on either side, defining two main structural domains, the West Block and East Block (Figure 6-1). Another important fault system in the salt flat that corresponds to the Cabeza de Caballo Fault System that runs from the Lila Mountain to the north. Several other NNW-SSE trending faults systems were also identified.

Figure 6-1. Local Geology Map of Salar de Atacama



6.3 Property Geology

The stratigraphic units within the property are briefly described and presented below from youngest to oldest (SQM, 2021). The following sub-section presents geological cross sections through the property geology and the general stratigraphic sequence (Figure 6-2 and Figure 6-3).

6.3.1 Upper Halite

This unit comprises pure halite and halite with clastic sedimentary material and/or gypsum. The clastic sedimentary material comprises clay, silt, and sand, which are more abundant near surface and decrease with increasing depth. The Upper Halite has a mean thickness of 17 m in the West Block and 23 m in the East Block. In the West Block, the Upper Halite is underlain by a clay lens, gypsum, or carbonate units, depending on the specific area. In the East Block, the Upper Halite overlies halite with organic matter.

6.3.2 Clastic and Upper Evaporites

Clastic and evaporitic unit underlying the Upper Halite, which is mainly constituted by plastic clays, evaporites (halite and gypsum) and carbonates. This unit is mainly recognized in the West Block, and it presents a variable thickness between 0.3 m and 16 m, with a mean thickness of 1 m. This unit also includes two clay layers located in the SW and NW areas of the West Block.

6.3.3 Halite, Gypsum, and Carbonates with Organic Matter

This unit is mainly constituted by halite with interbedded gypsum, carbonates, and organic matter (black to gray colored). It is found in the East Block, with a minimum thickness of 3 m near the Salar Fault and maximum thickness of 242 m along the eastern edge of the salt flat (with a mean thickness of 64 m throughout the area). This unit separates the Upper Halite unit from the Intermediate Halite Unit in the East Bock.

6.3.4 Intermediate Halite

The Intermediate Halite is divided into three distinct blocks according to observed spatial differences: (i) Northwest Block from the coordinate 7,385,626 5 m S, (ii) Southwest Block from the coordinate 7,385,626 m S, and the East Block. The three blocks are characterized by pure halite and halite with clastic sedimentary material and/or gypsum, with less than 25% of intercrystallite and intracrystalline content. In the East Block, minor traces of organic matter and carbonates are also present.

The Intermediate Halite unit thickness differs between the West Block and East Block: in the northwest (West Block), its maximum thickness is 25 m, while in the East Block, its maximum thickness reaches 429 m (with a mean thickness of 238 m).

6.3.5 Evaporites and Intermediate Volcanoclastics

The Evaporite and Intermediate Volcanoclastic Unit represents an erosional unconformity and is composed of interbedded gypsum, tuff, and reworked volcanoclastic material. In total, at least 10 tuff layers are found in this unit that are affected by local wedging, folding, and truncation. Toward the north of the salt flat, a change of facies is present where the gypsum grades to halite and the thickness increases (to the north) and is wedged to the south.

In the western block, this sequence has a recognized thickness of between 0 and 157 m and a mean thickness of 84 m. Its top, on average, is located at a depth of 51 m below the surface of the salt flat. Between the Salar and Cabeza de Caballo Faults, a sequence of sediments and evaporites called Sequence 1 is found which composed mainly of clay, halite, and gypsum. This sequence decreases towards the south and towards the Salar Fault, with thickness ranging from 7 to 36 m and a mean thickness of 20 m, where its greatest thickness is observed in the SOP deposit.

In the East Block, the Intermediate Evaporitic and Volcanoclastic unit is similar in composition to that described in the West Block. The only difference is that its mean thickness is on the order of 100 m, and the top of this unit is located at a mean depth of 318 m below surface.

6.3.6 Lower Halite

The Lower Halite comprises pure halite, halite with clasitic sedimentary material and/or gypsum, as well as halite with clay and/or sand. The halite generally presents a mosaic texture, and the clastic sedimentary material represent less than 25% of the rock, and they are clays, silt, and brown to red sands. The gypsum content represents less than 10% of the unit.

This unit is recognized in both West and East Blocks; in the West Block it has a variable thickness with a mean of 69 m in the West Block.

6.3.7 Regional Clays

A deep layer of clays, with a minimum depth below land surface of 60 m (West Block) and maximum depth below land surface of 400 m (East Block). This unit represents an erosional unconformity according to the seismic profile interpretation (Arriagada, Cobbolds & Roperch, 2006).

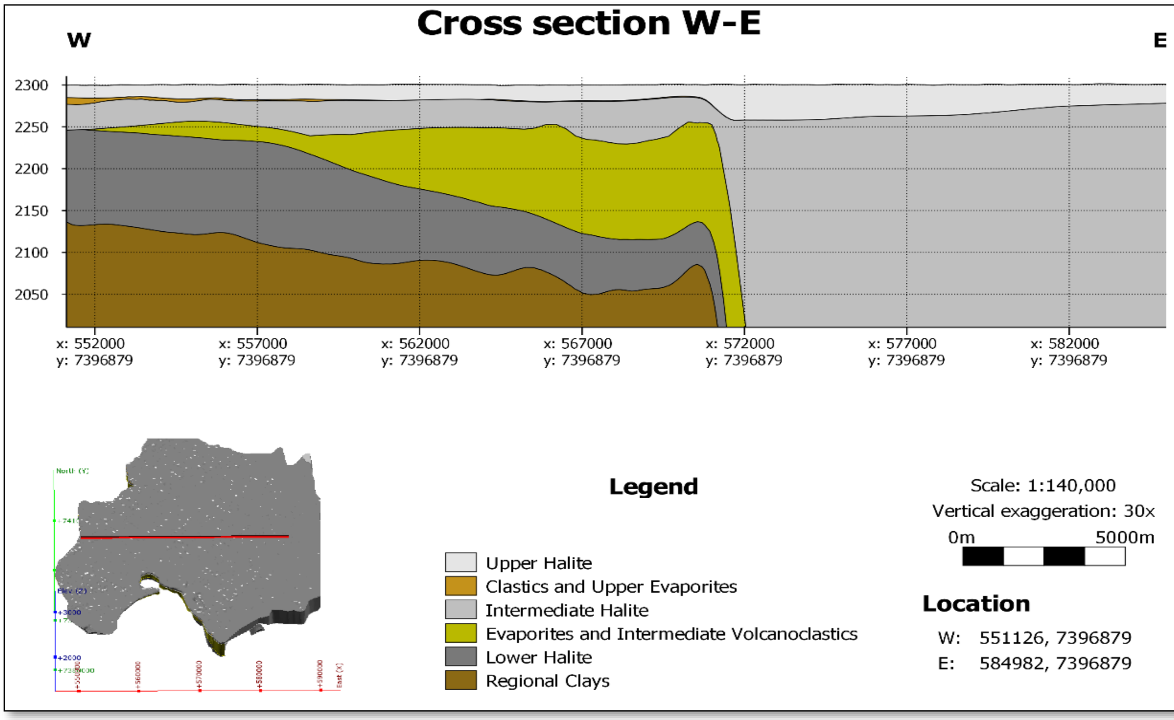
Underlaying the shallower sections of the Regional Clays, a deep tuff layer can be found with a mean thickness of 5 m. It consists of a thin crystalline - pumice tuff with abundant biotite, feldspars, and sparse quartz.

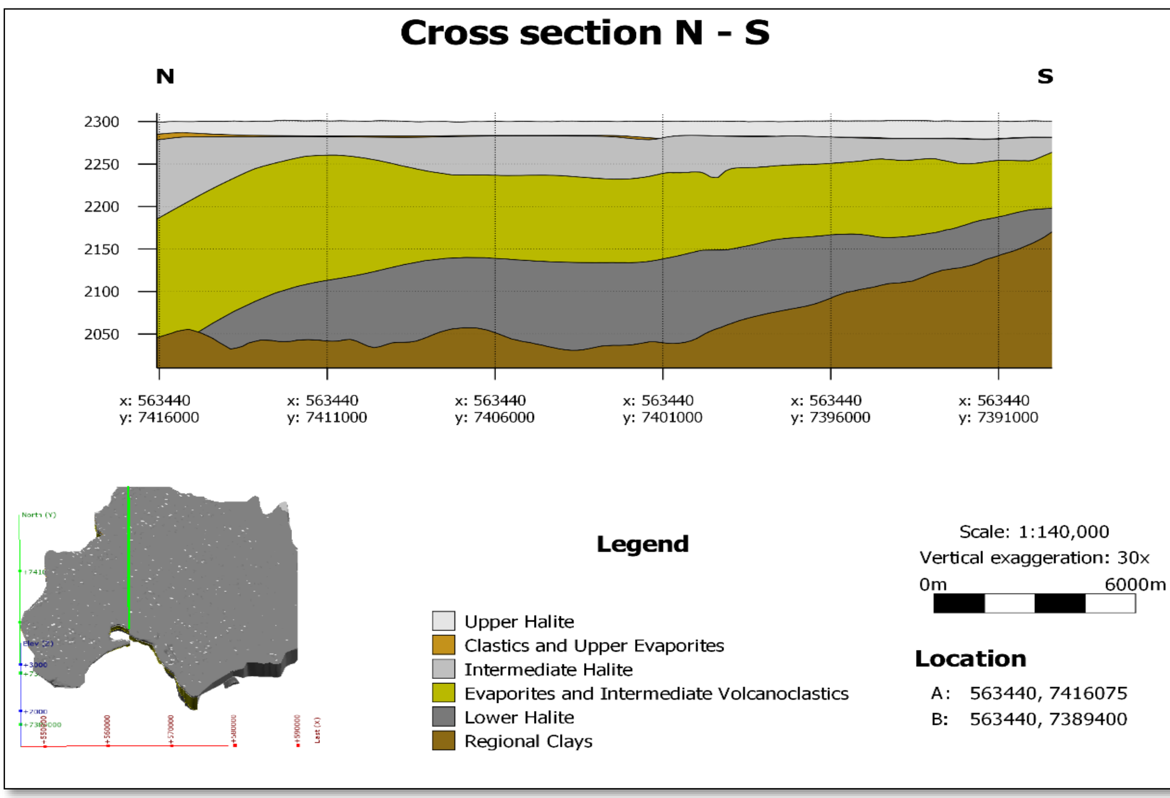
6.3.8 Geological Sections and the Stratigraphic Column

Two cross sections of the geological units that intersect the SQM properties are shown in Figure 6-2; this geological model was built using the Leapfrog Geo software and is based on well lithologic logs as well as geophysical sections (Chapter 7; SQM,2020). In the referenced figures, the various lithologic units are displayed with depth.

As a result of fault displacement and deformation, the East and the West blocks of the Salar de Atacama present important differences in the depths of the lithologic contacts. The west-east cross section highlights the displacement of the units due to the Salar and Cabeza de Caballo faults and shows the deepening of the units in the East Block. In the north-south cross section, the gypsum grades to halite toward the north, and its thickness increases 60 m.

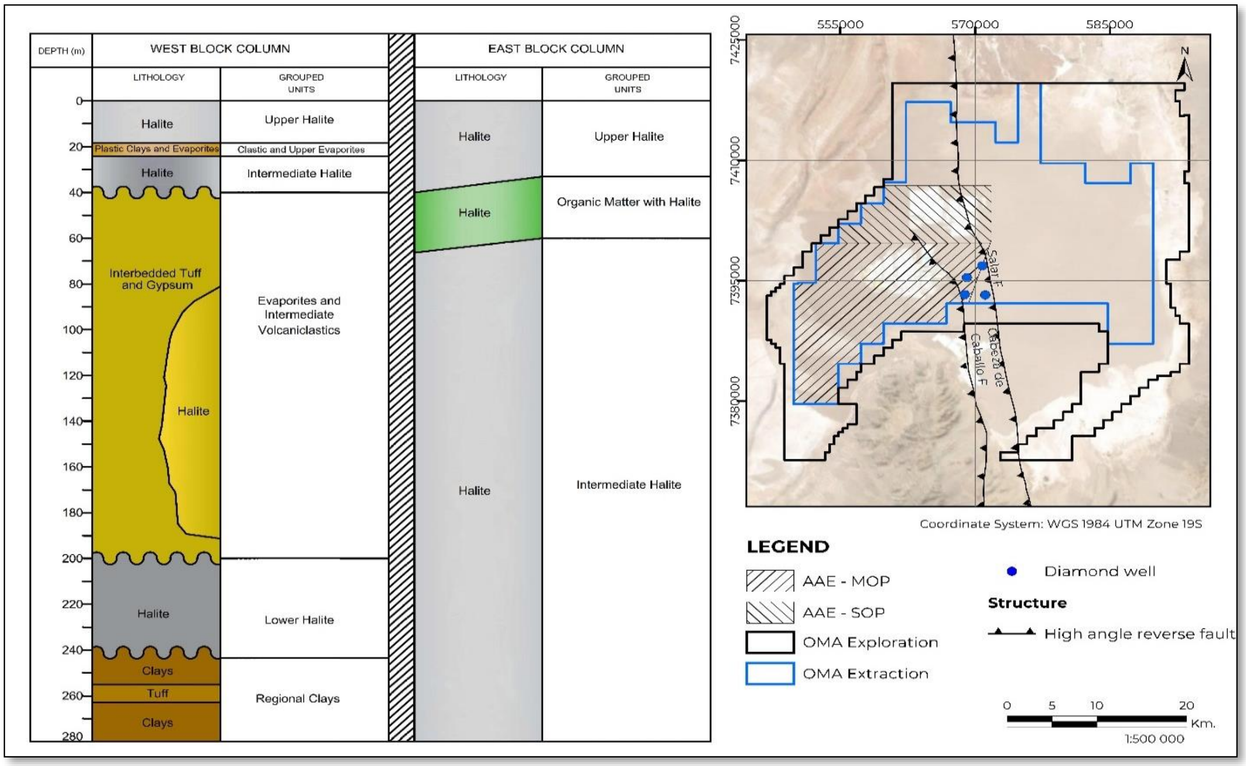
Figure 6-2. Geological Cross Sections





Two stratigraphic columns representing the West and East blocks are also presented in Figure 6-3. The most recently characterized type column for the East and West blocks were developed in 2018 by the Hydrogeology Department of SQM (i.e. GHS) using lithologic information from diamond drillholes.

Figure 6-3. Stratigraphic Columns of the Western and Eastern Blocks



6.4 Deposit Types

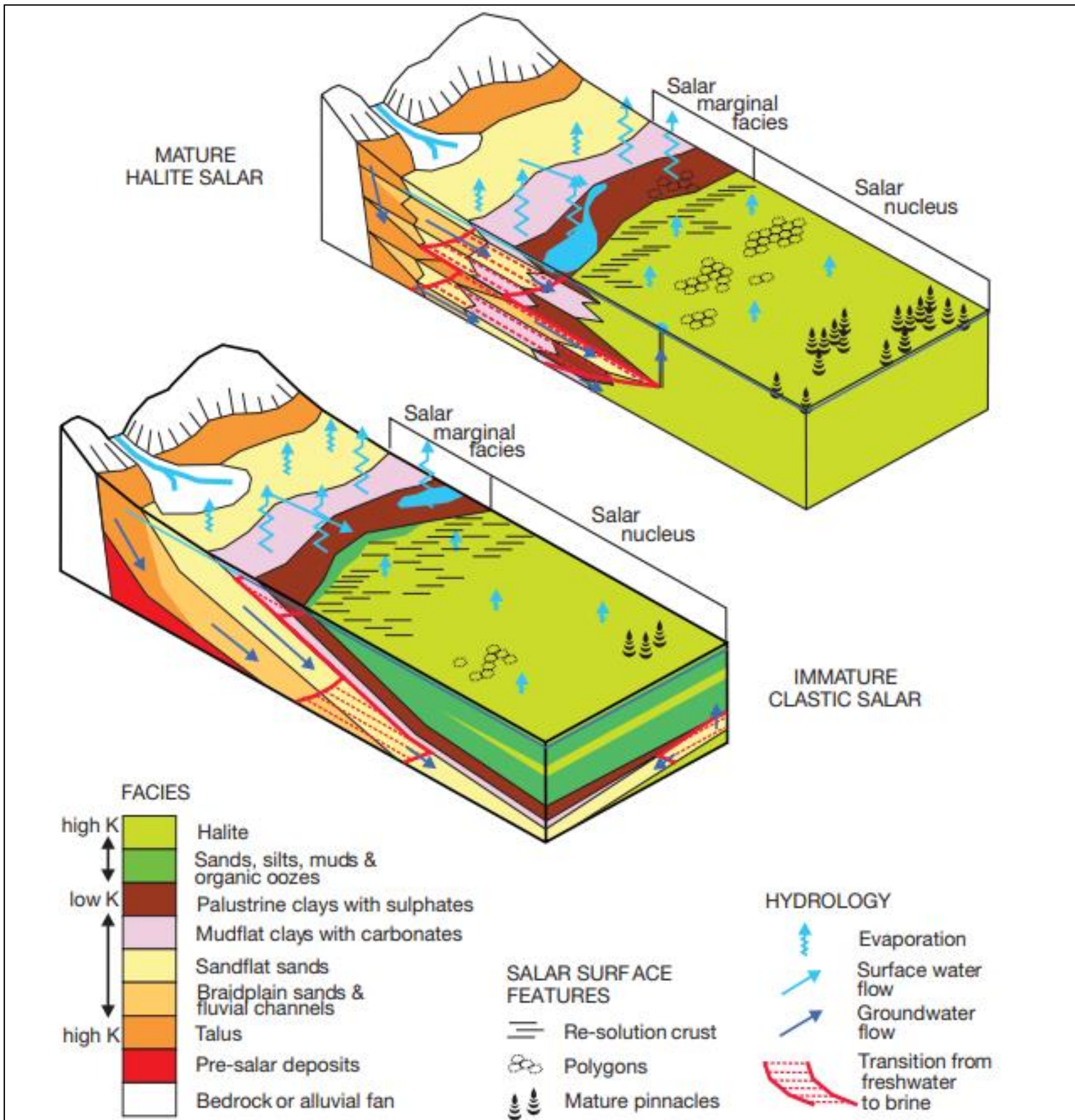
The Salar de Atacama brine deposit is contained within porous media filled with interstitial brine rich in Li, K, and boron among other ions. Houston et al. (2011) defined two types of salt flats, mature and immature salt flats:

- Mature Salt Flats: "Dry" salt flats have a lower moisture flux and well-defined halite nucleus. They are characterized by the development of a relatively uniform sequence of deposited halite in subaqueous to subaerial conditions. Brines are normally found above the saturation point of halite and solute concentrations are generally higher than those of immature salt flats.
- Immature Salt Flats: "Wet" salt flats which are characterized by a sequence of alternating fine clastic sediments and evaporites (halite, ulexite, and/or gypsum). The contained brines rarely reach halite saturation, suggesting the absence of a hyper arid climate during their formation. Immature salt flats tend to be more frequent at higher elevations and toward the wetter northern and eastern portions of the Altiplano-Puna region.

Figure 6-4 shows the different distribution of facies and main lithological components in both mature and immature salt flats classifications.

The Salar de Atacama nucleus is constituted by a thick section of evaporites over a surface area of 1,100 square km and up to a depth of 900 m (Bevacqua, 1992; Xterrae, 2011). It is surrounded by a marginal zone of clastic sediments over an area of about 2,000 square km of extension (Díaz del Río, et al., 1972). The nucleus is mainly constituted by halite (>90%) with sulfate and a minor percentage of clastic sediments as well as some interbedded clay sediments and sulfates. Therefore, the Salar de Atacama is classified as a mature salt flat, according to the site geology and Houston, et al. (2011) classification.

Figure 6-4. Mature and Immature Salt Flats (Houston et al., 2011)



7 EXPLORATION

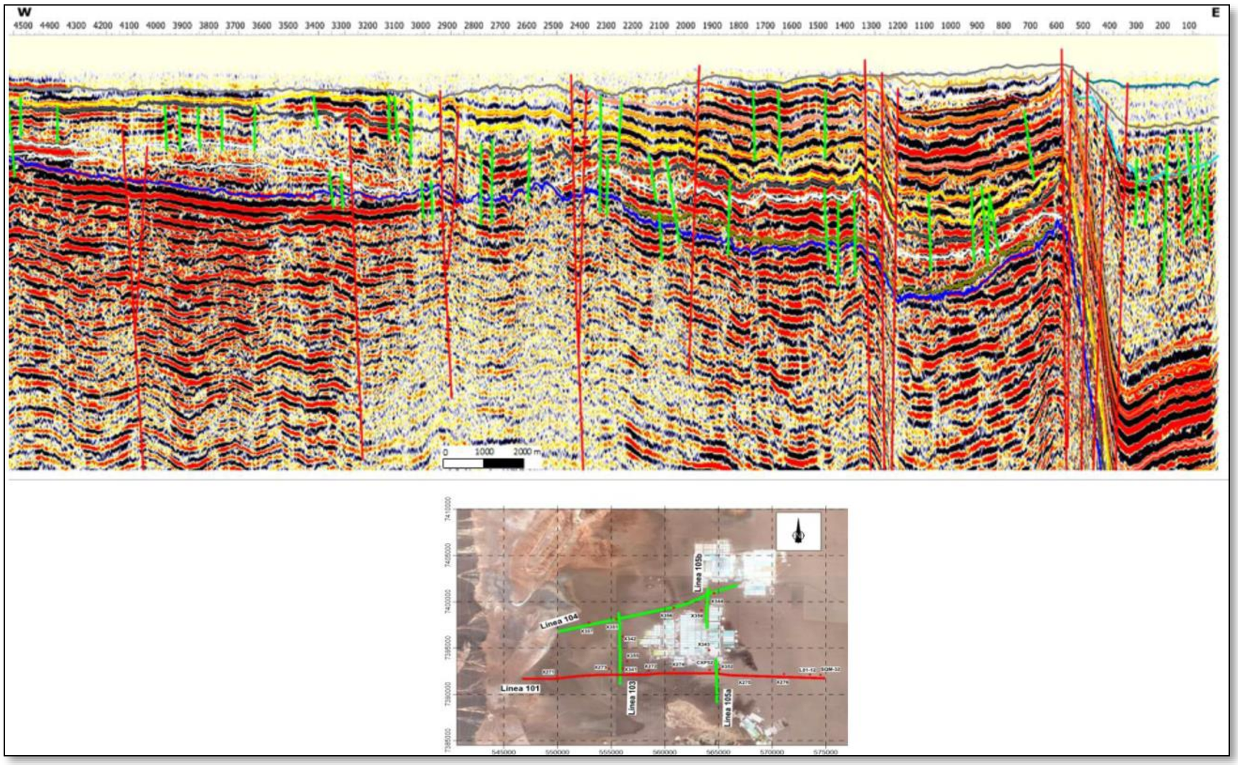
This chapter provides an overview of exploration work that has contributed to the development of the geological and hydrogeological conceptual models of the Project.

7.1 Geophysical Surveys

Geophysical information collected and utilized by SQM includes data obtained from surface survey lines and downhole geophysical instruments deployed in wells. The surface geophysical dataset is comprised of data collected by the transient electromagnetic method (TEM), nanoTEM, Electrical Resistivity Tomography (ERT), Magnetotelluric method (MT), and seismic reflection. The downhole geophysical dataset complements the geological, stratigraphical, and hydrogeological logging of wells, providing guidance for the cross correlation of stratigraphic units between holes to facilitate the continual improvement of the 3D stratigraphic, structural, and hydrogeological models of the salt flat. Downhole logs routinely run by SQM in the drilled wells include Caliper logs, Natural Gamma, and Borehole Nuclear Magnetic Resonance (NMR/BMR). Each layer (stratigraphic unit) presents a characteristic combination of responses to these three logs, assisting in the cross-correlation of stratigraphy.

Seismic reflection surveys in the salt flat nucleus have contributed to a better understanding of the layering of the reservoir, its depth, and the influence of the structural features present. presents the latest seismic reflection interpretation (AguaEx, 2020), highlighting the ductile deformation of the stratigraphic units due to displacement of the Cabeza de Caballo and Salar faults (eastern portion of the section). Resistivity methods (e.g., TEM and nanoTEM) were undertaken, mainly along the marginal areas of the Salar de Atacama, aiding in delineating the brine-freshwater interface and lithologic changes with depth.

Figure 7-1. Seismic Reflection Survey (AguaEx, 2020)



Note: The lines on the map indicate the seismic profile locations. The red line indicates the location of the profile shown in Figure 7-1..

Table 7-1 summarizes the surface geophysical dataset utilized by SQM. Table 7-2 shows the quantity and length of all downhole logs reviewed by SQM.

Table 7-1. Summary of the Conducted Geophysical Datasets

Surface geophysical method	Number of survey lines	Total length of survey lines
TEM	120 lines	643 km
TEM & NanoTEM	9 lines	54 km
MT	5 lines	67 km
ERT	6 lines	7.3 km
Seismic Reflection	6 lines	76.8 km
Total	146 lines	848.1 km

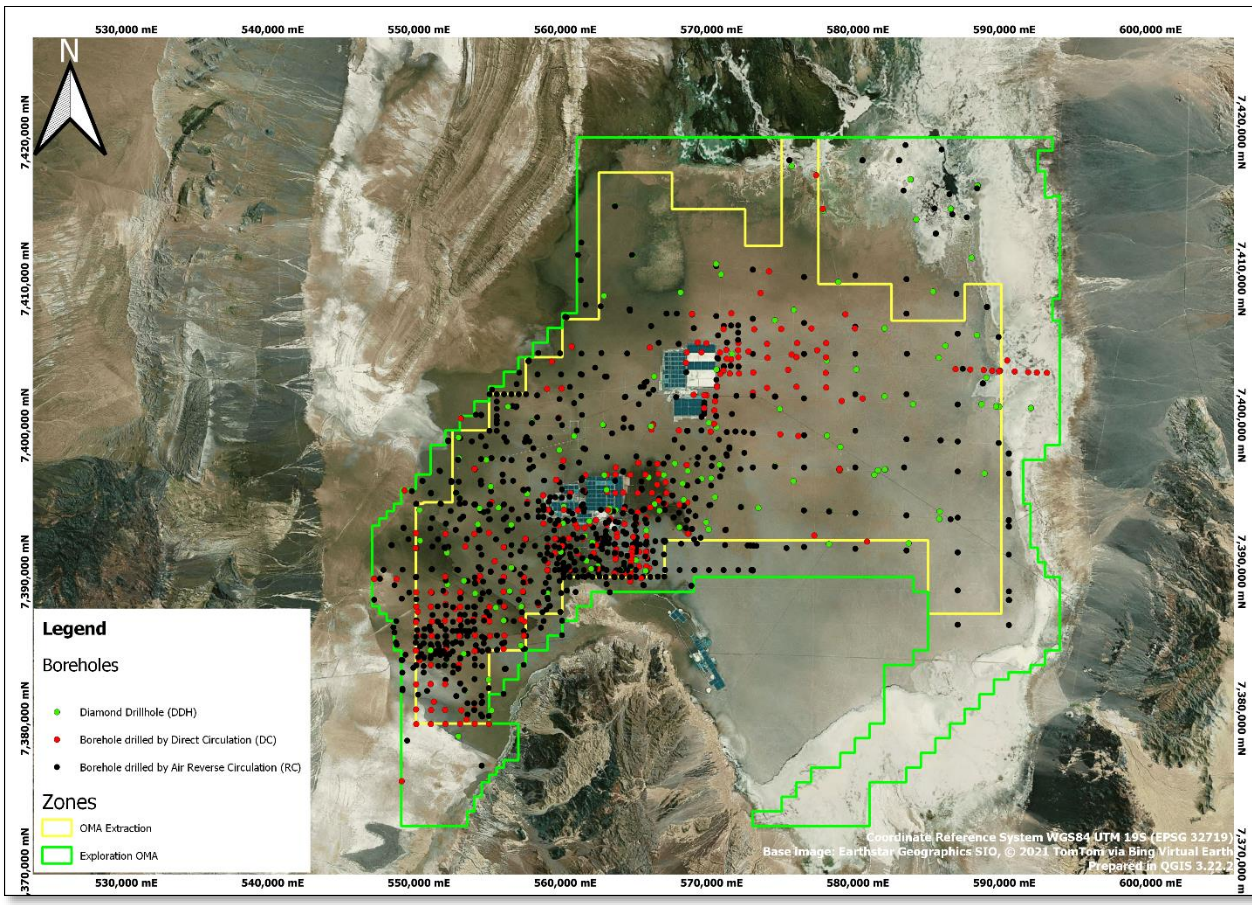
Table 7-2. Summary of the Conducted Borehole Geophysics

Borehole geophysical method	Number of borehole logs	Total length of logs
Caliper Log, NMR, or BMR	566 logs	49.3 km

7.2 Exploration Drilling

The Salar de Atacama nucleus is densely covered by wells that provide geological, hydrogeological, geophysical and hydrogeochemical data. A total of 2,725 wells (Table 11-1), covering an approximate total drill length of 164 km, were used to construct the geological conceptual model for the Project. Figure 7-2 shows the well distribution in the OMA Exploration Area of the Salar de Atacama nucleus. The well data is stored and managed by SQM in an acQuire™ database. Tableau™ is used as a front-end process to facilitate the review and analysis of well data held in the acQuire database.

Figure 7-2. Distribution of Wells that provide Geological and Hydrogeological Information for the Project (SQM, 2020)



7.2.1 Porosity Characterization

The total porosity of an earth material is the percentage of its total volume that corresponds to fluid-filled voids. Pumpable brine is hosted in the network of interconnected pores of the geological material that hosts the brine. This interconnected network of drainable, or pumpable, pore space comprises the effective porosity of the material.

The volume of water that will drain naturally under gravity at atmospheric pressure from the effective porosity as a water table descends through the geological medium is termed the drainable porosity or specific yield. The fraction of the water that is retained in the interconnected pore space by capillary forces is termed the specific retention. Isolated (non-connected) pores form a minor part of the total porosity of the system. These pores will not drain under gravity and are non-pumpable.

SQM's brine volume estimate in the nucleus of the Salar de Atacama is based on over 14,500porosity measurements in over 100 wells (Table 7-3 and Figure 7-3) evenly distributed across the surface of the salt flat nucleus. Figure 7-4 summarizes the distribution of effective porosity in the Upper Halite, Intermediate Halite, and Halite with Organic Matter units.

Table 7-3. Summary of Boreholes with Porosity Measurements

Porosity measured by	Quantity of wells	Porosity measurements		Measurements
		n	% (of total)	
CORFO (1977)	8	85	0.6%	Total porosity & effective porosity
Hydrotechnica (1987)	37	3,625	24.9%	Effective porosity & drainable porosity
Water Management Consultants (1993)	6	375	2.6%	Effective porosity & drainable porosity
SQM (2011 to 2019)	56	10,496	72.0%	Effective porosity
Total	**107**	**14,581**	**100%**	

Figure 7-3. Distribution of Boreholes with Porosity Measurements

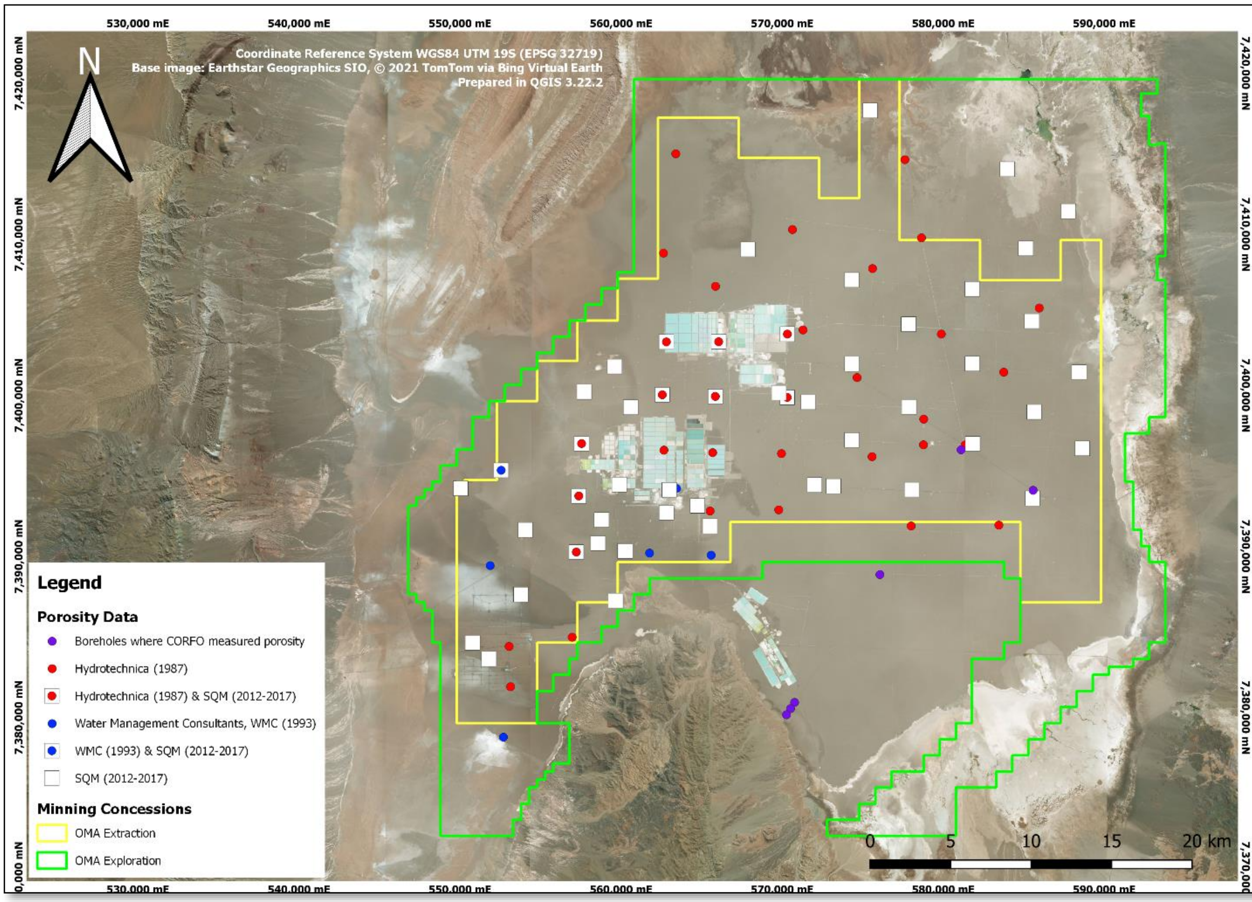
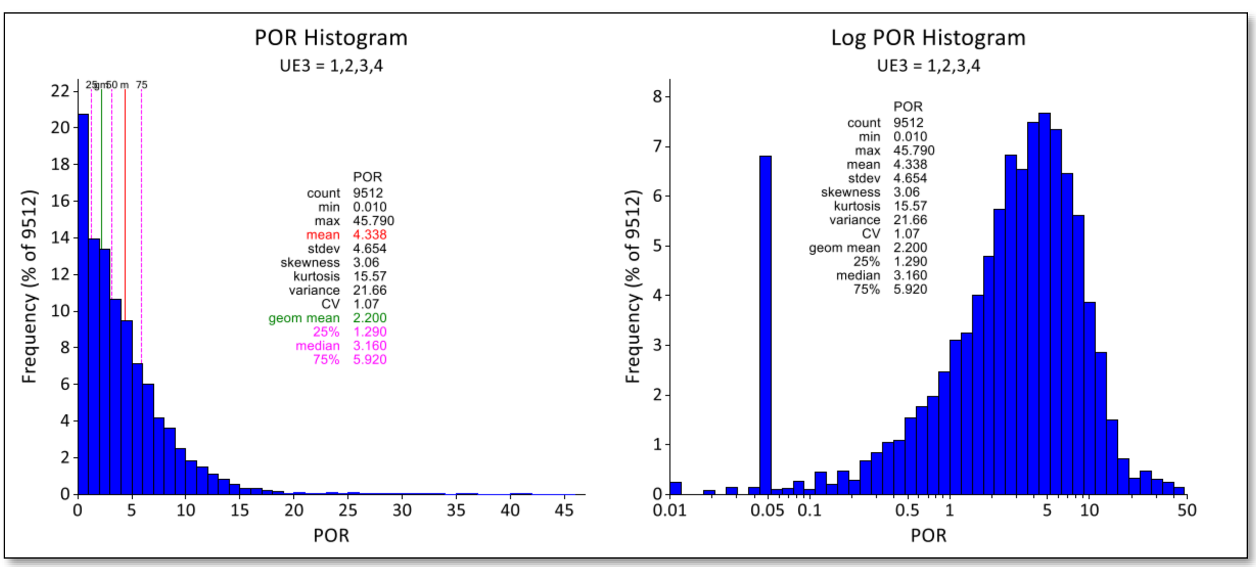


Figure 7-4. Effective Porosity (%) Histogram of the Upper Halite, Intermediate Halite, and Halite with Organic Matter



7.2.2 Brine Sampling

In the Salar de Atacama, SQM's operational wells are constantly sampled. Wells can also be monitored in areas where production wells are not allowed. In all, brine chemistry sampling from wells has been performed using:

- Pumping Tests
- Chemical sampling during drilling
- Bailer sampling
- Sampling during packer tests

Chemical samples are collected under field standards and procedures followed by the SQM field team. In general, the sampling of each chemical record consists of the collection of brine in two plastic bottles, a 125 milliliter (mL) bottle for chemical analysis and a 250 mL bottle for density analysis. A third sample is taken to verify the analysis, or original sample. The analyzed chemical constituents correspond to:

- K
- Na
- Mg
- Li
- Ca
- SO_4
- H_3BO_3 (Boric Acid)
- Cl
- Density

Potassium is analyzed by inductively coupled plasma (ICP) analysis, and Li is analyzed by atomic absorption spectroscopy (AA). During this process, several quality assurance and quality control (QA/QC) standards are followed before and during the analysis (Chapter 8), and then during data reporting.

Figure 7-5 shows the spatial distribution of the utilized brine chemistry measurements. As shown, the brine chemistry distribution is considerably dense and most samples come from pumping wells, increasing the confidence in the brine chemistry distribution and its representativeness of the reservoir chemistry.

Figure 7-5. Distribution of Boreholes with Brine Chemistry Measurements

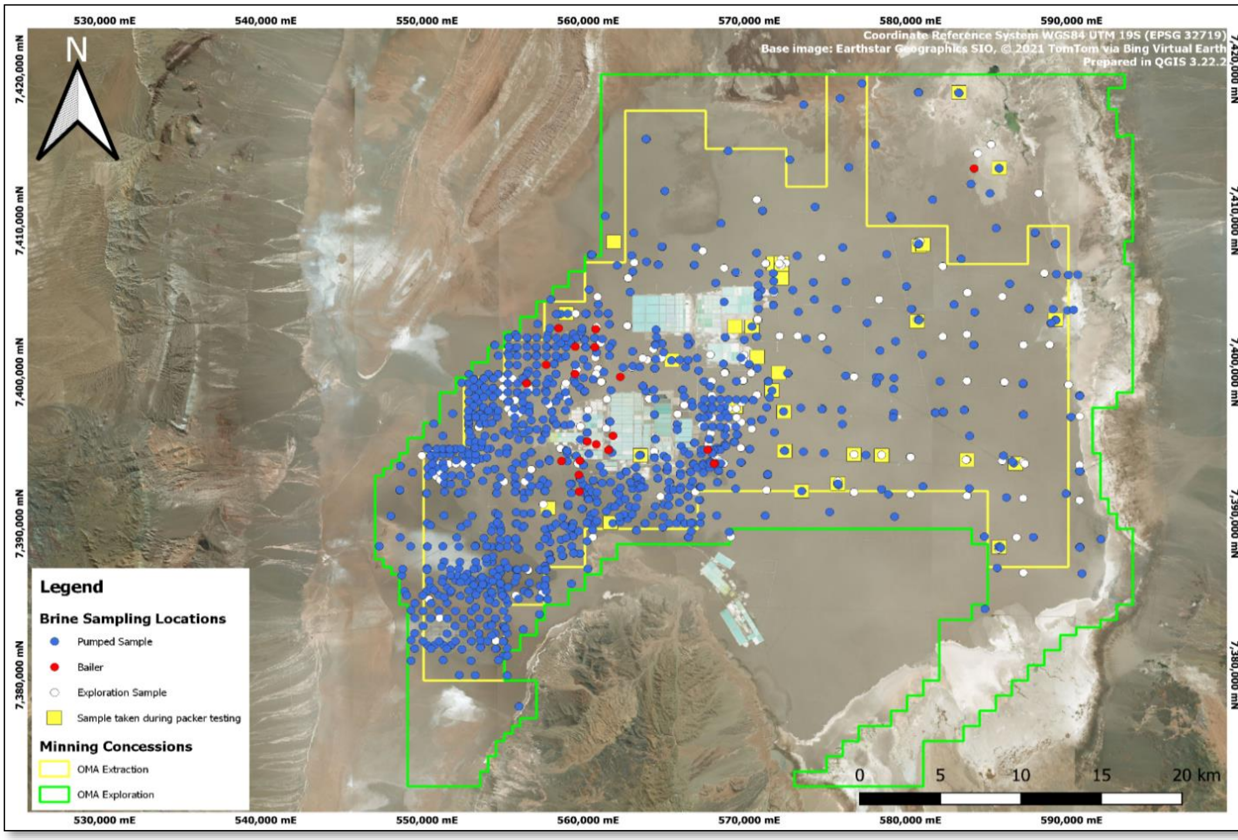
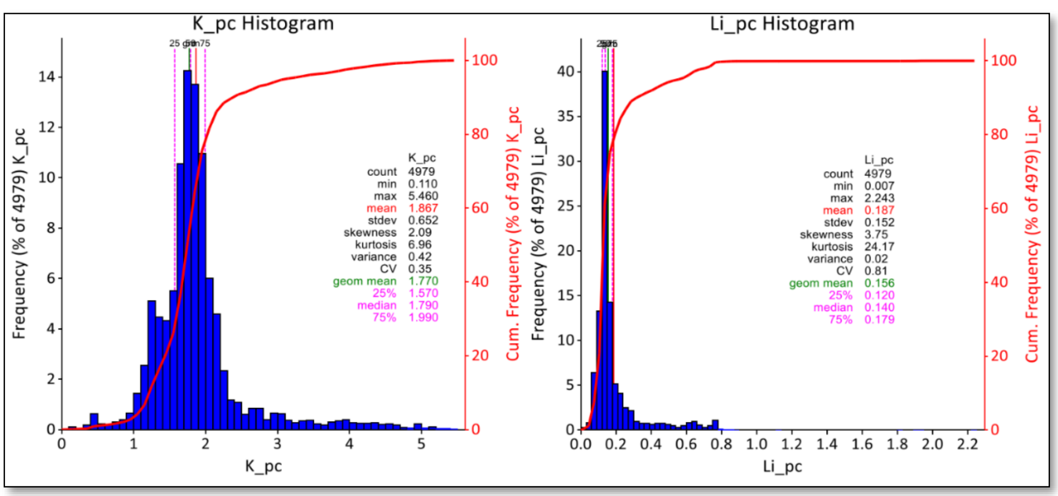


Figure 7-6 shows the histograms of the brine chemistry dataset for Li and K after filtering the data for potential anomalies and errors. Mean, minimum (min), and maximum (max) concentrations for each analyzed solute are also included (Figure 7-6) from the extensive dataset of nearly 5,000 brine samples.

Figure 7-6. Histogram of Li and K Concentrations (%)



7.3 Conceptual Hydrogeology

In the Salar de Atacama nucleus, SQM has its own equipment and personnel to carry out hydraulic tests, allowing for relevant information to be continuously generated on the reservoir permeability. All these tests are constantly supervised in the field by SQM's team of geologists and hydrogeologists under standardized procedures that are updated every year.

Transmissivity[1] was estimated from two types of hydraulic tests, pumping tests and packer tests. The former tends to be more representative, since they can pump high flow rates (up to 100 L/s, depending on the screened unit), and usually last for four days, or more. Packer tests allow for more representative results of select lithologies (pumping sections between 1.5 m and 9 m). In general, the conducted packer tests are of short duration and lower flow rates (less than 1 L/s for less than 24 hours).

7.3.1 Hydrogeological Units

The current hydrogeological conceptual model of the Salar de Atacama considers ten "grouped" hydrogeological units described in Table 7-4. The third column of Table 7-4 indicates the hydraulic character of the unit. HU1, Unit A (UA), is characterized as an unconfined brine unit, while the HU3, Unit B (UB) massive halite of generally low porosity is a confined brine system. In the case of the UB, the hydraulic confinement in certain sectors is due to the overlying aquitard (low permeability layer) of the interbedded halite and gypsum with organic sediments of HU2, Aquitard UAB. Unit UC is confined and comprises thin, but permeable tuffs and interbedded gypsum of low permeability. Unit UD is also confined and is characterized by a low permeability. The other units (UH6 to UH9) correspond to marginal facies along the boundaries of the salt flat nucleus.

The description in the fifth column of Table 7-4 highlights the importance of the structural control and tectonics on the Atacama Basin. Units that exist to east of the Salar Fault (East Block) have a significantly greater thicknesses than to the west of the Salar Fault (West Block). The majority of brine extraction wells operated by SQM and Albemarle are located in the West Block.

[1] The term transmissivity (T) is used to describe an aquifer's capacity to transmit water. Transmissivity is equal to the product of the aquifer thickness (m) and hydraulic conductivity (K).

Table 7-4. Hydrogeological Unit Descriptions

ID	Geological Unit(s)	Hydrogeological Unit	Aquifer type	Description
HU1	Upper Halite	UA	Unconfined	Porous halite extending throughout the entire nucleus with secondary porosity. Ranges in thickness from 15 to 45 m, with the thickest portion to the east of the Salar Fault. May be locally cavernous at the upper limit of the unit, where K may locally attain values of several thousands of m/d & Sy may be up to 40%.
HU2	Clastic and Evaporitic Unit with Halite and Organic Material	UAB	Aquitard forming a confined unit	Halite and gypsum with organic material that extends throughout the entire nucleus. Reaches thicknesses in the range of 100 - 150 m to the east of the Salar Fault but only 1 to 5 m to the west of the Salar Fault. Characterized as an aquitard which hydraulically confines the brine system in the Deep Nucleus.
HU3	Intermediate Halite	UB	Confined	Massive halite of generally low porosity. The base of this unit is delimited by a layer of tuff (volcanic ash)
HU4	Evaporites and Intermediate Volcanoclastics	UC	Confined	Interbedded gypsum and ash plus reworked volcanoclastic levels with lateral gradation to halite (towards the north of the salt flat). Reaches thicknesses in the range of 0 -160 m.
HU5	Regional Clays and Deep Halite	UD	Confined	Massive halite and deep clay that is assumed to have a very low permeability.
HU6	Sulfates and Carbonates with Silt	Marginal Zone	Leaky layered unit exhibiting a semiconfined behavior	Thin layers & lenses of gypsum & calcite with interbedded organic material and terrigenous clays & silts. This unit attains thicknesses of between 100 m & 200 m, with the thickest located to the east & north. The uppermost part of the unit may locally exhibit secondary porosity (voids).
HU7	Sulfates and Sulfates with silt	Eastern Transition Zone	Leaky layered unit exhibiting a semiconfined behavior	Layered halite & gypsum sequence. Includes interbedded lenses of fine sands and silts deposited from the San Pedro River Delta and the Soncor wetland during infrequent flood events. This unit is between 20 to 30 m thick, with the greatest thickness towards its southern limit.
HU8	Unconsolidated Deposits	Alluvial Zone	Unconfined freshwater system	Coarser sediments (gravels & coarser sands) are predominant in higher elevation areas; fine sands and silts dominate towards the salt flat nucleus (where topographic gradients are shallower and surface runoff velocities would have been lower at the time of deposition). The thickness of this unit ranges from 25 to 300 m.
HU9	San Pedro River Delta	San Pedro River Delta	Aquiclude	Silts and clays. The thickness of the unit is at least 100 m.
HU10	Igneous Rock	Hydraulic Basement	Assumed non aquifer	Deepest unit characterized by very low permeability rocks which are assumed to represent a no-flow boundary.

For the ten hydrogeological units, Table 7-5 shows the conceptual ranges of hydraulic conductivity (K), a parameter used to measure how easily groundwater can flow through the aquifer. These values are based primarily on the dataset built by SQM over the years from (a) pumping tests and other hydraulic tests conducted by SQM in the set of boreholes that it manages in the Salar de Atacama Basin, particularly the nucleus; and (b), peer-reviewed values published by third parties, or otherwise made available in the public domain, (e.g., within the context of environmental impact assessments of third-party projects). Figure 7-7 shows the distribution of the hydraulic tests conducted within the OMA Exploration Area.

Figure 7-7. Hydraulic Testing Locations, OMA Exploration

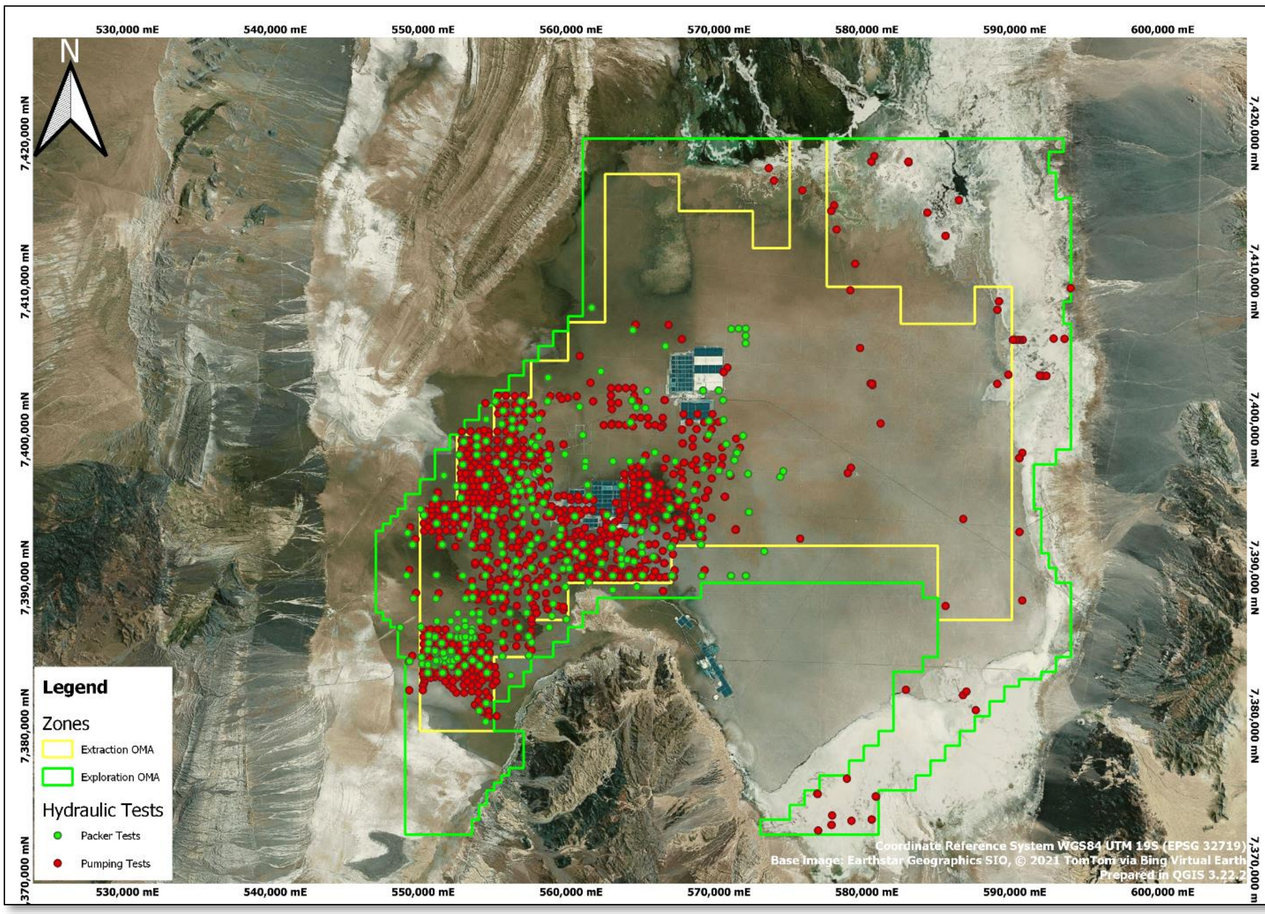


Table 7-5. Hydraulic Conductivity Ranges for each Hydrogeological Unit

ID	Hydrogeological Unit	Hydraulic conductivity, K (m/d)	
		From	From
HU1	UA	1E-02	5E+03
HU2	UAB	6E-04	2E+00
HU3	UB	2E-03	1E+02
HU4	UC	1E-07	2E+02
HU5	UD	≈1E-07(1)	≈1E-05(1)
HU6	Marginal Zone	1E-03	1E+01
HU7	Eastern Transition Zone	1E-03	2E+03
HU8	Alluvial Zone	1E-01	1E+02
HU9	San Pedro River Delta	8E-05	4E-04
HU10	Hydraulic Basement	≈1E-09(1)	≈1E-09(1)

Note: Estimated values based on the lithology

Figure 7-8 and Figure 7-9 present hydrogeological cross sections in the Zona Autorizada de Extracción, or Authorized Extraction Zone (ZAE), with their locations in plan view. The structural control exerted by the faults, particularly by the Salar Fault and the Cabeza de Caballo Fault, are evident.

Figure 7-8. W – E Hydrogeological Cross Section from the Hydrogeological Model

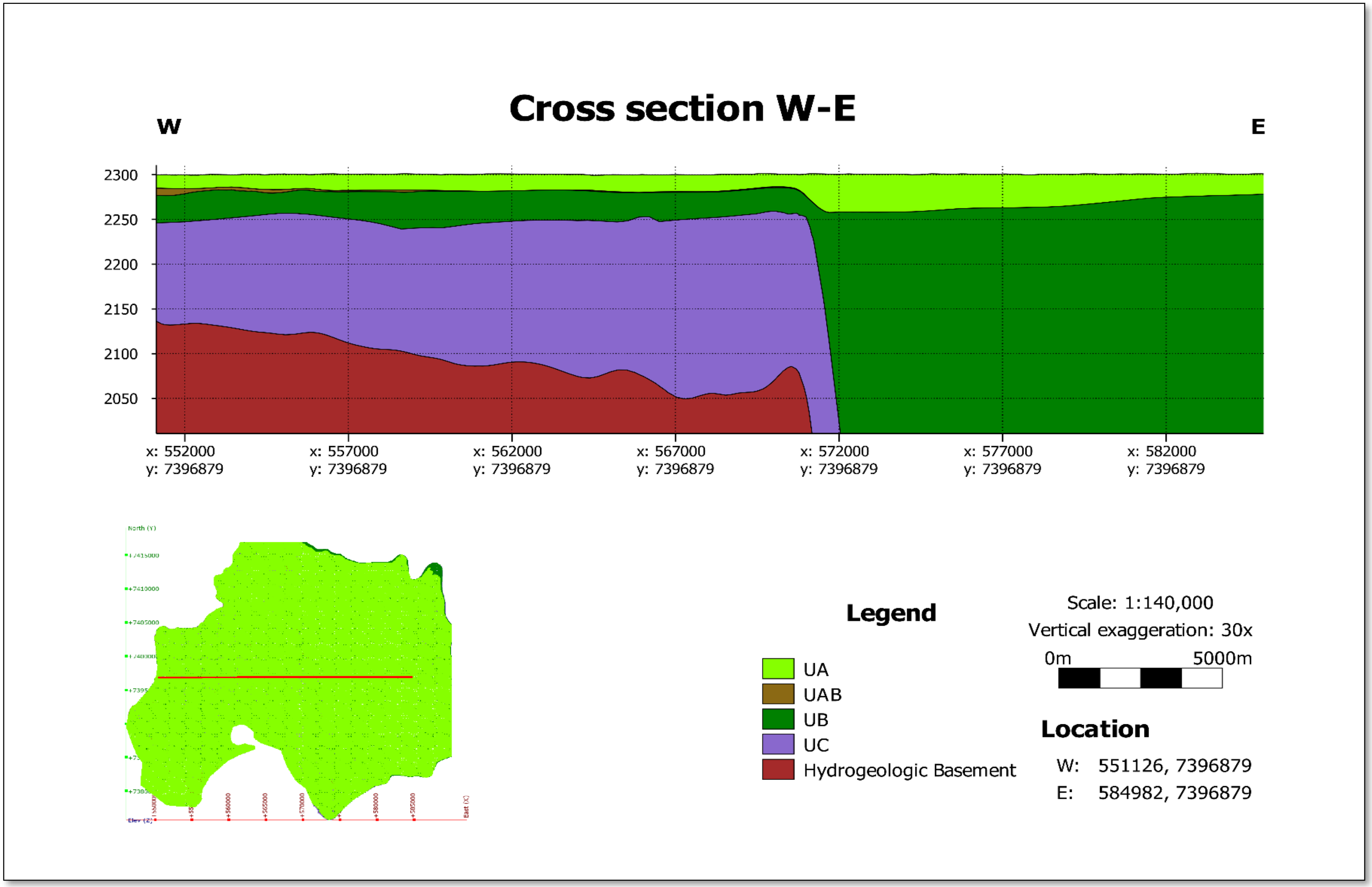
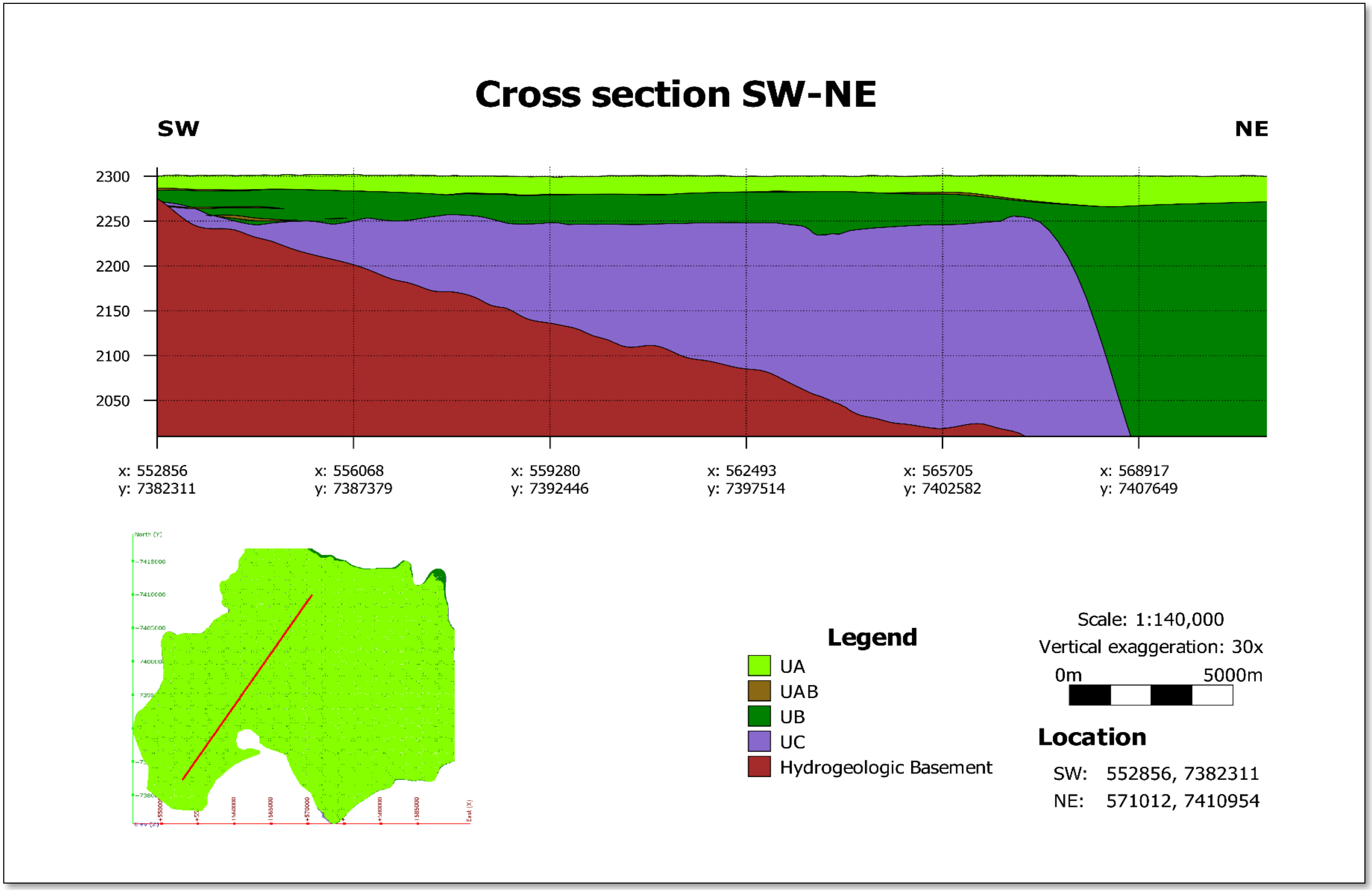


Figure 7-9. SW - NE Hydrogeological Cross Section from the Hydrogeological Model



7.4 Conceptual Water Balance

The Salar de Atacama represents a hydrological discharge zone, where incoming freshwater recharge from high-elevation areas approaches the salt flat margin and discharges to the surface, mainly due to water density differences. Flow directions are predominantly from surrounding high-elevation areas toward the salt flat margin and nucleus, where active evapotranspiration is present.

A conceptual water balance was developed by SRK (2020) and updated by SQM (2021), which considers discharges from different points of the Salar de Atacama basin through three zones to include the upper, middle, and lower zones. In this system, contributions of direct recharge from the upper to middle, and middle to lower zones are mainly dominated by evapotranspiration at the surface. In the lower zone, brine is present and includes the nucleus plus the part of the marginal zone that lies towards the bottom of the interface (called the marginal zone - brine). Average estimated natural flow rates were calculated for the operational period from 1994 to 2019, and summarized below:

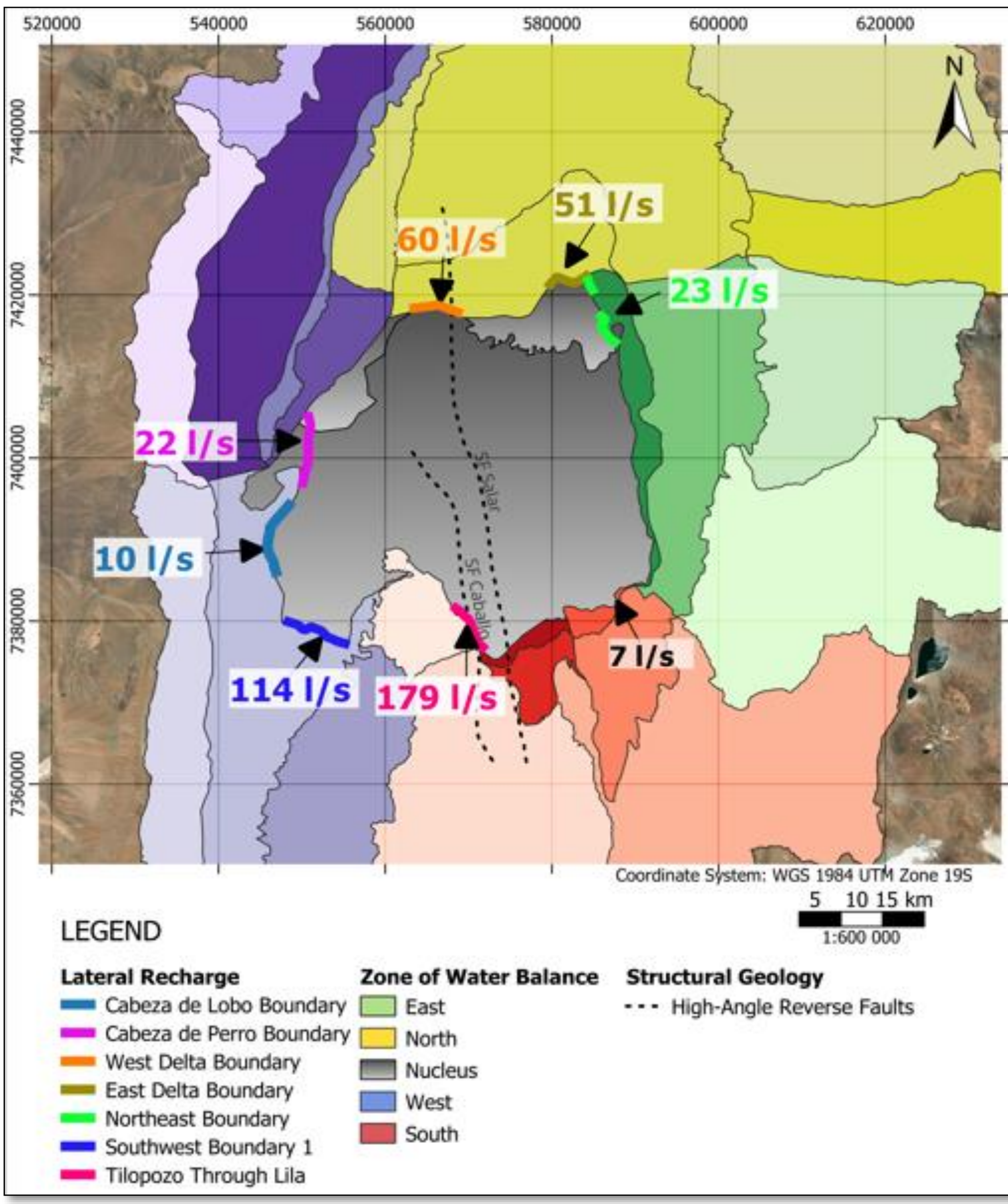
- Direct recharge, which has been estimated through methods for arid zones (DGA – DIHA PUC, 2009) that consider infiltration and runoff coefficients linked to the hydraulic characteristics of the hydrogeological units. It also considers that evaporation is more dominant than precipitation (i.e., less runoff is available) in this environment. The direct recharge of the lower zone totals 247 L/s.
- Lateral recharge from other zones, consisting of underflow from adjacent areas and runoff over low permeability units, is produced by precipitation and potential infiltration of lower density water in outlying areas of the basin. The total lateral recharge to all lower zones of the salt flat nucleus is 685 L/s.
- Surface runoff, which is generated by the liquid precipitation and streams; the portion that evaporates and infiltrates was discarded. The total runoff in the lower zone is estimated to be 19 L/s.
- Surface water evaporation, a natural discharge related to evaporation of the free water surface. A total evaporation rate of 82.1 L/s is estimated for water bodies and springs.
- Groundwater evaporation, corresponding to natural discharge of shallow groundwater. This component is related to the extinction depth, water density, as well as the properties of the soil surface materials. The total groundwater evaporation is estimated to be 557 L/s.

Brine extraction from SQM's mining operations occurs in the lower zone, and the most-recent estimate of total pumping is 1,219 L/s. Albemarle pumping represents an additional hydrological discharge in the salt flat.

At the local scale of the salt flat nucleus, the brine balance was estimated by SQM (2021), where the lateral brine recharge to the nucleus was studied. In the northern zone, the recharge is separated into two separate zones due the UH Delta San Pedro, where its composition (clay and silt) creates a low permeability environment and limited infiltration from the upper zone. In the northeast, the net flow rate to the nucleus is reduced, due to evaporation and infiltration, changing the average net inflow from 194 L/s to only 10 to 36 L/s. In the sector of Peine, the average flow rate is approximately -36 L/s, but a net of 7 L/s is finally considered as recharge to the brine nucleus. In the south, faults located in Tilopozo (see Figure 7-10), create a preferential flow zone, with an estimated average recharge of 179 L/s. Finally, the west-southwest lateral recharge is separated into three sectors (Cabeza de Perro, Cabeza de Lobo, and southwest boundary) with average recharge rates of 22, 10 and 114 L/s, respectively.

Figure 7-10 shows the lateral brine recharge estimated by SQM (2021) in the salt flat nucleus.

Figure 7-10. Lateral Brine Recharge in the Lower Zone of the Salt Flat Nucleus. (Modified from SQM, 2021)



7.5 Qualified Person's Opinion

It is the QP's opinion that the hydrogeological characterization, hydraulic testing, sampling, and laboratory methods meet the standards for a lithium project and operation of this developmental status. Furthermore, the amount of data obtained from exploration and testing is considerable when compared to other lithium brine projects. It is believed that the characterization of the brine reservoir is at the level of detail needed to support the lithium brine Mineral Resource and Mineral Reserve estimates presented in this TRS.

7.6 Geotechnical Considerations

SQM operates a production wellfield, with discrete vertical wells, that extracts brine largely from massive evaporitic deposits in the Salar de Atacama. Since the mining operation does not involve the excavation of open pits, or underground mine workings, to access the mineral deposit; and because a compact lithology is prevalent in many areas of the Project, it is not necessary to develop a detailed characterization of the geotechnical behavior of the earth materials over the spatial extent of this mining property.

8 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

The utilized sampling methods in the Salar de Atacama are related to the different drilling and pumping methodologies performed in the distinct field campaigns. Diamond drilling is used by SQM to obtain core samples for porosity analysis. This method allows for the collection of rock cores from which samples are selected and prepared for analysis. Subsequently, collected brine samples for chemical and density analysis are taken during and after the drilling of each well. The sampling by pumping, drilling (for exploration chemistry), and bailer and packer tests are used for obtaining brine samples from wells. The main ions analyzed, regardless of sampling method, include:

- K
- Na
- Mg
- Li
- Ca
- SO_4
- H_3BO_3 (Boric Acid)
- Cl

A traceable control system is implemented for the different sampling methods (brine and core), allowing for the monitoring of a sample from collection through to its entry in the database. During each step in the sampling and analytical process, a record of what has been done is documented, and the samples delivered/received follow the procedures and instructions created through a physical document called the "Chain of Custody".

The QA/QC processes implemented by SQM provide reliability in the precision and accuracy of the data used for the estimation of Mineral Resources; therefore, the precision ranges in the brine sampling of the different operations are defined within the plant. Similarly, the parameters of precision and accuracy are designated in the chemical analysis process of the Analytical Laboratory of the Salar de Atacama (Lab SA), as well as for porosity in the Salar de Atacama Porosity Laboratory (Lab POR).

8.1 Methods, Splitting and Reduction, and Security Measures

8.1.1 Brine Samples

Samples are collected in 125-mL bottles for chemical analysis and 250-mL bottles for density analysis. They are previously rinsed with the same brine from the well to be monitored, filled to the top, and then sealed and labeled with a code per sample (both bottles have the same code, but refer to different analyses). As the last stage, brine samples are recorded on a control sheet.

However, a third sample can be drawn as a “counter sample” (CM) for exploration and pumping test samples, , and it is kept for two months. This sample is used to corroborate that the sample collection and analysis was correctly undertaken. Brine samples are sent to the QA/QC laboratory (Lab QA/QC) to centralize the reception activities of the brine samples from all areas, prepare shipments, prepare and insert quality control samples, and send the samples for chemical and density analysis at the Lab SA.

8.1.2 Effective Porosity Samples

The wells with effective porosity samples come from diamond exploration campaigns with core recovery. The methodology of sampling and preparation of the samples for the estimation of porosity consists of an internal, rigorous and standardized SQM process, including the determination of the sampling frequency during drilling (currently, one sample every 1 m), the regularization and lithological description of the core sample (established every 10 cm in length), determination of analyzed samples, selection of samples for porosity, lithological description of the sample, labeling of samples (with a unique sample code), and recording of samples in the database.

Before conducting the porosity analysis, the samples go through a documentation review process and are measured to record their mass, diameter, and length. They are then photographed and analyzed.

8.2 Sample Preparation, Assaying and Analytical Procedures

8.2.1 Brine Samples

All samples go through a process that involves both SQM’s Hydrogeology Department (GHS) and Lab SA of the Salar de Atacama Production Management (GPS). The GHS oversees sampling, preparation of dispatch, entry into systems, shipment of samples to laboratory, importing, interpreting, and uploading of the results to the database. The SA Lab is responsible for the analysis of the samples and publication of the results in the system for import. The process of preparing samples for laboratory analysis goes through a treatment that spans the determination of the calibration curve, dissolution of salt precipitates, and weightings until the matrix is prepared for chemical analysis. Each sample is analyzed by different processes. Different equipment is used, depending on the requested analyte. Different matrices are prepared for each sample with different dilutions. Potassium is analyzed by inductively coupled plasma analysis (ICP). Li is analyzed by AA Spectroscopy.

8.2.1.1 Laboratories

The Lab SA and Lab QAQC are internal to support production and are currently not accredited. Nevertheless, SQM completed a round robin analysis for five laboratories, four of which were external laboratories (ALS Patagonia S.A., LSA of the Universidad Católica del Norte, Andes Analytical Assay, Geo Assay Group). The evaluation of accuracy was undertaken for the different certified analytes and standards.

8.2.2 Effective Porosity Samples

Historically, in the Salar de Atacama, different direct methods were used to estimate the porosity of the samples. Since 2011, SQM has used pycnometers to measure the grain volume of rock samples and apparent density. These pycnometers are found in the SQM Porosity Laboratory, located in the Salar de Atacama. Through a double-chamber helium pycnometer (Accupyc), and according to Boyle's Law, the volume of grains in the sample is obtained. The volume of the envelope is calculated using a Geopyc, which determines the volume and density of the rock by displacement of a solid medium of small and rigid spheres with a high degree of fluidity (Dry Flo), wrapping the analyzed object without invading its pores. The Salar de Atacama Porosity Laboratory is internal to support production and it is currently not accredited.

8.2.3 Quality Control procedures and Quality Assurance

SQM has implemented standardized protocols for both for the analysis of brine chemistry, as well as for the analysis of effective porosity to ensure good practices when determining both the evolution of brine chemistry and the porosities of the different units present in the Salar.

For brines, a QA/QC program was implemented to maintain an orderly data flow, providing monitoring from sample collection to the entry of the results into the database. Comparisons are made between duplicate and original (primary) samples, taking triplicate samples both in original and duplicate samples. Assays are performed with reference materials to monitor accuracy, and analytical blanks are included to determine potential contamination during sample collection.

In the case of effective porosity analysis, as with brines, there is a QA/QC program that generates standardization throughout the process, including the insertion of control duplicates. In addition, to ensure correct quality control, three stages are implemented for the general process to include calibration of the equipment during the analysis of the samples, validation, and exclusion of data after entering the database in acQuire.

8.2.3.1 Brine Chemistry

The SQM brine chemistry QA/QC program was created for the implementation of good practices for the utilized protocols. They range from the brine sampling activities to the receipt of samples, dispatch preparation, laboratory analysis, and receipt and review of results.

The systematic inclusion of QC samples is carried out to monitor the precision, accuracy, and potential contamination of analytical processes and conducted sampling. This monitoring is based on the following:

1) Inserting duplicates for precision monitoring:

- Analytical duplicates (ADUP).

- Field Duplicates (FDUP).

2) Inserting reference materials (standards or RM's) for accuracy monitoring:

- High-grade lithium standard.
- Lithium average grade standard.
- Low-grade lithium standard.

3) Inserting blanks (BLK) for monitoring potential contamination:

- Analytical targets

By 2020, the SQM aimed to increase the shipment of QC samples and standardized to represent 17.5% of the total samples in the dispatch. Each one of these dispatches consists of 40 samples in total; however, this percentage depends on the sampling behavior with the daily duplicate sampling, as well as the RM and analytical targets inserted in the QA/QC Lab. In addition, a protocol is considered for the insertion of QC samples in the dispatches, for which their location is known in relation to the primary samples.

With the processing of 1,084 analytical duplicates and 333 field duplicates analyzed at Lab SA, the Max-Min graphs were made for Li and K considering an error ratio (ER) acceptance limit of 10% (SQM, 2020). The errors of Li and K for the analytical and field duplicates are shown in Table 8-1. Figure 8-1 and Figure 8-2 shows the plots for the evaluation of analytical and field duplicates, respectively.

Table 8-1. Evaluation of Analytical and Field Duplicates in Lab SA

Duplicate Type	Analyte	Pairs	Failures	Error Ratio (%)
Analytical Duplicates	K	1,084	22	2
	Li	1,084	23	2.1
Field Duplicate	K	333	1	0.3
	Li	333	1	0.3

Figure 8-1. Error Ratio Plots, Analytical Duplicates.

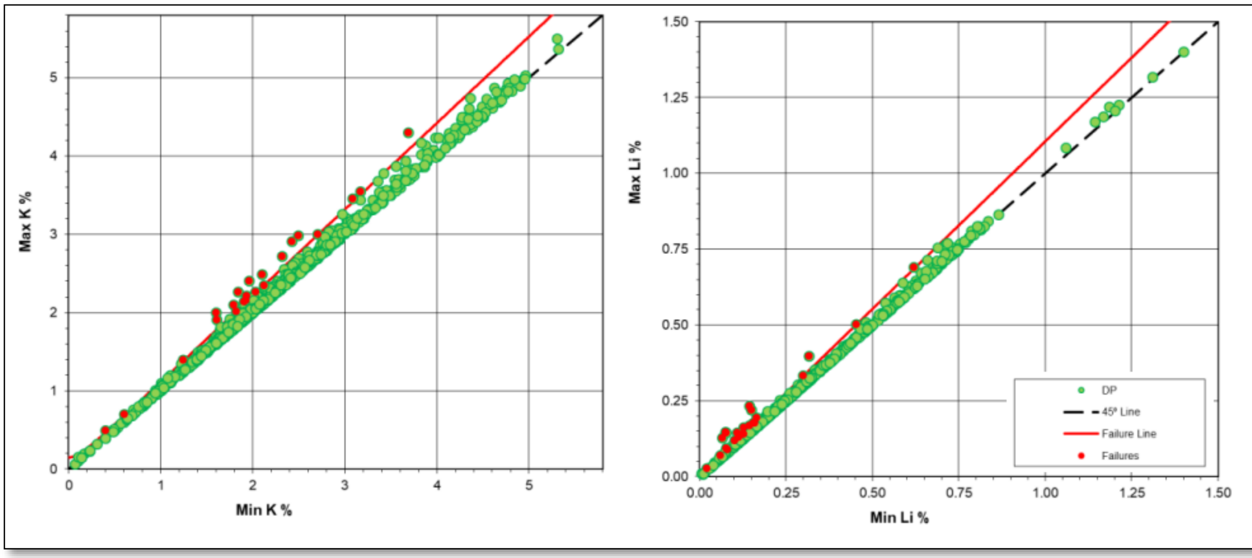
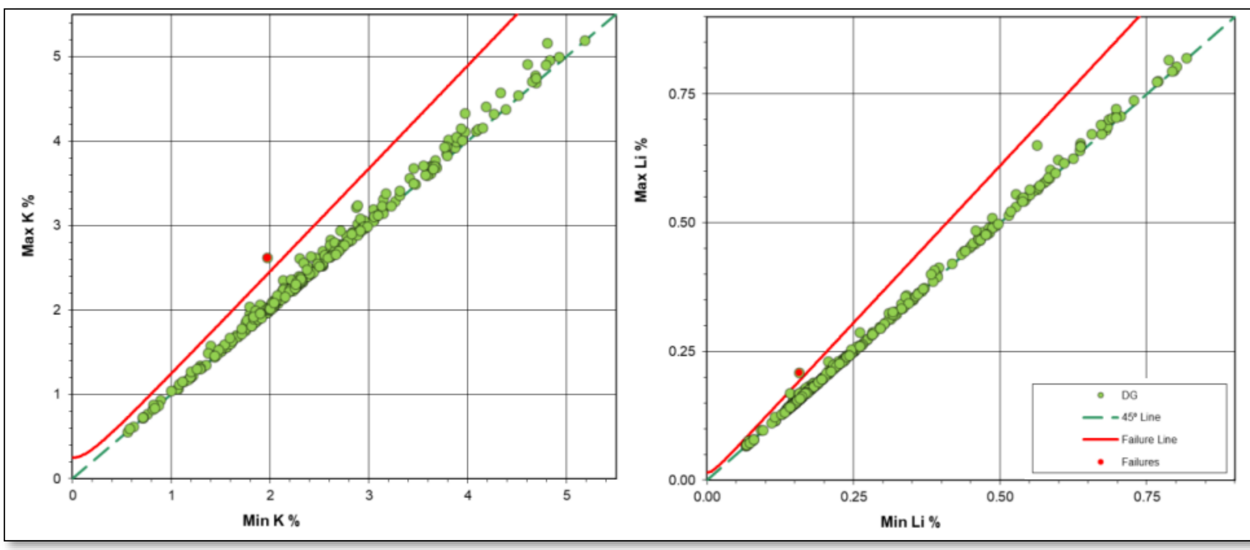


Figure 8-2. Error Ratio Plots, Field Duplicates.



The conventionally accepted maximum ER is 10%. Therefore, it is concluded that the analytical precision and that of the sampling of the elements evaluated during this period in Lab SA were, in practical terms, within acceptable limits, and that the sampling and analysis methods were adequate for the brine samples.

Standards are included in shipments sent to the primary laboratory to evaluate accuracy. The standard preparation process consists of daily extraction of the necessary samples, which are placed in 125 mL containers, labeled, and inserted anonymously in the dispatch for analysis at Lab SA.

Two different processes for the evaluation of the accuracy were carried out in the period. The first is an indirect measure of accuracy and was tested before and until the first quarter of 2020. The second process is the methodology used from the second quarter of 2020 onward, where the accuracy is also checked by bias; however, in this case, control charts are prepared to identify and exclude any Samples Out of Control (SOC), and subsequently, the bias value is determined for each Reference Samples (RS) and analyte. The bias is obtained from the average (AR) of the RSs reported by Lab SA (calculated after excluding SOC), and the BV is the best value (or certified value) extracted from the Round Robin between external laboratories for the utilized RS.

For this analysis, 57 samples (of 8 standards) were prepared and sent to 5 different laboratories, of which 4 are external laboratories (ALS Patagonia S.A., LSA de la Universidad Católica del Norte, Andes Analytical Assay, Geo Assay Goup) and 1 internal laboratory (Laboratorio Analytical of the Salar de Atacama); Each sample underwent 3 analyzes, and then carried out the determination of the average per standard of each laboratory, with which the Round Robin analysis and determination of BV. Of these patterns, 1,396 samples were sent to Lab SA throughout the period for their respective chemical analysis and AR value determination.

The insertion of analytical blanks in the shipments sent to the primary laboratory aids in determining if there is any degree of contamination in the laboratory analysis process. During the period, 2 types of targets were used; the first was created in the SQM metallurgical laboratory and is composed of deionized water with 7.0% Na and 10.7% Cl approximately, however, neither Cl nor Na are part of the contamination analysis of this report because they are not analytes of interest. The second blank type is composed only of deionized water, and both blanks were analyzed in the primary laboratory.

In Table 8-2 the Possible Pollution Ratios (PPR) for the first group of 1,492 analytical blank samples (Blanks with NaCl) were low in K (0.3%), and the Li presents rates slightly higher than 5% (9.9%). For the second group of 100 analytical blank samples (blanks without NaCl) the PPR were low in K (1.0%), and the Li presents rates slightly above 5% (7.0%). These results correspond to the samples after having extracted the errors due to misallocation of labels. Lithium results present rates slightly higher than 5% apparent contamination, which is possibly related to the somewhat high content of the blanks used, and not with actual contamination.

Table 8-2. Summary of Possible Pollution Ratios of Blank Samples during Analysis.

Summary for analytical blanks (with NaCL)					
Analyte	Quantity	Unit	Max Blank	Contaminated	Possible contamination ratio (%)
K	1492	%	0.4	5	0.3
Li	1492	%	0.100	147	9.9
Summary for analytical blanks (without NaCL)					
Analyte	Quantity	Unit	Max Blank	Contaminated	Possible contamination ratio (%)
K	100	%	0.4	1	1.0
Li	100	%	0.030	7	7.0

8.2.3.2 Effective Porosity

QA/QC is implemented in three different stages of the general process, including in the equipment during the analysis of the samples, after entering the results in the database, and through scatter charts for the control and analysis of the precision of the process.

Stage 1: In the equipment during analysis of the samples

Employs the software for the analysis equipment, different processes of calibration, and review of the accuracy of the equipment using manufacturer standards. In addition, the precision of an assay is validated by both instruments (Geopyc and Accupyc), using a range acceptance of the results, where results are guaranteed to be within this range, or the analysis is repeated.

Stage 2: After entering results in the database

The purpose of this system is to establish parameters for validation and exclusion of samples automatically when entering the data in the acQuire database, leaving these flagged and include /excluded from the dataset for estimation, if applicable. Of the 11,910 total samples registered in the GHS database, 2,120 samples were excluded using QA/QC parameters after data entry into acQuire (17.8% of the total population), resulting in 9,790 validated samples (82.2% of the total population) for the brine volume estimation dataset.

Stage 3: Through scatter charts for the control and analysis of the process precision

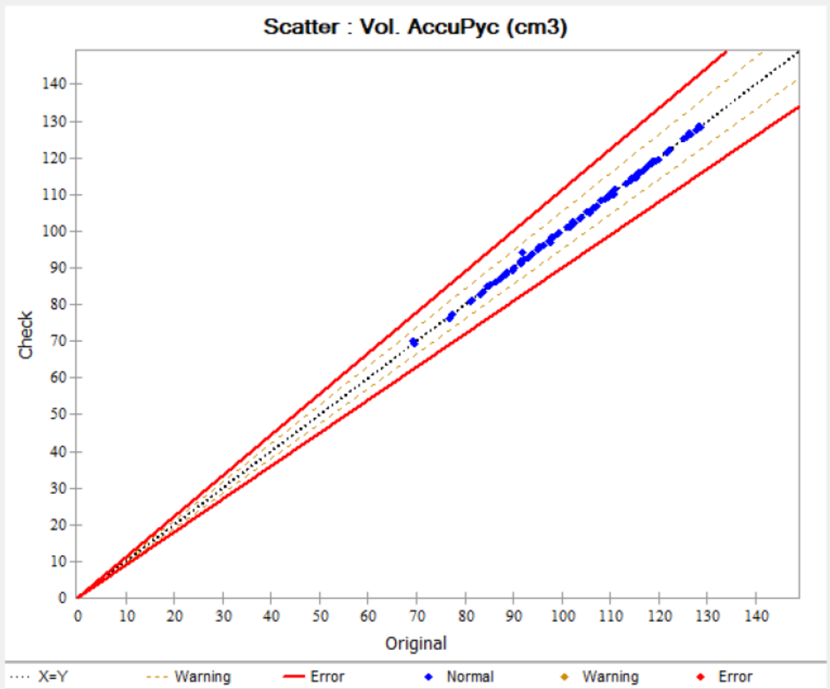
This control measure is based on the systematic insertion of 10% duplicate samples (QC) in analysis for porosity that are later analyzed using scatter charts displayed directly in acQuire. Of the 11,910 samples registered in the database, 11,465 samples have porosity results (10,675 primary and 790 duplicates). By 2020, porosity results have been obtained from 456 primary samples and 79 duplicate samples, for 14.8% of controls. This represents an increase of more than 170% in QA/QC samples analyzed over the previous year.

Table 8-3 shows the duplicate sample evaluation and summarizes the error ration in the porosity lab. Figure 8-3 and Figure 8-4 shows the scatter plots of the pairs analyzed with Accupyc and Geopyc, respectively.

Table 8-3. Duplicate Sample Evaluation in the Porosity Lab

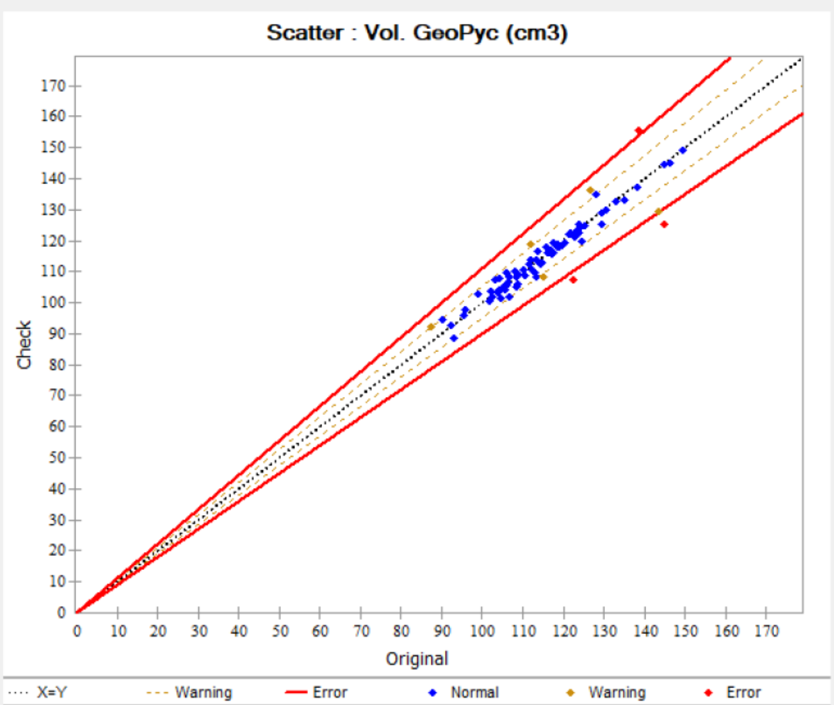
Equipment	Analysis	Duplicates	Failures	Error Ratio (%)
Accupyc	Grain Volume	92	0	0.0
Geopyc	Envelope Volume	78	4	5.1

Figure 8-3. Scatter Plot for Pairs Analyzed with Accupyc.



Statistics		
Vol. AccuPyc (cm3)	Original	Check
# of Analyses above Threshold	92	
# of Analyses below Threshold	0	
# Outside Warning Limit	0	
# Outside Error Limit	0	
Mean	104.1423	103.9615
Median	105.5923	105.1671
Min	69.4367	69.4755
Max	128.6368	128.7697
Range	59.2001	59.2942
Variance	204.8097	204.2688
Coeff. of Var.	0.1382	0.1382
Sample Std. Dev.	14.3896	14.3706
Bias	-0.0017	
Bias (Mean)	-0.0017	
Corr. Coeff.	0.9997	
Coeff. of Variation	0.3001	
RMA Error on Y Intercept	0.3062	
RMA Error on Slope	0.0029	
RMA Error	0.5631	
Mean AMPRD	0.3033	
% of Population with AMPRD > 5%	0	
% of Population with AMPRD > 10%	0	

Figure 8-4. Scatter Plot for pairs analyzed with Geopyc



Statistics		
Vol. GeoPyc (cm3)	Original	Check
# of Analyses above Threshold	78	
# of Analyses below Threshold	0	
# Outside Warning Limit	8	
# Outside Error Limit	3	
Mean	116.1468	115.5396
Median	115.0506	114.9137
Min	87.5278	88.8115
Max	149.4116	155.372
Range	61.8838	66.5605
Variance	177.7049	171.1969
Coeff. of Var.	0.1155	0.114
Sample Std. Dev.	13.4169	13.1689
Bias	-0.0052	
Bias (Mean)	-0.0052	
Corr. Coeff.	0.9405	
Coeff. of Variation	2.6148	
RMA Error on Y Intercept	4.3825	
RMA Error on Slope	0.0381	
RMA Error	6.4515	
Mean AMPRD	2.3202	
% of Population with AMPRD > 5%	10.2564	
% of Population with AMPRD > 10%	5.1282	

The conventionally accepted maximum ER is 10%. Therefore, it is concluded that the analytical precision of the elements evaluated during this period in the POR Lab was within acceptable limits. Further, the rock sampling method and volume analysis were adequate for the samples of porosity.

8.3 Opinion of Adequacy

In the QP's opinion, sample preparation, sample safety, and analytical procedures used by SQM in the Salar de Atacama follow industry standards with no relevant issues that suggest insufficiency. SQM has detailed procedures that allow for the viable execution of the necessary activities, both in the field and in the laboratory, for an adequate assurance of the results.

9 DATA VERIFICATION

9.1 Data Verification Procedures

Verification by the QP covered field exploration, drilling and hydraulic testing procedures, (including descriptions of drill core and cuttings), laboratory results for effective porosity and chemical analyses, QA/QC results, review of surface and borehole geophysical surveys, and review of the data entry and data storage systems.

Based on the review of SQM's procedures and standards, it is the QP's opinion that SQM has data verification standards capable of ensuring good control and quality of the data obtained during drilling as well as from hydraulic and geophysical testing. Based on the review of the QA/QC data during the period, the QP considers the sampling procedures as well as those of preparation and analysis for K and Li in the primary laboratory adequate for the brine and rock samples. Further the QP considers the resulting analytical data to be sufficiently accurate.

There are no limitations on the review, analysis, and verification of the data supporting Mineral Resource estimates within this TRS. It is the opinion of the QP that the geologic, chemical, and hydrogeologic data presented in this TRS are of appropriate quality and meet industry standards of data adequacy for the Mineral Resource and Mineral Reserve estimates.

9.1.1 Data Management

Since 2021, SQM has used acQuire, a world class geoscientific information management software. This has allowed SQM to centralize data management and avoid the use of data sheets, such as Excel, that can lead to a greater possibility of error. This software implements a series of rules to assure the quality control of data entry, preventing common mistakes, such as out-of-range values, incomplete data, etc.

9.1.2 Technical Procedures

The QP reviewed the data collection procedures associated with drilling, hydraulic tests, and geophysics surveys. SQM has a set of technical procedures for each of its field activities. These procedures seek to establish a technical and security standard that allow for field data to be optimally obtained while also guaranteeing the safety of workers.

9.1.3 Quality Control Procedures

The QP reviewed SQM's data collection and QC procedures. Regarding the analysis of brines, these procedures are considered adequate. It is evident that they used adequate insertion rates for different controls.

As for porosity tests, the SQM QC protocol considers the analysis of duplicate samples that are repeated adequately for this type of control.

9.1.4 Precision Evaluation

The QP reviewed the error rates of K and Li as well as the rates of analytical duplicates and field duplicates in brines. It was found that they remained within limits conventionally considered acceptable (under 10.0%). Error rates for both Accupyc and Geopyc analyzes for porosity were also within conventional limits and were considered acceptable (under 10.0%).

The QP concludes that the sampling, preparation, and analysis procedures of brine samples as well as rock and analysis of volumes for porosity to be adequate for the evaluated period.

9.1.5 Accuracy Evaluation

SQM performs a round robin analysis at five laboratories. Four of the laboratories are external (ALS Patagonia S.A., LSA of the Universidad Católica del Norte, Andes Analytical Assay, and the Geo Assay Group). The fifth is an internal laboratory (Analytical Laboratory of the Salar de Atacama). SQM uses these laboratories to evaluate bias for the different certified analytes and standards. Additionally, external control of the results is carried out in the laboratory of the University of Antofagasta (Lab UA).

The QP considers that this evaluation supports the accuracy of the brine chemistry data for the purpose of its use in preparing geological models and estimating Mineral Resources and Mineral Reserves.

9.1.6 Pollution Evaluation

During the data review for the period that the samples were evaluated, there was no significant contamination of any of the analytes evaluated for brines during primary laboratory analysis. However, Li results presented rates slightly higher than 5% of apparent contamination. This is possibly related to the elevated content of the targets used and not due to contamination.

9.2 Qualified Person's Opinion of Data Adequacy

It is the QP's opinion that the analytical results of the geologic, chemical, and hydrogeologic data presented in this TRS are of appropriate quality and are sufficiently reliable to meet industry standards of data adequacy for the Mineral Resource and Mineral Reserve estimates.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

This sub-section contains forward-looking information related to recoveries for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual brine characteristics that are different from the historical operations or from samples tested to date, equipment and operational performance that yield different results from the historical operations and historical and current test work results.

The exploration of Salar de Atacama's brine chemistry was the first step in designing a lithium recovery process. This was followed by the planning and confirmation of the production's operational success.

The basis of the process methods were tested and supported by laboratory evaporation and historical metallurgical response tests. Since 2015, additional research and projects were implemented to improve yield and recovery as well as to continuously improve lithium and potassium salt recovery modeling accuracy for each of the differentiated and characterized areas of the brine extraction wells.

Historical test development allowed differentiation of main categories for brine types based on composition and proportion between species. Such tests are designed to optimize the extraction processes to ensure that customer product specifications are achieved as well as to ensure that deleterious elements remain below established limits.

Summaries of the analytical and experimental procedures as well as the main test results are presented in the coming subsections.

10.1 Test Procedures

Testing aims to estimate the manner in which different brines respond to concentration via solar evaporation and overall metallurgical recoveries from the process plant. Testing also aims to evaluate treatability of the raw material for finished lithium and potassium products. Laboratory tests generate data for characterization and recovery baselines.

The tests detailed below have the following objectives:

- Determine if analyzed material is reasonably amenable to concentration by established in-plant separation and recovery methods.
- Optimize process to ensure a recovery that will be intrinsically linked to both the chemical and physical characterization of the treated brine.
- Determine deleterious elements and establish mechanisms to keep such elements below limits that guarantee a certain product quality.

The testing program requires that SQM staff collect brine samples from wells for testing on a regular basis. Sample collection takes place throughout the year with specific campaigns defined by an annual plan. Once each sampling program is completed, the samples are sent to internal labs for chemical analysis. Complementary sampling then considers the temporal, hydrogeological, spatial, and operational criteria of the wells. The chemical concentrations of the wells are also updated. Taken as a whole, this process generates data that provides accuracy in the estimation of brine chemistry.

The Salar de Atacama laboratories, via its three sub-facilities, i.e., Laboratory QA/QC, the analytical laboratory, and the metallurgical laboratory, produces digital, metallurgical test databases that include test results for:

- Chemical composition
- Density
- Evaporation rate based on brine chemical composition

The metallurgical tests are designed to estimate the differing response of brines and salts when exposed to productive treatment as well as evaluate the most appropriate route for treatability. The internal laboratories oversee supporting these operations, providing data from tests to create a database of characterization of feed salts and production performance. For this purpose, samples are collected and subject to chemical and mineralogical analysis.

Historically, SQM, through its research and development department, has conducted these tests at the plant and/or pilot scale, allowing for an improved recovery process and product quality, employing lithium recovery from lithium carnallite, increased $LiOH.H_2O$ production capacity, and increased Li_2CO_3 production capacity.

Samples for metallurgical testing are obtained through well sampling, pond sampling, and salt sampling campaigns. QC is implemented at all stages to ensure and verify that the collection process occurs at each stage successfully and remains representative. Laboratory facilities available to analyze samples are located at the Salar de Atacama Mine and the PQC. In the following subsections, a discussion of brine sampling, preparation, and characterization procedures as well as monitoring activities at the PQC and Salar de Atacama is provided.

10.1.1 Wells Sampling and Sample Preparation

At Salar de Atacama, wells involved in the operation are constantly sampled. Well sampling for brine operations is determined by planning and production management, according to internal requirements.

Samples for the chemical characterization of brine are taken from the wells involved in the operation, which together with the other samples from the database, are used for the evaluation of reserves at Salar de Atacama. Brine samples from pumping are collected for chemical and density analysis. These wells are called "Operational", while those wells that are used for exploration are called "Non-operational". The latter are sampled to assist in mine planning for future extraction scheduling. Brine sampling, obtained by pumping a well and enabled in one or more reservoirs, is categorized according to the status of the well, as detailed in Table 10-1.

Table 10-1. Categorization of Brine Sampling from Wells

Category/Status	Type	Detail
Operational	Operating well	Sample taken from a producing well
	Operating well in detention	Sample obtained from a production well that is stopped at the time of sampling
Non-operational (exploratory)	Short pumping sampling	Sample obtained from a non-productive well, after pumping that can last from 5 to 30 minutes.
	Pumping test	Brine sample taken during a pumping test to evaluate hydraulic conductivity. A preliminary Pumping test is to detect anomalous transmissivities that could invalidate a productive well.

Pumping well sampling and measurements are aimed to reach a maximum dynamic level, take brine samples, and measure basic parameters, such as level, flow, viscosity (Marsh funnel determination), clarity and presence of fines (by measuring both parameters in an Imhoff cone), temperature, pH, and conductivity, using a multiparametric probe (Figure 10-1).

Sampling is executed in a plastic jug, directly from the well head (at the pump outlet), by opening a tap placed for that purpose. Before taking the sample, fresh brine is added to the jug in order to remove any residue from a previous sample. This procedure is repeated each time a sample is taken or transferred to sample containers.

The final brine sample is discharged into a receptacle from which samples are drawn for chemical analysis, covering a range of dissolved metals, including lithium and density (125 mL for chemical analysis and 250 mL for density analysis), after each container is primed and fully filled. Containers for samples are properly identified with self-adhesive labels with barcodes.

Figure 10-1. In-situ Parameter Determination of Brine from Pumping Wells

a) Sampling

b) Clarity measurement and fines measurement..

c) Viscosity measurement.

d) pH, temperature and conductivity measurement

Brines are not exposed to any preparation, or acid preservation, as a pretreatment before being submitted for chemical analysis at destination facilities. Brine sampling operation quality control includes the taking of field duplicates every 15 samples (through repetition of the sampling procedure) and analytical duplicates (by taking a duplicate from the same jar). The operations outlined above are implemented depending on sampling requests and operational capacity.

It must be noted that brine in the salt flat acts as a "mobile resource;" and in some cases, where formation permeability is low, it is not possible to collect a brine sample after a waiting period. For sampling campaigns, some factors that make sampling impossible must be considered, such as the following:

- Temporary well blockage
- Dry well at the time of static level measurement
- Interruption of brine pumping, due to brine extinguishing in the well, before, or during, sampling

Internal laboratories involved in brine sampling, analysis, and testing are listed in Table 10-6, and are detailed in the following subsections.

10.1.2 Sampling in Brine Build-up Pools

This task is carried out by mine operations staff. At the pumping station, samples are regularly taken from the pond outlet to the brine treatment plant, allowing for better verification, rectification, adjustment, and planning. Samples are taken by a device installed in the pond outlet line behind the pumps, allowing 8 ml to be extracted from the lines every 7 minutes to form a brine composite. Chemical composition measurements of this feed brine are described in the following subsection.

10.1.3 Chemical Characterization of Brines

Analytical methods for the determination of lithium, potassium, magnesium, and calcium concentrations in solution are applied using Atomic Absorption Spectrometry (AAS) and ICP techniques. The latter analysis is generally used on a broad set of elements (multi-elemental analysis), including the detection of trace metals. The analytes K, SO_4 and H_3BO_3 are analyzed by ICP mass spectrometry. Li is analyzed by AA spectroscopy in conjunction with the determination methodology. Analysis, methodology and the equipment used in the determinations are indicated in Table 10-2.

Table 10-2. List of Analysis for Chemical Characterizarion of Brine

Analysis	Method	Measuring equipment
Chemical and physical parameters		
Density [ton/m^3]	Densimetric	Automatic densimeter DMA 4500 or manual
Inorganic parameters and disolved metals		
%Li	Direct Aspiration-AA	Agilent FS 240 or similar
Mg	Potentiometric	Automatic titrator T-50
K, Na, Ca, Mg, Li, SO_4, %H_3BO_3	ICP-OES	ICP Optima 8300 Perkin Elmer, or ICP model 5110 Agilent
%Cl	Direct Aspiration-AA Or Volumetric method	T-50 Automatic Titrator or Burette Brand Tritette

Sample preparation process for laboratory analysis goes through a treatment that includes calibration curve determination, dissolution of precipitated salts, and weighing to matrix preparation for chemical analysis. Each sample is analyzed by means of different processes and equipment. Depending on the analyte required, different matrices with different dilutions are prepared for each sample.

Protocols used for each sample are duly documented in relation to materials, equipment, procedures, and control measures. Brine samples collected are analyzed by testing of specially prepared blanks and standards inserted as blind control samples in the analytical chain.

Regarding quality assurance checks of results, the following criteria was established:

- Analyze QC results, according to insertion rate per analysis and verify that the observed error is within ±2% in AA and ±5% in ICP.
- Analyze control sample (MC) every 10 samples and verify that error is within ±2% of initial.
- Calibration curve with R2 = 0.999.

10.1.4 Brine Density Determination

For density determination, a representative sample is taken, by filling a 16-mL plastic vial and placing it in a sampler, where each vial is introduced into a DMA4500 automatic densimeter that registers the density. This measurement is reported through the LIMS laboratory system, which is an integrated data management software, where reports are created and sent to the requesting units.

Quality assurance controls include equipment status checks, analyzing a reagent blank together with the samples, verifying titrant concentration, and repeating analysis for a standard together with the set of samples to confirm its value.

10.1.5 Calculated Evaporation Rate

Evaporation monitoring, an important factor in well management and production scheduling, is complex due to the extreme conditions faced by solutions that can introduce errors.

Therefore, to validate evaporation well data, calculations were conducted using surrogate meteorological parameters collected at stations installed in the Salar de Atacama. Solar radiation, humidity, wind speed, and temperature represent the dominating processes controlling evaporation and considered in the equation. Salt composition effects are also considered, so that evaporation is modeled empirically and based on magnesium and lithium concentration in the free brine as well as SQM weather station data located at the site.

Evaporation estimates are obtained by correlating water evaporation at a weather station (variable by seasonality) with well area/shape and well activity in a given period. To estimate evaporation calculations, the equations (correlations of J.A. Lukes & G.C. Lukes [1993]) will be applied to the wells. Lukes equation (1993) will be applied to ponds with brine (free brine height). The equations relate evaporation area and evaporative activity associated with magnesium, sulfate, lithium and potassium concentration.

As an exercise, according to the operational statistics reviewed, Table 10-3 summarizes the evaporation rate calculated by production system (with focus on lithium and potassium) and associated by type of pond for 2020.

Table 10-3. Mean Annual Evaporation Rates for each Subsystem in the 2020 Period

Evaporation rate Brine [mm]/year		Minimum rate	Maximum rate	Average rate
Productive Lithium	Halite	873	4,296	2,805
	Sylvinite	1,641	7,544	4,068
	Carnalite	775	2,920	1,690
	Bischofite	604	2,181	1,330
	Lithium Carnelite	526	1,619	1,090
Productive Potassium	Halite	949	6,372	3,642
	SX	1,895	10,261	6,649
	CX	393	2,212	1,281

10.1.6 Control Procedures

Currently, QC procedures for the brine production operation and finished products are in place. These procedures include monitoring efforts from input brine characterization to brine sampling and concentration characterization. These QC procedures also apply to products obtained from the MOP, SOP, and lithium chemical processing plants.

In this regard, the involved laboratories support operations to ensure that the system's treatment requirements are effective.

10.1.6.1 Salar de Atacama Control Laboratory

The operation of solar evaporation wells is based on controlling the chemical balance of the solutions to be extracted and verifying ion levels that are part of the product (Li, K) as well as ions that can affect (positively or negatively) their recovery (SO_4, Ca, Mg). For this reason, mine programs are focused on obtaining solutions with concentration parameters that meet solar well operational requirements in its two lines to include MOP wells (focused on concentrated lithium solutions production) and SOP wells (focused on varieties of potassium production). These requirements are fulfilled through the determination of direct delivery of solutions, or through a mixture of brines with complementary chemical characteristics to produce a mixture that complies with feed specifications (maximum ranges of ion concentration fed to each production line) and well systems.

During brine concentration, sequential salts precipitate in the pond system and are harvested, while others are discarded as impurities. For the lithium-focused system, sodium chloride (NaCl) rainfall occurs followed immediately by potassium chloride (KCl) salts, resulting in a brine that is sent to the solar evaporation ponds to concentrate the solution to ~6% lithium concentration. These ponds are the so-called Lithium System.

Once the pond systems are in operation, sampling and test procedures for evaporation tests are as follows:

- Collection of brine samples on a regular basis to measure brine properties, such as chemical analysis, density, brine activity, etc.
- Collection of precipitated salts from the ponds for chemical analysis to assess evaporation pathways, brine evolution, and salt physical and chemical properties.

Laboratory determination of the brine and salt concentration is then used to perform a material balance of the evaporation and crystallization circuits, based on this composition of feed, transfers, harvests, and discards. These results are then used to estimate evaporation rates (and hence salt concentrations) reached at each stage. The following subsection details the estimation of the evaporation rate per concentration pool according to the composition of the brine.

In this way, samples taken from each production pond that will feed the solar evaporation ponds are continuously monitored. The solutions from each stage of the ponds, are also monitored to ensure efficient operational control.

Concentration control in each of the ponds of the lithium system (MOP) are also maintained within the range established for optimum performance and compliance with production plans.

10.1.6.2 Carmen Lithium Chemical Plant (PQC) Control Laboratory

PQC aims to purify lithium rich brines from remaining impurities and perform lithium carbonate synthesis. A part of the carbonate is then used for the synthesis of lithium hydroxide.

Analytical methodologies identify deleterious elements in order to establish mechanisms in the operation to keep such elements below acceptable limits to ensure product quality. Table 10-4 lists the basic set of analyses requested from laboratories as well as the methodologies used in determining solutions and solids.

Table 10-4. List of Requested Analyses for Plant Control

Parameter	Method
Liquid Sample Analysis	
Lithium	Atomic Absorption
Calcium	Atomic Absorption/Volumetry
Magnesium	Atomic Absorption/Volumetry
Carbonate	Volumetry
Boron	Volumetry
Silicon	ICP
pH	Ph meter
Sulfate	UV visible
Solid Sample Analysis	
Chloride	UV visible
Sodium	ICP
Magnesium	ICP
Calcium	ICP
Sulfate	ICP
Humidity	Stove
LOI	Mufla
Boron	ICP
D50	Mastersizer
Silicon	ICP

Chemical and physical parameters are evaluated, and the finished product then undergoes strict QC. Methodologies used for determination are recorded in Table 10-5.

Table 10-5. Analysis of Products (Li_2CO_3/LiOH)

Parameter	Method
Chemical Analysis	
Chloride	UV visible
Sulfate	ICP
Sodium	ICP
Potassium	ICP
Calcium	ICP
Magnesium	ICP
Iron	ICP
Nickel	ICP
Copper	ICP
Lead	ICP
Aluminium	ICP
Manganese	ICP
Chromium	ICP
Zinc	ICP
Silicon	ICP
Insoluble	Stove
LOI	Muffle
LiOH	Volumetry
Physical Analysis	
Magnetic particles	ICP
#60 mesh	Rotap/Air jet
Density	FFD / Tap density
D50	Mastersizer /Rotap

Customer requirements for lithium products require lithium carbonate to be 99.5% pure with a maximum concentration of magnetic particles less than 500 ppb and a maximum concentration of sodium, magnesium, and calcium ≤0.05%. The requirements also stipulate that lithium hydroxide have maximum trace levels of iron, chromium, copper, and zinc no greater than 1 ppm.

The analyses performed for product QC are related to each of the following purification stages:

- Boron removal.
- Magnesium removal.
- Calcium removal.
- Carbonation.

10.2 Analytical and Testing Laboratories

Salar de Atacama's metallurgical test work program requires that samples are sent to internal laboratories located on site. Table 10-6 details the name, location, and analysis conducted.

Table 10-6. List of Laboratory Facilities Available for Analysis in Salar de Atacama

Laboratory name	Location	Analyses performed	Description
Laboratory QA/QC (Lab QA/QC)	Salar de Atacama	---	Brine sample centralization, QC sample insertion, Data Base dispatch registers.
Analytical Laboratory of the Salar de Atacama (Lab SA)	Salar de Atacama	Ca, Cl, H_3BO_3, K, Li, Mg, Na, SO_4 and density.	ICP-OES: based on vaporization, dissociation, ionization and excitation of various chemical elements of a sample inside a plasma.
			FAAS: Atomic absorption spectroscopy is based on radiation absorption at a specific wavelength.
			Mg volumetry: Magnesium determination is an electro-analytical technique to determine concentration of an electroactive species in a solution using a reference electrode and a working electrode.
			Determination of chlorides by volumetry volumetry: This method is used to determine chloride ions by precipitation titration, where chloride ion precipitates as AgCl (silver chloride).
			Gravimetry: This is a quantitative analytical method, i.e., it determines quantity of substance by measuring the weight of the substance by gravity.

Laboratory name	Location	Analyses performed	Description
Metallurgical Laboratory	Salar de Atacama	Sample Preparation, Moisture Determination, Particle Size Analysis, Solids Percentage	Sample Preparation is an essential stage in analytical processes. Sample procedure and preparation will produce a homogeneous sub-sample that is representative of the total sample through alternating paddle.
			Moisture is determined by gravimetry method at constant weight where sample is reduced by the alternating paddle technique and then transferred to an oven.
			Granulometric Analysis: Evaluation of granulometric distribution of different salts in the system, by means of a master sizer, and magnetic stirrer.
			Solids Percentage: The solid/liquid separation of pulps from different processes, where it is determined the amountnumber of solids in the sample.

The Lab SA is not International Standards Organization (ISO) certified, but specializes in chemical analysis of brines and inorganic salts with extensive experience since 1995. It should be noted that none of the three internal laboratory facilities owned by SQM and operated by company personnel are certified to ISO standards.

The Lab QA/QC is in charge of sample custody regarding the reception of brine samples from all areas. The Lab is also in charge of dispatching arrangements, preparation and insertion of QC samples and sending them for chemical analysis to the Lab SA. From there, the Lab QA/QC publishes the results. The QA/QC and traceability control program is detailed in the Section 8.2.3.

The Lab SA services are needed in several areas, including exploration, operation, pumping, and monitoring. Samples arriving undergo a preliminary filtering process to eliminate solid materials that remain in suspension.

Once received and incorporated through the LIMS laboratory system, samples for chemical analysis are subject to pre-treatment, consisting of a thermo-regulated bath at 60 °C for 30 to 40 minutes to ensure that all salts are in solution. Subsequently, the baths are allowed to cool, and are taken to a weighting room where they are weighed. Scales are checked twice a day with certified weights and calibrated once a year by an authorized company.

Salar de Atacama laboratories continuously improve their procedures with visits from expert advisors and round robin testing. The interlaboratory comparison seeks to share experiences and results with external laboratories that have similar experience in analysis development and implementation. The purpose of this process is to continuously improve the techniques and procedures employed as well as to detect gaps. Therefore, samples are sent to both SQM's external and independent analytical laboratories that are accredited and/or certified by the ISO:

- Andes Analytical Assay (AAA) (ISO 9001 Certification).
- ALS Patagonia S.A (IISO 9001 Certification).
- Geo Assay Group (IISO 9001 Certification).
- LSA of the Universidad Católica del Norte (Accreditation with the international standard ISO/IEC 17025).

With interlaboratory comparison, a bias evaluation is conducted for different analytes and certified standards. To provide a measure of accuracy, an external control of the results by Lab UA is in process. External control of results is a built-in procedure in which triplicate samples (TRIP) are taken during sampling and a duplicate sample of the triplicate (DTRIP) is also taken. This DTRIP sample must be sent in a dispatch to an external reference laboratory. In this case, the University of Antofagasta.

During round robin testing, no significant contamination of any of the analytes evaluated for the brines during the analysis was detected. This demonstrates that the sampling procedures, preparation, and analysis of the brine samples as well as the rock and volume analysis for porosity to be adequate for the period evaluated.

QC and analytical procedures used at the laboratory are of high quality and similar to those used by ISO-certified laboratories that specialize in brine and inorganic salt analysis.

Regarding lithium carbonate and lithium hydroxide operations, the Salar del Carmen Laboratory (LSC), located at PQC, performs control procedures applied to liquid and solid samples as well as to finished products (Table 10-7).

Table 10-7. List of Installations Available for Analysis at PQC

Laboratory	Location	Analyses Performed	Description
Salar del Carmen Laboratory (LSC)	Carmen Lithium Chemical Plant (PQC)	Chloride, sulfate, sodium, potassium, calcium, magnesium, iron, nickel, copper, lead, aluminium, manganese, chromium, zinc, silicon, insoluble, lithium carbonate, boron, moisture pH zinc, silicon, insoluble, lithium carbonate, boron, moisture pH magnetic particles density	Chemical and physical analysis of finished products. Chemical analysis of solution and solid samples

At PQC and according to sampling and analysis protocols provided, adequate procedural management in both activities was identified. Staff responsible for executing the procedures are properly instructed, trained, and aware of handling the materials and equipment to be used. The staff relies upon clearly defined roles in order to comply with the standards defined in each procedure. This includes prior verifications and reporting in case deficiencies are detected, or irregularities in sampling as well as reporting problems with samples and equipment.

10.3 Sample Representativeness

Characterization approach and sample collection procedures used by the most-recent explorations program demonstrate thorough sampling methodology and documentation procedures. Metallurgical test development is developed by teams of specialized professionals with extensive experience in mining, geotechnics, and metallurgy.

Samples selected for testing and/or assays are taken by qualified laboratory personnel and correspond to areas duly indicated in the sampling plan along the production chain. The samples used to generate metallurgical data are sufficiently representative to support planning yield estimates, and are adequate for the purposes of estimating recovery from raw materials from different processing sectors of the company.

QA/QC measures include written field procedures and checks, such as monitoring, to detect and correct any errors identified in a project during drilling, prospecting, sampling, preparation and testing, data management, or database integrity checks. This ensures that reliable data is used for Resource and Reserve estimation.

SQM applies a protocol that requires that the laboratory receive brine samples from all areas developed in accordance with the campaign, address arranging dispatches together with shipment documentation of samples, and prepare and insert quality controls to address the precision and accuracy of the results. By chemical species analysis, an insertion rate of standard, or standard QA/QC samples, blanks, and duplicates is established. Details are provided in Section 8 of this Report.

10.4 Testing and Relevant Results

10.4.1 Salar de Atacama Testwork

At Salar de Atacama, the testwork has focused on increasing the quality and optimizing the yield of the product brine. The specific objectives include the following:

- To establish a balance between efficiency and the maximum allowable and achievable lithium concentration along evaporation train.
- Determine brine purification conditions and recovery of valuable species from impregnated salts.
- Investigate process equipment and operating conditions for the removal of impurities, maximizing production.

The Salar de Atcama's yield enhancement plan includes a set of operational improvement initiatives, project development and scale-up initiatives, and new process evaluation initiative with an objective to recover more lithium from the LiCl production system.

Currently, the following initiatives are underway:

1. Bischofite platforms
2. Improved harvesting
3. Miscellaneous improvements
4. CK platforms
5. Li_2SO_4 project
6. Calcium Source
7. Improved C-Li recovery
8. Soil repair

All measures are aimed at optimizing Salar de Atacama's operations to capture flows considered as loss due to infiltration, impregnation, and precipitation. Each measure occurs at different stages of development according to each case.

A brief description of the experimental procedures and the relevant or expected results of the testwork of initiatives follows:

- Bischofite platforms
- Improved harvesting
- Potassium Carnallite Platforms
- Calcium Source

10.4.1.1 Bischofite Platforms

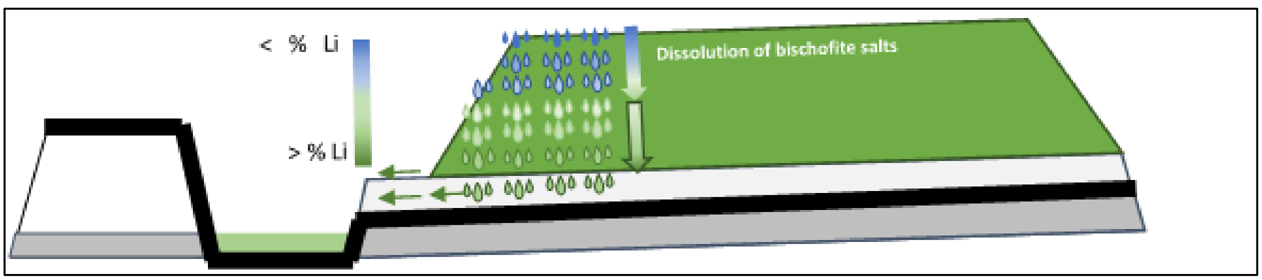
For lithium recovery from impregnated salts, experimental work was designed using a squeeze platform concept to treat bischofite. In the final stages of concentration, impregnated salts from the well system are placed on an impermeable sloping platform, because the brine has a higher concentration and generates a significant amount of salt.

Differing operating conditions were evaluated to account for the height or slope, water/brine irrigation, and duration of each irrigation cycle. Based on the recovery obtained, the relevant results of the work are:

- A high Li grade salt is generated.
- The recovered brine has a composition which allows it to return to the Bischofite and Lithium Carnalite system.
- The methodology allows an increase of 3% Lithium yield.

The first phase of the project was evaluated and developed in 2018 based on laboratory and pilot tests defined in the main design and operational parameters. The results of these tests show that it is technically and economically feasible to recover impregnation. Due to this notion and the result from the plant, the company decided to achieve a total of six platforms with an area of 320,000 m^2 total for squeezing from the bischofite salts. These platforms are being built between 2021 and 2022. Figure 10-2 shows the displacement of the impregnated brine through the bischofite salts mounted on a squeeze platform.

Figure 10-2. Improved Treatment Scheme for Bischofite Platforms

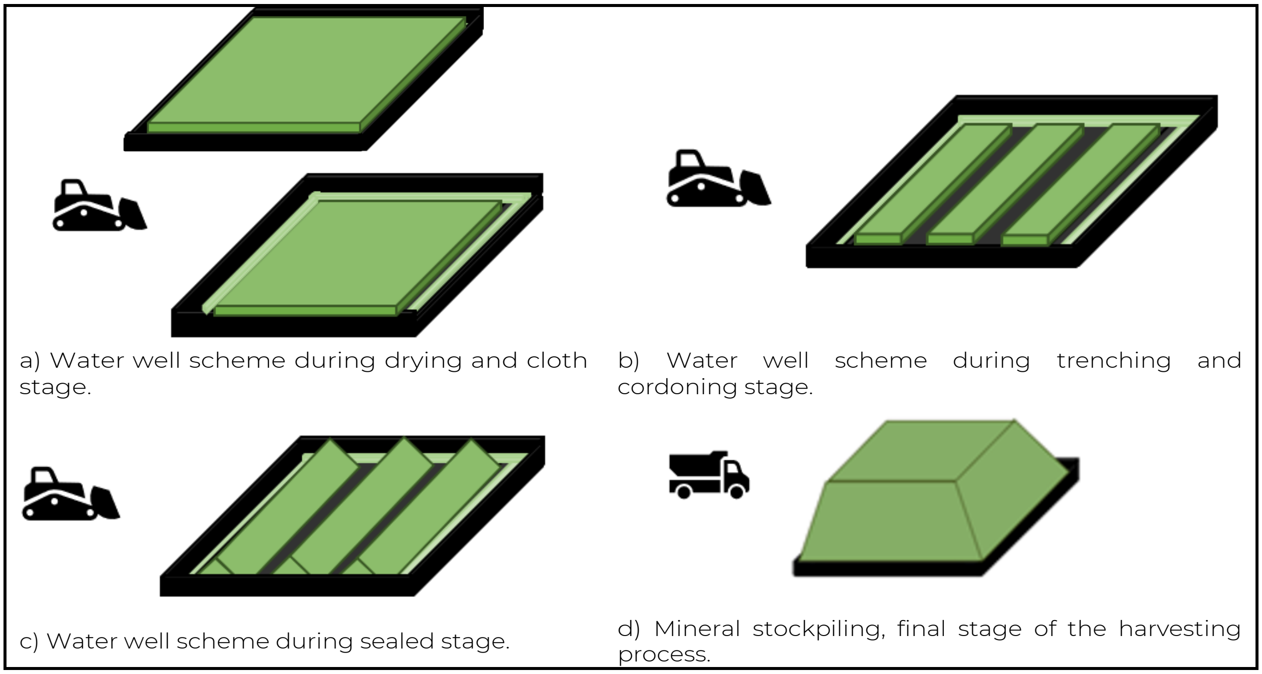


10.4.1.2 Improvement in Salt Harvesting

This initiative is focused on reducing loss due to impregnation and improving impregnated brine recovery in the harvesting process of different subsystems. The harvesting process includes five main stages as follows (Figure 10-3):

- Drying
- Cloth formation
- Trenching
- Sealed
- Stockpiling

Figure 10-3. Improved Treatment Scheme for Harvested Salts



a) Water well scheme during drying and cloth stage.

b) Water well scheme during trenching and cordoning stage.

c) Water well scheme during sealed stage.

d) Mineral stockpiling, final stage of the harvesting process.

Improvements in the harvesting process that will recover more impregnated brine per subsystem are listed below:

- Halite: Recovery ditch generation and increase drainage ditches.
- Silvinite: impregnated brine extraction, re-stringing of salts, generation of recovery ditch.
- Potassium Carnallite: A brine recovery harvesting plan will be generated.

Based on all this information, it is estimated that 1,091 tonnes of LCE will be recovered, increasing the yield of the productive operation by 0.4% lithium yield.

10.4.1.3 Potassium Carnallite Platforms

Due to the success of the Phase 1 of the bischofite platform project as well as the extension to the whole bischofite subsystem, the platforms are also being considered for the potassium carnallite subsystem. The same concept for bischofite platforms is proposed and extrapolated to potassium carnallite salts in order to minimize impregnation losses. This testwork is focused on brine recovery impregnated in salt harvests, aiming to recover the remaining loss of the improved harvest.

Conceptually, this process is the same of bischofite platforms. After impregnation and the reduction of Potassium Carnalite subsystem, the brine will be recovered in squeeze platforms. The recovered brine at this stage is expected to be dispatched with a 55% yield. With this detail, a recovery of 6,250 tonne LCE equivalent to dispatch is estimated, increasing the yield of the operation by 2.1 % for the lithium productive system.

10.4.1.4 Calcium Source

To avoid and/or reduce lithium losses by precipitation as lithium sulfate in the concentration system (solar evaporation), it is intended to abate the sulfate in the brines with calcium chloride to form the alternative calcium sulfate precipitate. This will lead to increased lithium availability in the target concentrated brine. An industrial trial is currently planned for 2022 to validate assumptions on costs and performance.

From the concepts given, a testwork program will be developed using the natural brine and a brine treated with $CaCl_2$. The aim is to find a dosage of $CaCl_2$ to determine the most efficient and cost-effective removal of sulgate ions. Concentrated brine and precipitated salts in both tests will provide information, through their composition determination, regarding crystallized salts throughout the different stages of an evaporation process.

It is estimated that this strategy can be successfully integrated with a 3.1% yield for the lithium system.

10.4.2 Carmen Lithium Chemical Plant (PQC) Testing

The processes of obtaining refined lithium products was developed over a long period. Operational experience and constant search for operational improvements has led to testwork with the following specific objectives:

- Complete testing and design of the boron solvent extraction facility with a performance guarantee provided by equipment supplier.
- Determine reagent consumption and brine purification conditions.
- Investigate process equipment and operating conditions for impurity removal.
- Determine lithium carbonate carbonation conditions to produce a high purity product.

Therefore, tests are being developed to increase Li_2CO_3 and $LiOH.H_2O$ production capacity, mainly using proven design of production trains, which allows a rapid scaling up of production capacity. In this way, industrial scale tests are carried out on each incorporated train in order to verify and establish a balance between performance and maximum allowable and achievable lithium concentration along the production train. This is achieved by reviewing conditions at each stage. The following is a brief example showing verifications made of the operating train incorporated for the carbonate line:

- The raw material conditioning review (dilution) stage involves an increase in brine ion activity (due to a dilution process) by adding water or mother liquor.
- During the lime check stage lime is added, also known as lime milk (a mixture of lime and water).

- Carbonate dosages: in the first stage Sodium Carbonate (Na_2CO_3) is added to above solution and the system is heated to operative temperature by checking output concentrations.
- Filtering: Once Li_2CO_3 has been obtained by filtering, the precipitate is washed and separated, in order to verify the operational guarantees of the process equipment.

In the same way, controls are checked on conditioning, dosing and obtaining product for the hydroxide line. Samples taken from these trains are subjected to the chemical and physical analyses described above.

10.5 Significant Risk Factors

The most significant factors in regard to processing, or factors detrimental to recovery, or to the quality of the product obtained, are the potentially deleterious elements that are present. Harmful elements, especially magnesium, can impede recoveries, as well as affect product quality and selling prices. Brines can be used to produce battery chemicals, however, Li_2CO_3 produced can be poor quality (both the grade and with deleterious elements). Raw material risks factors are insoluble material and carnallite content.

Information has been provided in this report about tests realized to process input and output streams, such as salts and brine and finished potassium and lithium products, for elements such as magnesium and other impurities. This shows the continued attention to improve the operation and obtain the best product, as well as an interest to develop or incorporate a new stage or new process or technology to mitigate the impact of risk factors.

There are other elements that must be removed during brine processing which are deleterious and mainly consist of magnesium, sulfate and calcium, represented by Mg/li and Ca/Li and sulfate/lithium ratios.

Elevated carnallite causes elevated magnesium levels in the brine. Elevated magnesium causes lower KCl concentration in the brine and reduces plant efficiency and recovery.

Plant control systems analyze carnallite grades and ensure that they will not affect brine KCl concentration and plant performance. When brines with high magnesium concentrations are used, they can be blended with lower magnesium brines to keep magnesium levels in the plant feed within acceptable limits.

10.6 Qualified Person´s Opinion

Gino Slanzi Guerra, QP, responsible for metallurgy and treatment of the resource is of the opinion that:

- The key to good recovery of ions participating in SQM's products lies in managing the complex salt balance of the Salar de Atacama. Hydrogeological modeling fed with information on brine chemistry at different stages has improved yields in which lithium recovery was historically around 45-50% (due to precipitation, entrainment, and impregnation of lithium solutions in the precipitated crystals), which is now closer to 60% (see Section 14).
- Salar de Atacama's brine analysis plan, procedures, QA/QC protocols, sample and data custody are considered suitable for operational purposes, both in the production of potassium chloride and production of concentrated lithium solutions.
- Physical, chemical metallurgical testwork to date has been adequate to establish suitable processing routes for resource.
- Samples used to generate metallurgical data have been representative and support estimates of future throughput. Metallurgical test data for the resources planned to be processed in the projected production plan up to 2030 indicate that the recovery methods are adequate.
- Although there are processing factors where some deleterious elements may have an impact at some stage during brine extraction and processing, verified expert work by process and operations control teams serves to avoid significant disruption to economic extraction.

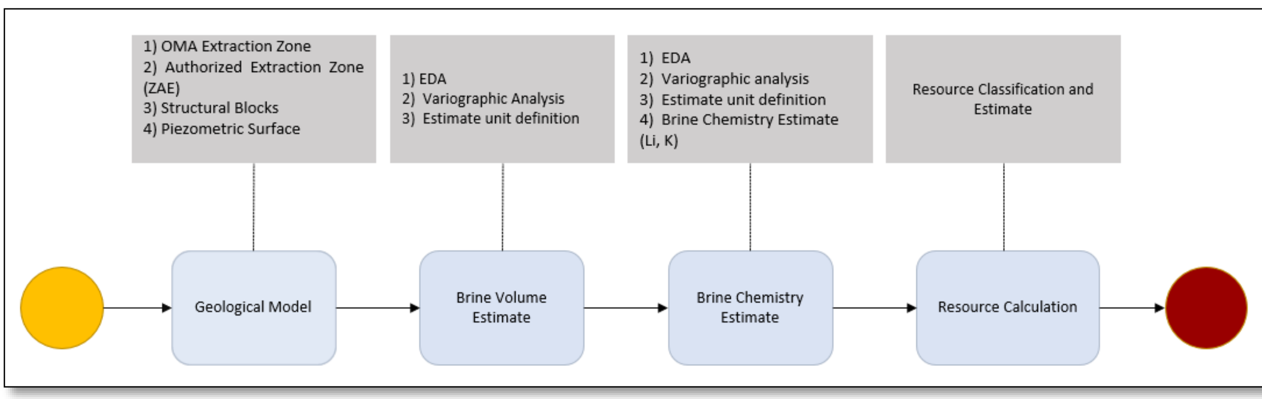
Three different research units cover topics, such as chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of finished products.

11 MINERAL RESOURCE ESTIMATE

This section contains forward-looking information related to Mineral Resource estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction.

This section describes the Mineral Resource estimate for Li and K in SQM's tenements of the Salar de Atacama (OMA properties), which is based on the in-situ brine concentrations in the subsurface and drainable interconnected pore volume. The Mineral Resource was estimated by SQM and was subsequently verified by WSP; although SO_4 and B Mineral Resources were previously reported (SQM, FORM 20-F 2020), only Li and K Mineral Resources are declared in this TRS given their expected economic viability. The Mineral Resource estimation process can be summarized in four major stages, as shown in Figure 11-1.

Figure 11-1. Mineral Resource Estimate General Flowchart



The OMA properties in the salt flat nucleus have been characterized by SQM using various methods that include the installation of exploration and production wells, shallow brine sampling, and geophysics. Given the continuity and subhorizontal disposition of the distinct geological units and aquifers which make up the reservoir (supported in part by previous work done in the salt flat with seismic reflection), the vertical direction of the drilling perpendicular to the stratigraphic units is optimal for the representation of the main characteristics of the deposit and it is thus emphasized in this analysis.

11.1 Estimation Methods, Parameters, and Assumptions

This sub-section contains forward-looking information related to density and grade for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual in-situ characteristics that are different from the samples collected and tested to date, equipment and operational performance that yield different results from current test work results.

The Mineral Resource was estimated based on the lithology, effective porosity, and concentration distributions within the OMA Extraction Zone limited to the nucleus of the Salar de Atacama. The Mineral Resource was estimated, as discussed below.

Construction of the Geological Model: lithologic information as well as available drillhole geophysics were utilized to generate geologic unit volumes in three dimensions using the software Leapfrog Geo. The geological model was also used as a basis to construct the block model utilized for the Resource Estimate. The total number of wells and boreholes used for the construction of the geological model is summarized in Table 11-1; the total combined drill length corresponds to approximately 164 km.

Table 11-1. Total Number of Wells used for Construction of the Geological Model

Wells and Drillholes	N°
Trial pits	23
Piezometers	285
Collector wells	294
Brine production wells	1,125
Air reverse circulation (RC) drillholes	850
Direct circulation drillholes	8
Diamond drillholes (DDH)	137
Other mixed drillholes (RC+DDH)	3
Total	**2,725**

Calculation of the Brine Volume: a block model was constructed using the Leapfrog Edge software. The effective porosity of the cell was estimated by ordinary kriging (OK) or by assignment of the geometric mean, depending on the number of measured data points from each geological unit. Only the saturated volume was considered based on the most recent water table elevation. The total number of wells used to calculate the brine volume is summarized in Table 11-2.

Table 11-2. Total Number of Drillholes used to Estimate the Brine Volume.

Drillholes	N°

Diamond drillholes (DDH)	85

Interpolation of Brine Concentrations: in the block model, concentrations of the ion of interest were estimated for each cell using ordinary kriging and the Leapfrog Edge software; the estimated ions (in wt.%) for the declared resource include K and Li. Brine density was also estimated by ordinary kriging using the complete dataset and a single estimation domain. The total number of wells used for the brine chemistry estimation is summarized in Table 11-3.

Table 11-3. Total Number of Wells used for the Chemistry Interpolation.

Wells and Drillholes	N°
Diamond drillholes (DDH)	21
Air reverse circulation (RC) drillholes	493
Brine production wells	439
Piezometers	406
Collector Wells	60
Direct circulation drillholes	10
Other mixed drillholes (RC+DDH)	4
Total	**1,433**

Resource Estimate: Once the block model was built with the reservoir units, porosity, chemistry and brine density, the mass of the chemical element inside of a defined brine volume was estimated using the following formula:

$$T_i = \frac{V_i \; x \; C_i \; x \; \rho}{100}$$

Where:

T_i = Metric tonnes of K or Li in cell i.

V_i = Volume of brine in cell i

C_i = Li or K concentration in cell i (in wt.%).

ρ = density in cell i (in g/cm^3)

11.1.1 Estimation Parameters

11.1.1.1 Block Model Definition

A block model was defined whose limits and cell sizes are presented in Table 11-4. The total number of cells in the block model is 19,048,848. This block count is necessary to adequately represent vertical variations in concentration and effective porosity.

Table 11-4. Block Model Discretization

Model Limit	Min (m)	Max (m)	Block Spacing (m)
East (x)	544,832.3	593,830.3	250
North (y)	7,376,161.5	7,420,660.7	250
Elevation (z)	1,800	2,346	1

*Coordinate System: WGS 84 / UTM Zone 19S

In total, the block model covers the OMA Extraction Zone of 81,920 hectares which is designated for the exploration and exploitation of K and Li brines by SQM. A series of cells were conservatively not considered in the estimation domain due to the reasons listed in Table 11-5.

Table 11-5. Conditions and Assumptions for Filtering Cells in the Block Model

Excluded Cells in the Block Model		Reason
1	Hydrogeologic basement (Regional Clays).	Less exploration information at that depth
2	Cells below a depth of 300 m.	Less exploration information at that depth
3	Cells within Lower Halites are only considered for depths greater than 100 m below the surface and in Brine Chemistry Domain 4.	Less exploration information at that depth
4	Cells outside of the OMA or Authorized Extraction zones.	Restrictions to explore and pump outside of the OMA and Authorized Extraction zones

11.1.1.2 Effective Porosity and Brine Volume Determination

The effective porosity (Pe) is defined as the portion of total void space that can transmit a fluid through interconnected pores. SQM uses this parameter instead of specific yield to estimate the brine volume due to the measurement techniques of their porosity laboratory (Gas Displacement Pycnometer). Although specific yield was not used for the estimate, the QP considers that the high frequency sampling of Pe, large dataset, and general lack of fine-grained sediments in the OMA Zone such as clay (where specific retention can be dominant) permits Pe to be a reasonable parameter for the Resource Estimate.

Methodology and Estimation of Effective Porosity (Pe)

For the brine volume estimate, two separate methodologies were used according to the characteristics of each geological unit as well the representativeness of the effective porosity data. The utilized methodologies include:

- Interpolated Pe: Used for units with a low variability in their lithologies and adequate data distribution: Upper Halites, Intermediate Halites, and Halites with Organic Matter. The interpolation method corresponds to Ordinary Kriging.
- Assigned Pe: Used for units with high variability in their lithologies and a good to poor data distribution. As such, the geometric mean of available data was assigned to the Evaporitic and Volcanoclastic, and Lower Halite units.

Based on the characterization above, the validated dataset was selected under a series of restrictions according to the lithologies of each geological unit and acceptable porosity values (e.g., positive values, no duplicates, and non-overlapping values). The final dataset with these restrictions applied for the brine volume estimate corresponds to 10,395 samples.

Furthermore, the sample data collected by SQM is complemented by two external studies in the salt flat: Hydrotechnica (1987) and Water Management Consultants (1993). These studies were considered to improve the data distribution along the whole exploration area.

Exploratory Data Analysis - Pe

To increase confidence in the resource estimation, an exploratory data analysis (EDA) stage was first undertaken to identify effective porosity trends as a function of the geological units. The EDA of the effective porosity involved the univariate statistics of the samples using histogram, box plots and probability plots. Figure 7-4 shows the statistics of the effective porosity data considered to interpolate UG the Upper Halite, Intermediate Halite, and Halite with Organic Matter units; 9,512 data points were considered, and the x-axes are presented in %.

From analysis of the data, the distributions of the Upper Halite and Intermediate Halite can be summarized as follows:

- Upper Halites: 2,049 effective porosity data points with a normal distribution and low positive bias; its range varies between 0.01% and 33.26%, with an average value of 6.85%.
- Intermediate Halites: 6,273 effective porosity data points with a log-normal distribution and low positive bias; its range varies between 0.01% and 40.13%, with an average value of 3.09%.

Due to low data counts for the Evaporitic and Volcanoclastic Unit and Lower Halite Unit, assigned effective porosity values were applied. The assigned values of the effective porosity for the Evaporitic and Volcanoclastic Unit and Lower Halite Unit are presented in Table 11-6:

Table 11-6. Summary of Assigned Pe Values

Grouped Unit (Chapter 6.3)	Specific Geological Unit	Number of Data Points	Assigned Pe Value: Geometric Mean (%) of Measured Pe Values
Lower Halite	Halite #1	437	1.77
Evaporites and Intermediate Volcaniclastics	Tuff #2	5	16.17
	Halite #2	149	1.87
	Gypsum #1	59	1.73
	Tuff #3	2	18.94
	Gypsum #2	196	2.62
	Tuff #4	15	23.76
	Gypsum #3	86	9.09

Grouped Unit (Chapter 6.3)	Specific Geological Unit	Number of Data Points	Assigned Pe Value: Geometric Mean (%) of Measured Pe Values
	Tuff #5	2	10.98
	Gypsum #4	35	5.43
	Tuff #5.1	4	19.74
	Gypsum #5	84	10.78
	Tuff #6	14	10.64
	Gypsum #6	28	11.80
	Tuff #7	5	22.29
	Gypsum #7	2	5.38

Table 11-7 summarizes the distinct effective porosity domains and each estimation method employed.

Table 11-7. Effective Porosity Estimation Domains, Brine Volume Estimate

Effective Porosity Domain	Grouped Unit (Chapter 6.3)	Estimation Method	Number of Data Points (field samples)
1	Upper Halite	Ordinary Kriging	2,049
2	Halite with Organic Material and Clastic and Evaporitic	Ordinary Kriging	1,190
3	Intermediate Halite	Ordinary Kriging	4,624
4	Intermediate Halite	Ordinary Kriging	1,649
-1*	Lower Halite / Evaporites and Intermediate Volcaniclastics, Lower Halites	Assigned Drainable Porosity Values	1,123

Note: *Not used to as an effective porosity domain for the interpolation of values

Variography and Pe Estimation

The validated dataset was compared with the geological units (GU) and Pe domains. A spatial continuity analysis is made for every estimation unit in the XY plane and in the perpendicular (z) direction, defining the variogram models and search radius used for the interpolations. The effective porosity shows an important horizontal anisotropy and exhibits continuities in the XY plane several orders of magnitude higher than the vertical direction. The variograms of the estimation domains with the most samples (estimation domains #1 and #3) are presented in Figure 11-2 and Figure 11-3. Additionally, the search radius and variogram parameters for the effective porosity estimate are summarized in Table 11-8 and Table 11-9.

Figure 11-2. Variograms of Effective Porosity Domain 1 (Upper Halite).

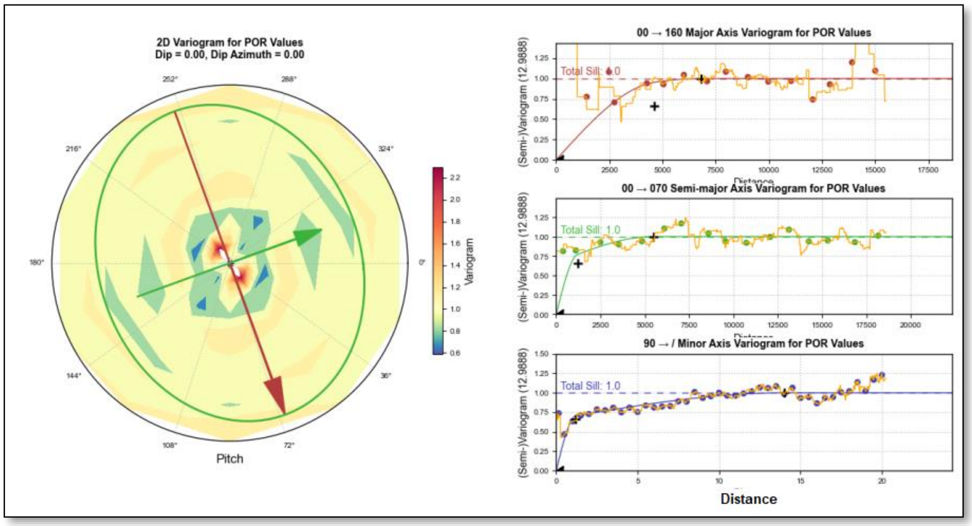


Figure 11-3.Variograms of Effective Porosity Domain 3 (Intermediate Halite).

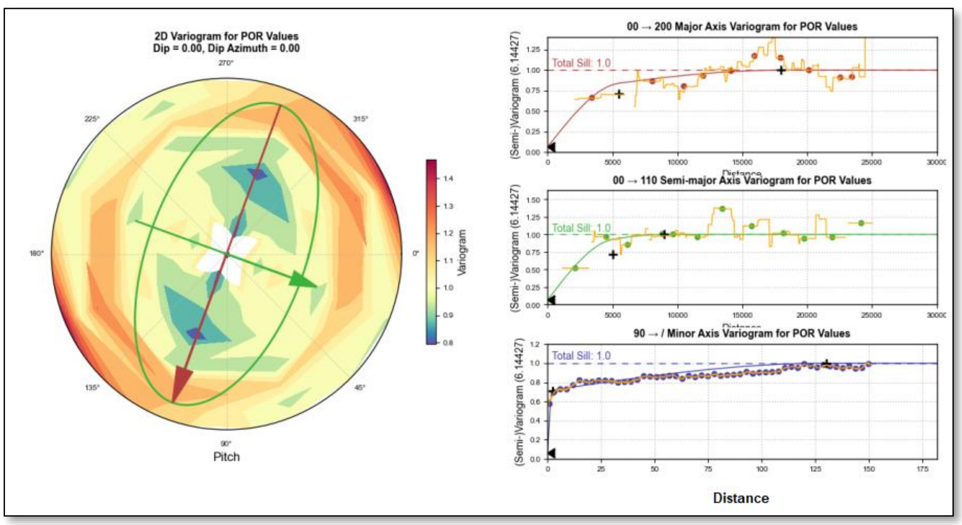


Table 11-8. Search Radius Parameters, Effective Porosity Estimate (SQM, 2020).

Effective Porosity Domain	X (m)	Y (m)	Z (m)	Dip	Dip Az	Pitch	Min 1	Max 1	Factor 2nd Vol	Min 2	Max 2	Factor 3rd Vol (XY)	Z 3er Vol.	Min 3	Max 3	Min Oct Vol1-Vol2/Vol 3	Max Sample per Oct	Max per DH
1	4,000	3,000	3	0	0	70	3	15	2	3	20	5	50	2	20	4/1	7	5
2	4,000	3,000	3	0	0	0	3	15	2	3	20	5	60	2	20	4/1	7	5
3	4,000	3,000	3	0	0	110	3	15	2	3	20	5	50	2	20	4/1	7	5
4	4,000	3,000	3	0	0	110	3	15	2	3	20	5	50	2	20	4/1	7	5

Table 11-9. Variogram Model Parameters, Effective Porosity Estimate (SQM, 2020).

Effective Porosity Domain	Dip	Dip Az	Pitch	Nugget	ST1Par1	ST1Par2	ST1Par3	ST1Par4	ST2Par2	ST2Par3	ST2Par4
1	0	0	100	0.001	4,600	1,200	1.2	0.659	5,500	14	0.3401
2	0	0	0	0.1245	8,500	6,000	2.2	0.3354	7,000	37	0.5401
3	0	0	110	0.06472	5,500	5,000	2.2	0.6485	9,000	130	0.2867
4	0	0	110	0.06472	2,600	2,600	1.1	0.6108	5,500	15	0.3245

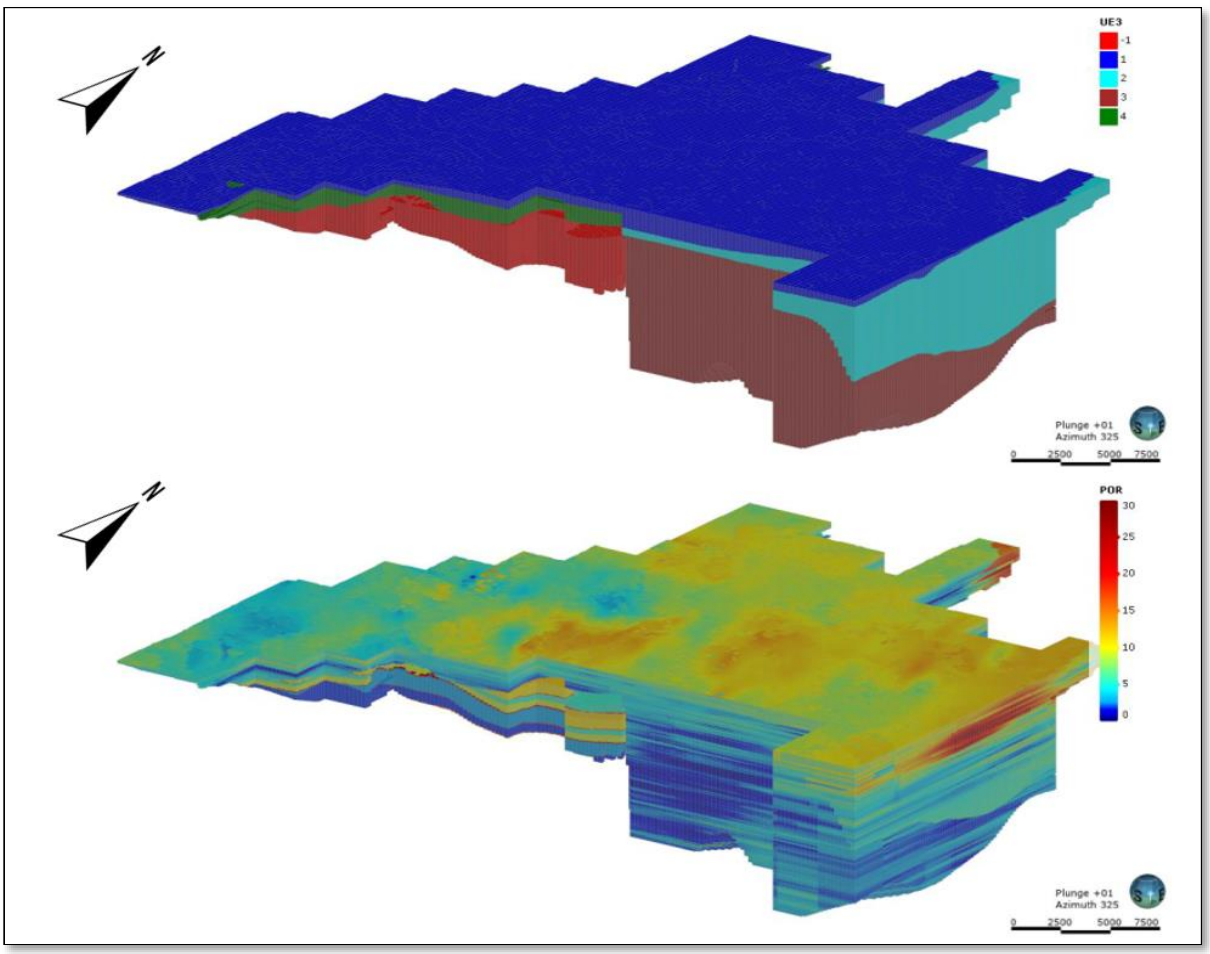
The interpolation results of Pe are summarized in Table 11-10.

Table 11-10. Effective Porosity (%) Interpolation Summary

Effective Porosity Domain	Brine Volume [Mm^3]	Count	Min	Max	Mean	Standard Deviation	Median
All	12,741	4,877,573	0	37.523	4.179	3.941	3.036
1	2,106	471,201	0	25.679	7.153	2.171	7.001
2	4,773	872,074	0	37.523	8.758	6.241	6.144
3	5,057	3,191,470	0	28.036	2.535	1.539	2.301
4	804	342,828	0.068	21.85	3.752	1.602	3.634

Figure 11-4 shows the block model with the Pe domains and interpolated Pe values in OMA Extraction Zone.

Figure 11-4. Block Model with Pe Domains and Interpolated Values, OMA Extraction Zone



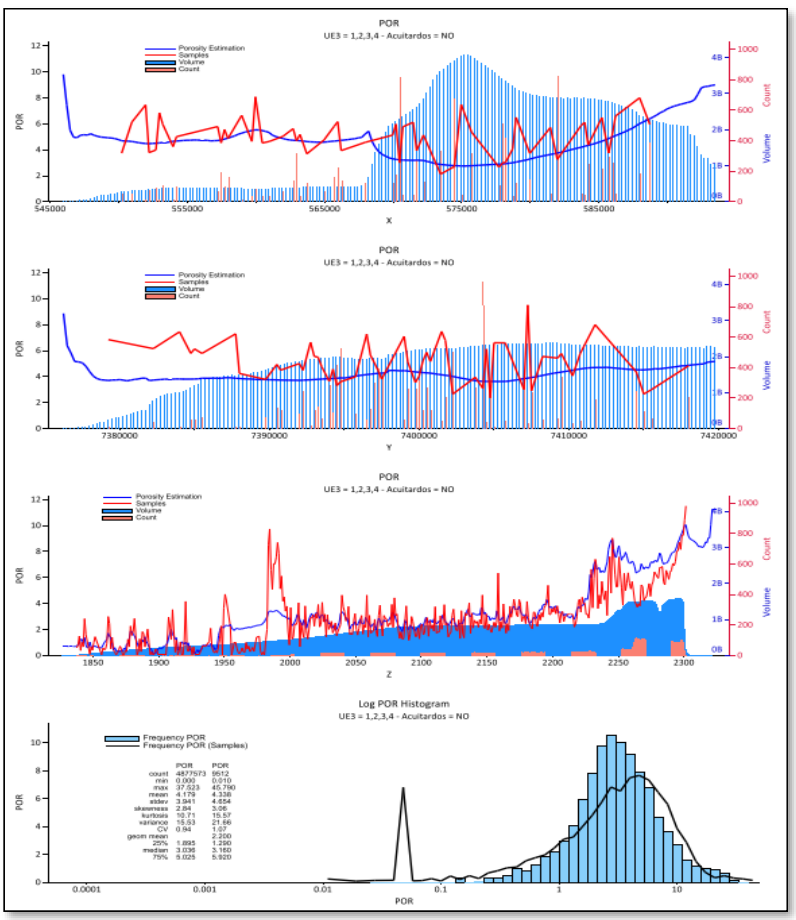
The resulting Pe values are consistent with the response of the reservoir units to pumping and are reasonable based on the QP's experience. It is important to highlight that the values are also conservative considering that normally core samples used for the Pe measurements are recovered in more compact zones, compared to more porous and disaggregated zones which have a lower recovery rate.

Brine Volume Validation

The validation of the brine volume was made for those hydrogeological units whose porosity value was estimated using ordinary kriging. For those units where the drainable porosity was assigned, no validation was needed.

The comparison between the dataset distribution and estimate indicates that the distribution is respected with a slight decrease of the variance due to the kriging interpolation. It is observed that in general the main trends are respected in all directions and the interpolation properly reproduces the variability in the vertical direction (Figure 11-5). Given that the difference in general is less than ~10% and that the variability with depth is respected, the Pe interpolation within the estimation domains is considered adequate.

Figure 11-5. Swath Plots of Effective Porosity within the 4 Estimation Domains.



11.1.1.3 Brine Chemistry Interpolation

Methodology and Estimation

The data used for the brine chemistry interpolation was analyzed in the Chemical Laboratory of the Salar de Atacama. This laboratory receives the chemical samples as well as the respective control samples. Utilized chemistry values were taken from bailer, packer, pumping, and exploration (RC borehole) samples between January 2011 and January 2021. A total of 1,433 wells and 4,979 samples were selected for the brine chemistry interpolation. Once the dataset was defined, exploratory and variography analyses were performed. Subsequently, the interpolation was made using OK.

Exploratory Data Analysis

The hydrochemical units were grouped into brine chemistry estimation units, or domains, according to the similarity of their statistical parameters and lithologies (see Hydrogeological Units in Section 7 of this TRS). This allows for a greater continuity for the interpolation, an improved variographic analysis, and well-defined estimation parameters. From this analysis, the following brine chemistry domains were defined:

- Domain 1: Brine from hydrogeological unit UA for every structural block in the Salar de Atacama and low K brine from UB. This estimation unit is characterized by lithium concentration between 0.007 and 1.945 wt.%, with an average of 0.141 wt.%.
- Domain 2: Brine from hydrogeological unit UB with high K concentrations. It is characterized by Li concentration between 0.020 and 2.243 wt.%.
- Domain 3: Brine from hydrogeological unit UC, with high Li located between the Salar Fault System and Lila Este Fault System. It is characterized by high Li concentrations with a range between 0.06 and 0.84 wt.%.
- Domain 4: Brine from the UC and UD, limited to the west by the Lila Este fault system. It is characterized by a low content of SO_4 and high Ca. Lithium concentrations vary between 0.12 and 0.62 wt.%.
- Domain 5: Brine from UC between the Salar Fault System and Lila Este fault system. This unit is characterized by a low Li content between 0.018 and 0.740 wt.%.

Table 11-11 summarizes the equivalence between the brine estimation domains and hydrogeological units.

Table 11-11. Equivalence between Hydrogeological Units and Brine Chemistry Domains

Brine Chemistry Domain	Hydrogeological Unit (Chapter 7)	Grouped Geological Unit (Chapter 6.3)	General Characteristics	N° Data Points
1	UA + UB Type 2	Intermediate Halite and Upper Halite	Low K	3,026
2	UB Type 1	Intermediate Halite	High K	643
3	UC Type 1	Evaporites and Volcanoclastics	High Li	265
4	UC Type 2 + UD	Evaporites and Volcanoclastics with Lower Halite	High Ca	75
5	UC Type 3	Evaporites and Volcanoclastics	High SO_4	970

Variography and Brine Chemistry Estimation

The variography analysis was made in two directions: horizontal (XY surface) and vertical (Z axis). For the horizontal direction, the RC borehole samples were excluded (except for Domains 4 and 5) to avoid bias in the wells with more available data from that specific sampling type. For the vertical direction, measured field data have a high resolution over small distances. For some ions and units, capping was applied to eliminate the effect of outliers such as re-injected brines in the upper aquifer and to better represent the continuity of the most relevant population within a domain (in the case of multimodal distributions).

The search ellipse was divided into octants, and restrictions were applied to the minimum and maximum number of samples per well and sector. No compositing of the samples was undertaken. Variograms of Li and K for the Brine Chemistry Domain 1 (the domain with the largest number of field samples) are presented Figure 11-6 and Figure 11-7, and the search radius and variogram parameters are also summarized in Table 11-12 and Table 11-13. Interpolation for all brine chemistry domains was subsequently done using ordinary kriging; an image of the brine chemistry interpolation result for Li is shown in Figure 11-8 and the average Li and K concentrations in each estimation domain are shown in Table 11-14.

Figure 11-6. Lithium Variograms of Brine Chemistry Domain 1.

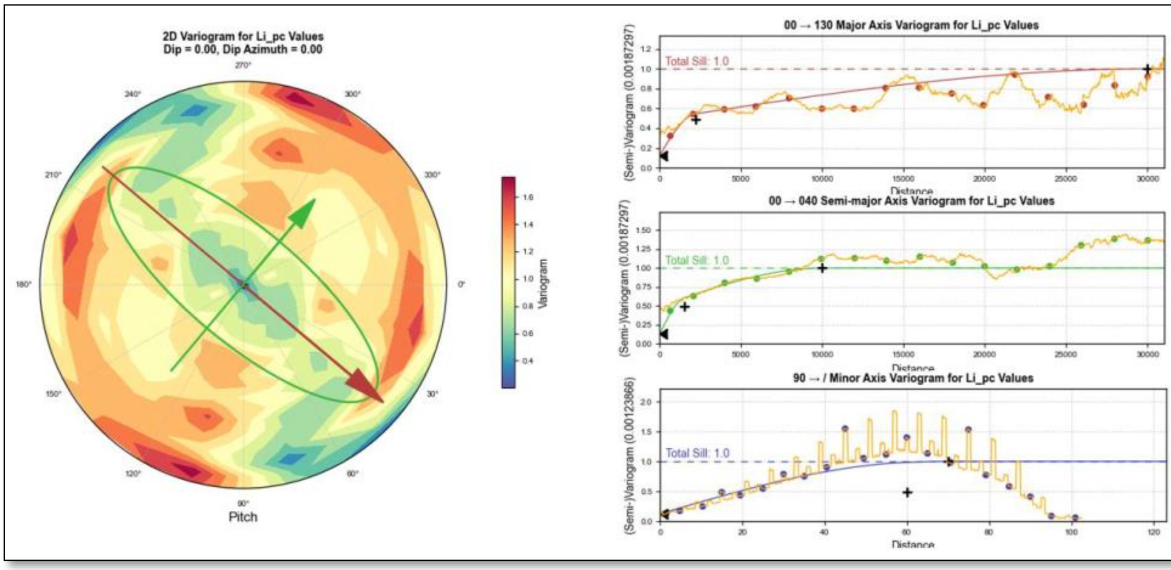


Figure 11-7. Potassium Variograms of Brine Chemistry Domain 1.

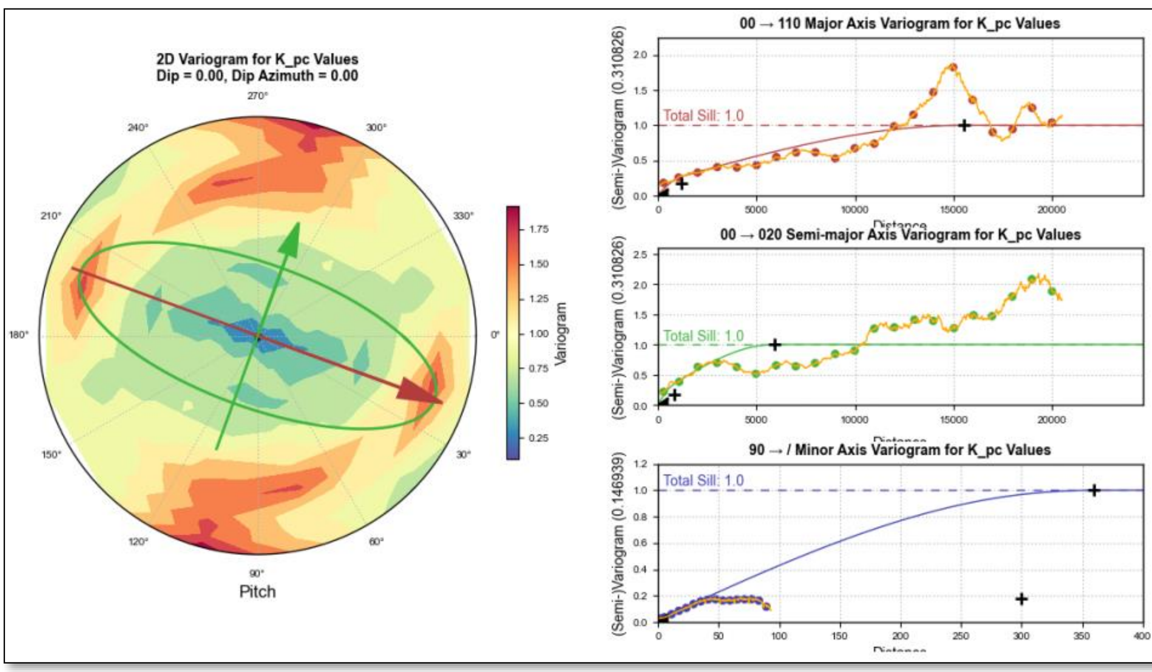


Table 11-12. Search Radius Parameters, Li and K Interpolation.

Element	Brine Chemistry Domain	Max (m)	Int (m)	Min (m)	Dip	Pitch	N° Min. 1st	N° Max 1st	Max per Oct 1st	Min Number of Octant Required 1st	Max per DH 1st	2nd Vol Factor	N° Min. 2nd	N° Max. 2nd	% Of Search 2nd	Value Threshold 2nd	Max per Oct 2nd	Min Number of Octant Required 2nd	Max per DH 2nd
Li	1	3,000	2,500	10	0	40	6	18	5	4	4	2	4	18	0.5	0.4	5	4	4
Li	2	3,000	2,500	10	0	135	6	18	5	4	4	2	4	18	0.5	0.55	5	4	4
Li	3	2,500	1,500	10	0	70	6	18	5	4	4	2	4	18	0.5	0.67	5	4	4
Li	4	3,000	2,500	10	0	155	6	18	5	4	4	2	4	18	0.5	0.5	5	4	4
Li	5	1,500	1,500	10	0	0	6	18	5	4	4	2	4	18	-	-	5	4	4
K	1	3,000	2,500	10	0	20	6	18	5	4	4	2	4	18	-	-	5	4	4
K	2	3,000	2,500	10	0	155	6	18	5	4	4	2	4	18	-	-	5	4	4
K	3	2,500	1,500	10	0	30	6	18	5	4	4	2	4	18	-	-	5	4	4
K	4	3,000	2,500	10	0	155	6	18	5	4	4	2	4	18	-	-	5	4	4
K	5	1,500	1,500	10	0	0	6	18	5	4	4	2	4	18	-	-	5	4	4

Table 11-13. Variogram Model Parameters, Li and K Interpolation.

Elem.	Estimation Unit	Transform	Lower Cap	Upper Cap	Dip	DipAz	Pitch	Nugget	ST1	Maj1
Li	1	-	0.05	0.2	0	0	40	0.127	Spherical	2,200
Li	2	-	0.05	0.35	0	0	135	0.01133	Spherical	2,000
Li	3	-	0.4	-	0	0	70	0.02	Spherical	1,050
Li	4	-	-	0.4	0	0	155	0.01	Spherical	2,200
Li	5	-	-	0.25	0	0	0	0.002	Spherical	2,100
K	1	-	0.5	3	0	0	20	0.02	Spherical	1,200
K	2	-	0.5	3	0	0	155	0.005	Spherical	1,600
K	3	-	-	3.5	0	0	30	0.02	Spherical	1,150
K	4	-	-	3.5	0	0	155	0.01	Spherical	10,000
K	5	-	1	3	0	0	0	0.02	Spherical	7,00
Elem.	**Estimation Unit**	**SMaj1**	**Min1**	**Var1**	**ST2**	**Maj2**	**SMaj2**	**Min2**	**Var2**	
Li	1	1,500	60	0.3636	Spherical	30,000	30,000	70	0.5094	
Li	2	1,200	90	0.365	Spherical	5,500	5,500	90	0.6237	
Li	3	600	320	0.6008	Spherical	3,100	3,100	330	0.3792	
Li	4	1,300	150	0.492	Spherical	12,000	12,000	200	0.498	
Li	5	2,100	2,100	0.7643	Spherical	3,500	3,500	3,500	0.2337	
K	1	800	300	0.16	Spherical	5,900	15,500	360	0.82	
K	2	1,200	500	0.2949	Spherical	6,000	8,500	600	0.7001	
K	3	500	600	0.217	Spherical	1,600	2,600	600	0.763	
K	4	3,500	1,000	0.99	-	-	-	-	-	
K	5	700	25	0.06	Spherical	2,200	2,200	2,200	0.92	

Note: ST: Variogram structure type; Maj: Major axis ellipsoid; SMaj: Semi-major axis ellipsoid; Min: Minor axis ellipsoid; Var: variance.

Figure 11-8. Interpolated Li in the Block Model, Saturated Area of the OMA Zone (Modified from SQM, 2020).

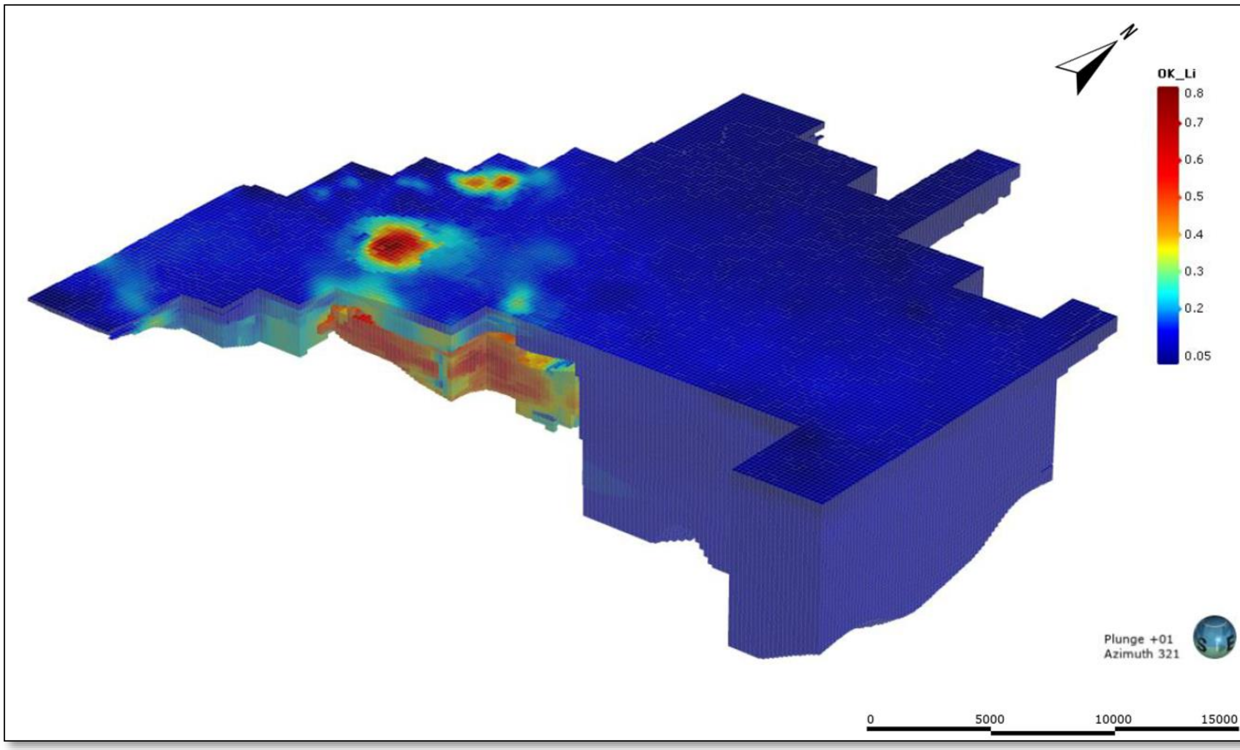


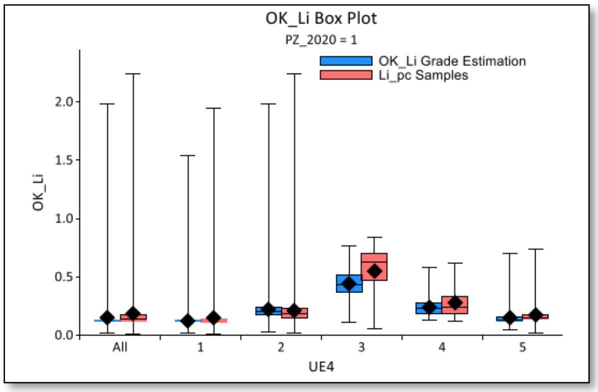
Table 11-14. Average Li and K Concentrations after Interpolation, OMA Extraction Area

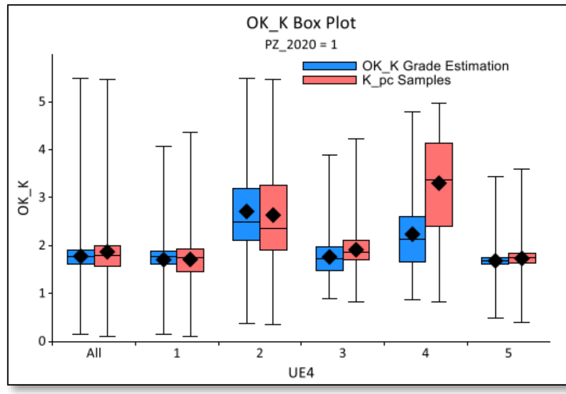
Brine Chemistry Domain	Average Interpolated Li (wt.%)	Average Interpolated K (wt.%)
1	0.127	1.70
2	0.232	2.80
3	0.476	1.79
4	0.261	2.29
5	0.153	1.68

Validation of the Brine Chemistry Estimate

To corroborate the effectiveness of the estimate, visual inspections, cross-statistical validation, comparison of distributions and disaggregated means, and derivative analyses were carried out. For each chemical estimation domain, the difference between the estimate and ungrouped mean of the samples was less than 10% for Li and K, indicating that the interpolation is considered valid within the estimation domains. Comparative box and whisker plots of Li and K are provided in Figure 11-9 showing that a good agreement or lower (conservative) values were obtained for most brine chemistry domains (x-axis).

Figure 11-9. Box Plots of Measured Sample Values versus estimated Block Model Values, Li and K.





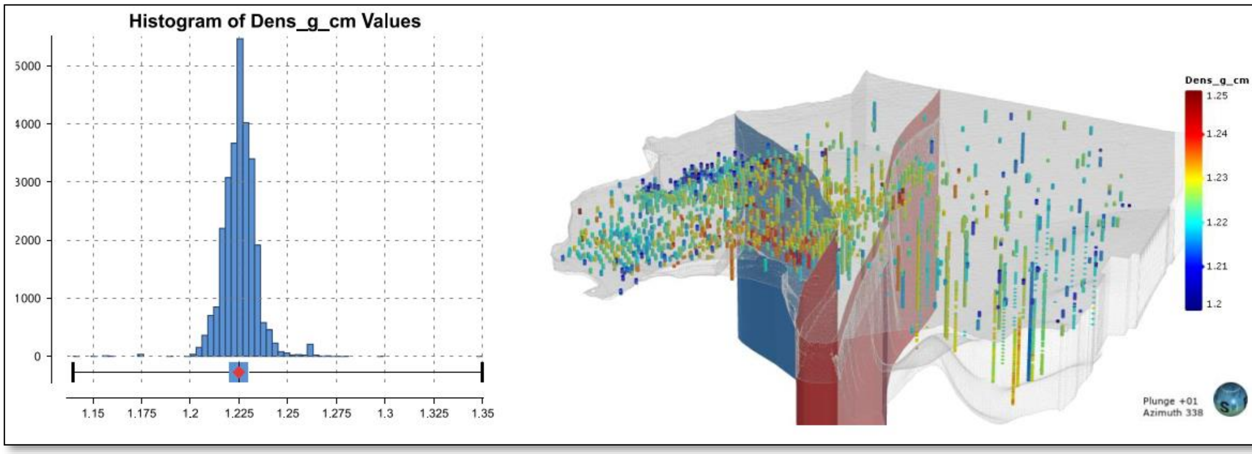
11.1.1.4 Brine Density Interpolation

The density estimate was made using OK over a single domain (Table 7-3) due to the unimodal distribution and symmetric population of the mean and median (Figure 11-10). The statistical summary of the density values is shown on Table 11-15.

Table 11-15. Univariate Statistics of Density Weighted by Sample Length

Parameter	Value
Number of Samples	4,945
Total Length [m]	27,602.7
Average [g/cm3]	1.225
St. Deviation [g/cm3]	0.008
Min [g/cm3]	1.114
Q1 [g/cm3]	1.220
Median [g/cm3]	1.225
Q3 [g/cm3]	1.230
Max [g/cm3]	1.350

Figure 11-10. Density Histogram and Spatial Distribution



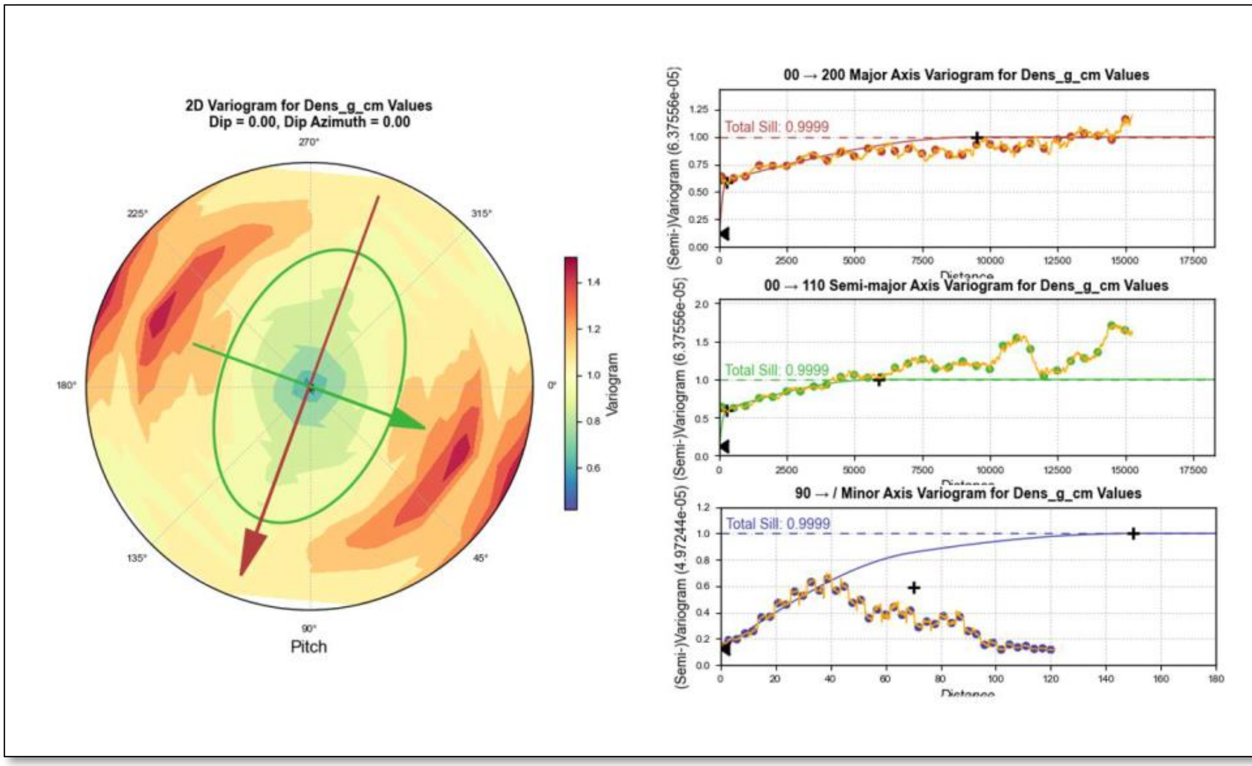
The variography analysis was performed in the horizontal (XY) and vertical (Z) directions. Capping was applied to remove the effect of the extreme values of the distribution on the variogram (Table 11-16). A maximum continuity (NE orientation) was observed with ranges of approximate 10,000, 6,000 and 150 m (major, semi-major and minor axis, respectively), resulting in a horizontal anisotropy ratio close to 1.6 and vertical ratio greater than 60 (Figure 11-11). Two search radii were defined: the first with the ranges and direction of the variogram, and the second being double of the first (Table 11-16) which was enough to populate the area of interest.

Table 11-16. Variogram Model Parameters for the Brine Density Interpolation

Elem.	Estimation Unit	Transform	Lower Cap	Upper Cap	Dip	DipAz	Pitch	Nugget	ST1
Density	-	-	1.2	1.25	0	0	110	0.123	Spherical
Elem.	**Maj1**	**SMaj2**	**Min1**	**Var1**	**ST2**	**Maj2**	**SMaj2**	**Min2**	**Var2**
Density	260	260	70	0.4679	Spherical	9,500	5,900	150	0.409

Note: ST: Variogram structure type; Maj: Major axis ellipsoid; SMaj: Semi-major axis ellipsoid; Min: Minor axis ellipsoid; Var: variance.

Figure 11-11. Density Estimate Variogram



A validation process of the density estimate was made to secure the validity of the obtained results.

11.2 Cut-off Grades

This sub-section contains forward-looking information related to establishing the prospects of economic extraction for Mineral Resources for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including cut-off grade assumptions, costing forecasts, and product pricing forecasts.

As of the effective date of this Mineral Resource estimate (December 31, 2021), the cut-off grade for Li was set by SQM at 0.05 wt.% based on the cost of generating Li product, lithium carbonate sales (Chapter 16), and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040 (Figure 16-5), a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin was considered (Chapter 19). A small increase from the current cost was utilized to better accommodate the evaporation area (allowing for the required Li concentration to be reached) and allow for the use of additives to maintain the quality of the brine feeding the plant.

A similar pricing basis and analysis was undertaken for K, where the cut-off grade of 1.0 wt.% has been set by SQM based on respective costs, sales, and margins (Chapter 16 and Chapter 19). This considers only MOP-S as a low-margin scenario, using a brine as raw material diluted with more contaminants and performance at the lower end of the range (approximately 53% recovery). In this scenario, and considering the current market conditions and recent years, the cost of MOP production remains competitive.

Resource block model cell concentrations of Li and K were compared with the specified cut-off grades and a sensitivity analysis was performed with distinct product prices, costs, and cut-off values. The QP believes that the designated cut-off grades of 0.05 wt.% Li and 1.0 wt.% K are appropriate and do not have any material effect on the estimated Mineral Resource. Block model concentrations greatly exceed those cut-off values within the OMA Extraction Zone.

11.3 Mineral Resource Classification

This sub-section contains forward-looking information related to Mineral Resource classification for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade continuity analysis and assumptions.

The Mineral Resource was classified into three categories to include Measured, Indicated, and Inferred based on industry standards for brine projects inclusive of the level of characterization of the hydrogeological units (Table 11-17) as well as geostatistical criteria. The level of hydrogeological characterization was prioritized as the first classification based on exploration, monitoring, and historical production data. Geostatistical variables were used as a secondary criterion.

Units were characterized based on pumping tests, Pe measurements from retrieved cores, the distribution of the Pe and chemistry data, and the representativeness of the brine samples. Table 11-17 summarizes the distinct brine chemistry domains that were classified based on the level of hydrogeological understanding.

Table 11-17. Brine Chemistry Domains and Level of Hydrogeological Characterization

Chemical Estimation Domain	Method of determining Pe	Historical production?	Level of hydrogeological characterization
1	Interpolation	Since 1994: MOP wellfield and sampling campaigns	Unit well characterized from 2,200 masl upward. Below, it is considered to be partially characterized. Also partially characterized in areas with the presence of brine reinjection.
2	Interpolation	Since 2010	Unit well characterized. Partially characterized in areas with presence of reinjection solutions.
3	Assigned geometric mean	Since 2004	Unit well characterized.
4	Assigned geometric mean	Since 2020	Unit partially characterized; however, it is considered well characterized in the productive zone.
5	Assigned geometric mean	-	Partially characterized.

In addition to the hydrogeological characterization criterion (Table 11-17), the following geostatistical factors were considered:

- Search Volume: Given that the evaluated ions generally have a large spatial continuity, the Li-ion search radius was used to analyze the reliability of the estimate. It is considered as a Measured Mineral Resource up to the second search volume and Indicated and Inferred Mineral Resources up to the third search radius.
- Presence of Reinjection Brines: Measured Mineral Resource zones in the shallow aquifer units (UA, UB, UE4: 1 and 2) with high Li levels associated with reinjected brine were conservatively downgraded to Indicated Mineral Resources.
- Exclusion of high effective porosity areas associated with marginal facies: a sector of high uncertainty in the effective porosity of the East Block (hydrogeological unit UAB; to the east of the X coordinate: 584,625 m) was classified as Inferred Mineral Resources.

The above factors were combined to establish the Measured, Indicated and Inferred Mineral Resources (Table 11-18).

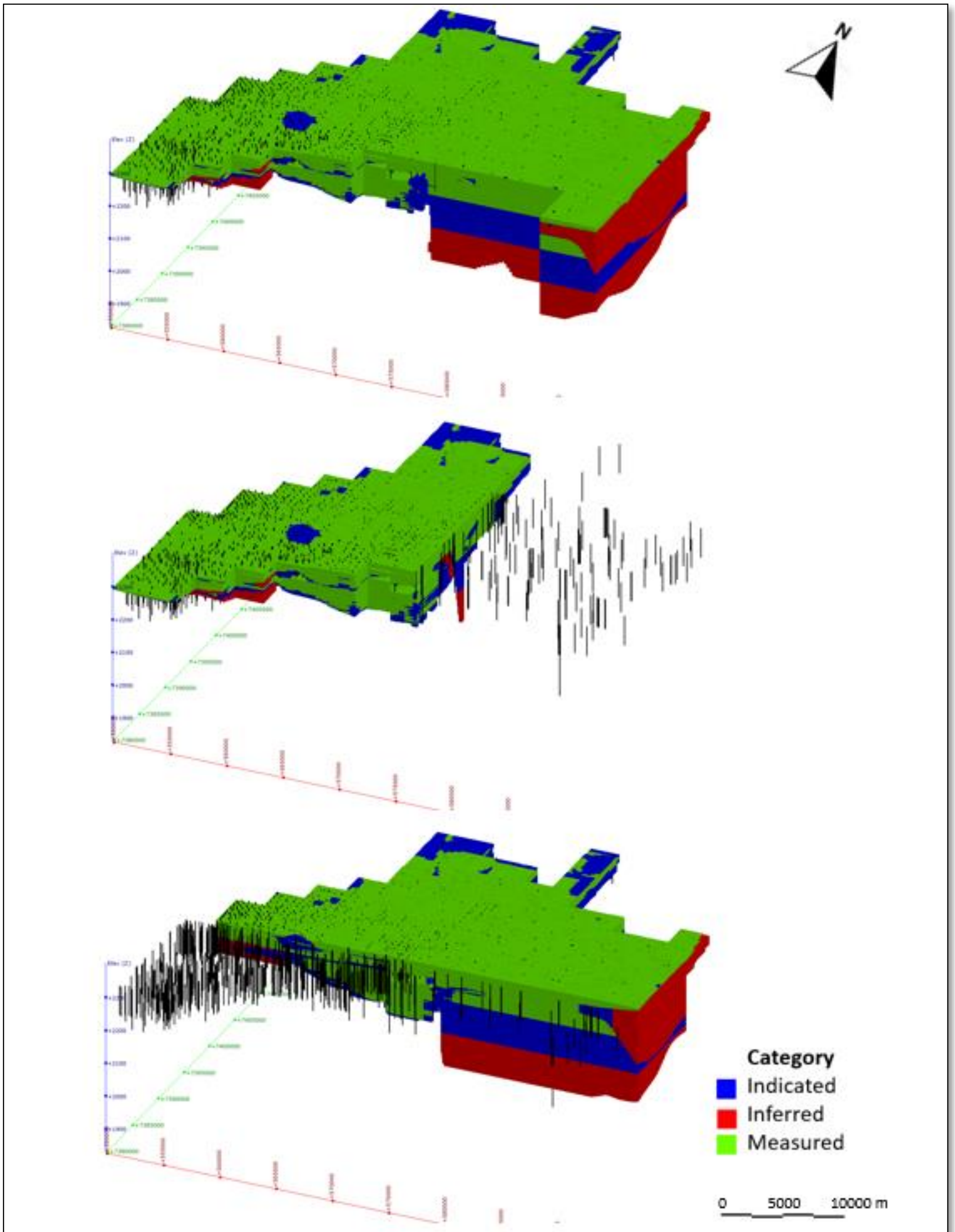
Table 11-18. Categorization of Measured, Indicated, and Inferred Mineral Resources

Resource Category	Criteria
Measured	• Chemical Estimation Domains 1, 2, and 3, within the first and second Li search radius for Domain 1 and 2, and within the first Li search radius for Domain 3. • For Chemical Estimation Domain 1, the cells are required to be above elevation 2,200 masl. • For Chemical Estimation Domain 4, the first Li search radius.
Indicated	• For the partially characterized Chemical Estimation Domain 4: inside of the second search radius for Li. • In the well characterized Chemical Estimation Domains 1, 2 and 3: inside of the third search radius for Li. • For Chemical Estimation Domain 1, the cells are required to be above an elevation of 2,100 masl. • Lithium concentrations above 0.4% wt.% are considered in this category based on the reinjection solutions for Chemical Estimation Domain 1 and 2. • For Chemical Estimation Domain 5, for the first and second search radius. • For Chemical Estimation Domain 1, within the hydrogeological unit UAB, between the X coordinates 584,500 and 587,500, above 2,200 masl for the first search radius.
Inferred	• Chemical Estimation Domain 4 is considered in this category for the third search radius. • Chemical Estimation Domain 5 is considered in this category for the third search radius. • The sector east of X coordinate: 584,500 m (in the UAB hydrogeological unit) with a high uncertainty in Pe values.

Note: *See Table 11-17 for explanations of the Chemical Estimation Domain

Figure 11-12 displays the zones of Measured, Indicated, and Inferred Mineral Resources in the block model.

Figure 11-12. Resource Categorization in 3 Dimensions



11.4 Mineral Resource Statement

This sub-section contains forward-looking information related to Mineral Resource estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction.

Table 11-19 presents the Mineral Resources in-situ exclusive of Mineral Reserves (Section 12) without processing losses. When calculating Mineral Resources exclusive of Mineral Reserves, the QP assumed a direct correlation between Measured Mineral Resources and Proven Mineral Reserves as well as Indicated Mineral Resources and Probable Mineral Reserves.

Table 11-19. SQM's Salar de Atacama Lithium and Potassium Resource Statement, Exclusive of Mineral Reserves (Effective December 31, 2021)

Resource Classification	Brine Volume (Mm^3)	Mean Grade (wt. %)		Mass (Million tonnes)	
		K	Li	K	Li
Measured	2254	1.80	0.20	49.8	5.4
Indicated	1435	1.70	0.16	30.0	2.8
Measured + Indicated	**3689**	**1.77**	**0.18**	**79.8**	**8.2**
Inferred	1614	1.77	0.13	34.9	2.6
Total	5303	1.77	0.17	114.7	10.8

Notes:

(1) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves upon the application of modifying factors.

(2) Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported LOM (Chapter 12) and real declared extraction from 2021 were subtracted from the Mineral Resource inclusive of Mineral Reserves. A direct correlation between Proven Reserves and Measured Resources, as well as Probable Reserves and Indicated Resources was assumed.

(3) Effective porosity was utilized to estimate the drainable brine volume based on the measurement techniques of the SQM porosity laboratory (Gas Displacement Pycnometer). Although specific yield is not used for the estimate, the QP considers that the high frequency sampling of effective porosity, its large dataset, and general lack of material where specific retention can be dominant permits effective porosity to be a reasonable parameter for the Mineral Resource estimate.

(4) The conversion of brine volume to Li and K tonnes considered the estimated brine density in each block model cell.

(5) Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.

(6) The mineral resource estimate considers a 0.05 wt.% cut-off grade for Li based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040, a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin is considered with a small increase to accommodate the evaporation area and use of additives. A similar pricing basis and analysis was undertaken for K, where the cut-off grade of 1 wt.% was set by SQM based on respective costs, sales, and margin (Section 16 and Section 19).

(7) Álvaro Henriquez is the QP responsible for the Mineral Resources.

11.5 Uncertainty

WSP considered the following sources of uncertainty in the Li and K Resource estimate:

- The use of effective porosity versus specific yield could result in an overestimation of the estimated brine volume; however, based on the geological and hydrogeological characterization of the OMA (Chapters 6 and 7), the site does not present significant volumes of material, such as clay, where specific retention can be significant (when compared to specific yield). This implies that the effective porosity is considered to be an adequate parameter for the brine volume estimate.
- SQM's brine chemistry and porosity labs are not accredited; however, a round robin analysis was performed for brine samples to confirm that the QA/QC procedures and overall accuracy and precision. To further mitigate this uncertainty, various QA/QC procedures are in place for measured brine chemistry and effective porosity (Chapters 8 and 9).
- Near the ponds, potential infiltration could have affected the reservoir chemistry, however those areas were conservatively categorized as less certain (e.g., Indicated instead of Measured).

11.6 Opinion and Recommendations

It is the QP's opinion that the Mineral Resources were estimated in compliance with the S-K 1300 regulations. Compared to other reported mineral resource estimates for brine deposits as well as related guidelines that are typically cited (Houston, Butcher y Ehren 2011), the QP believes that the declared Mineral Resource estimate is reliable given; (i), the large amount of wells and field information in the OMA Extraction Zone when compared to other lithium brine projects; (ii), SQM's historical brine production that increases certainty in the reservoir characterization and potential; (iii), utilized effective porosity values are generally low compared to specific yield/effective porosity values of other projects; and (iv), the Mineral Resource categorization integrates two separate methodologies (exploration/historical production and geostatistical parameters).

Future recommendations to increase the Mineral Resource and certainty of the Mineral Resource estimate include the utilization of a separate methodology on collected core (e.g., relative brine release capacity testing) to confirm the estimated brine volume.

12 MINERAL RESERVE ESTIMATE

This sub-section contains forward-looking information related to the key assumptions, parameters and methods for the Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes and grade.

Mineral Reserves for the Project were estimated by WSP considering the modifying factors for converting Mineral Resources to Mineral Reserves. The projection of future brine extraction was simulated using a groundwater flow and transport model; specifically, the Modflow-USG code (Panday 2021) and Groundwater Vistas interface (ESI 2020) were utilized. Numerical modeling was supported by hydrogeological, geological, and hydrochemical data, and parameters utilized are consistent with the stated Mineral Resource estimate (Section 11). The following subsections describe the model parameters, calibration to field data, and projected results over the LOM.

12.1 Numerical Model Design

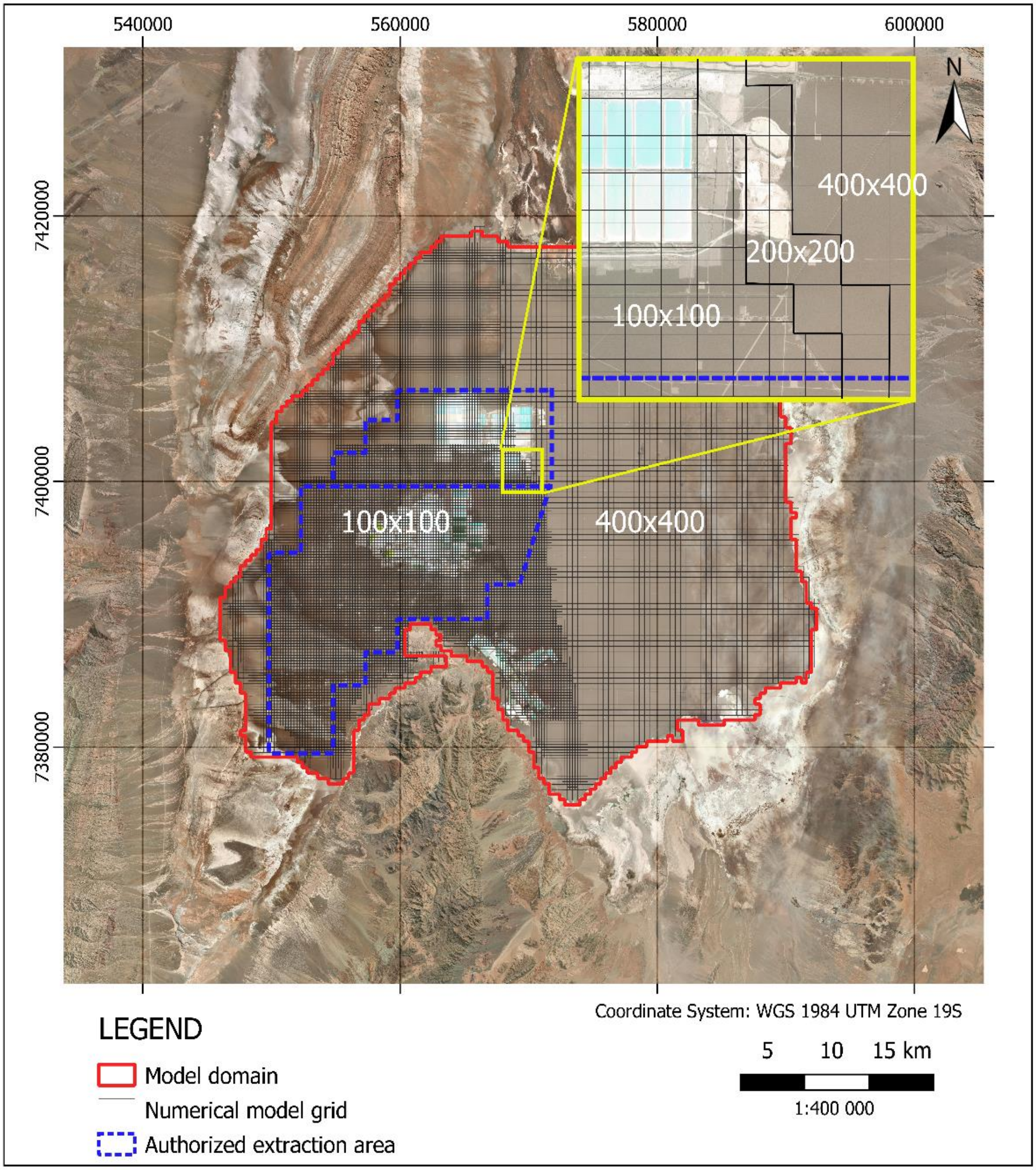
The numerical groundwater model was constructed based on the resource block model (Section 11) and defined hydrogeological units (Section 7). The area of the active numerical model domain corresponds to 1,421.3 square kilometers. A constant brine density was assumed based on the model limit (confined to the salt flat nucleus) as well as the near constant brine density measurements from pumping and observations wells.

In total, the numerical model is characterized by 430,057 active numerical cells with 9 layers, covering all hydrogeological units included in the Resource model (see Table 12-1 and Figure 12-1). Using the quadtree capabilities of Modflow-USG, horizontal cell lengths range from 100 m to 400 m. The most refined portion of the numerical model grid corresponds to the locations of current wellfields to properly simulate the hydraulic gradient as well as to limit the number of pumping and observation wells in the same cells (Figure 12-1). The top of layer 1 of the model was built based on the interpolation of well elevations from a topographic survey.

Table 12-1. Grid Specifics and Layers

Model Layer	Hydrogeological Unit	Layer Thickness (meters)	General Unit Description
1	Unit A	4-6	Upper nucleus, chlorides (unconfined)
2		2-37	
3	Unit AB	2-237	Evaporites with organic matter (aquitard)
4	Unit B	2-188	Lower chlorides (largely confined)
5		2-172	
6	Unit C	2-69	Evaporites with volcanoclastics (confined)
7		2-69	
8		2-59	
9	Unit D	2-260	Deeper halites (confined with limited permeability)

Figure 12-1. Numerical Model Domain and Grid



12.1.1 Boundary Conditions and Water Balance

In order to simulate site conditions, the following boundary conditions were assigned in the numerical model with monthly stress periods:

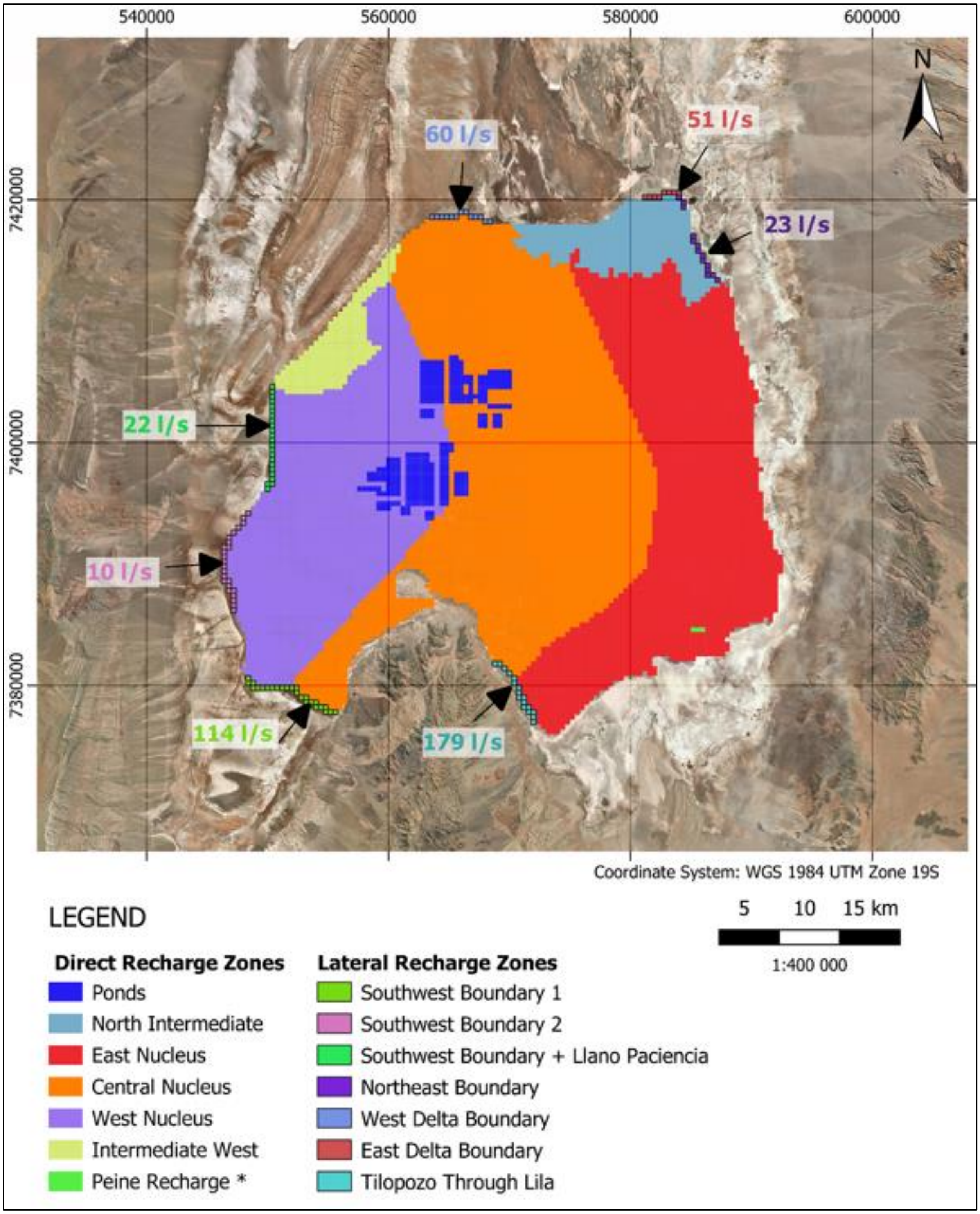
- Direct recharge: using the recharge "RCH" package, monthly direct recharge from precipitation on the salt flat nucleus was applied in different zones based on the recharge estimated by SRK (2020) and SQM (2021). Figure 12-2 shows the zones of recharge due to natural precipitation with assigned concentrations of 0. Also, direct recharge due to infiltration from existing evaporation ponds in both SOP and MOP areas was applied during the calibration period (years 2015-2020), with the corresponding concentrations, based on information provided by SQM.
- Underflow: using the "WEL" package, brine inflow, originally sourced from adjacent watersheds and subsequently evapo-concentrated, was assigned along most limits of the numerical model using injection wells in layer 1; this shallow underflow was conceptualized and assigned in the shallowest layer because it is the most permeable unit. The lateral recharge zones are illustrated in Figure 12-2. Rates of groundwater inflow were defined based on the water balance study developed by SRK (2020) which was subsequently updated by SQM (2021). Incoming concentrations were specified based on average measured concentrations in observation wells located near the model boundaries.
- No-flow boundaries: certain limits, such as the east boundary, were specified as no-flow limits where brine was conservatively assumed to not enter the model domain. Assigned no-flow limits (Figure 12-2) were consistent with the conceptual water balance study of the brine zone (SRK, 2020).
- Evaporation: Evaporation from shallow groundwater (brine) in the salt flat nucleus was represented using the "ETS" (Evapotranspiration Segments) package of Modflow. It was utilized to simulate evaporation from different zones within the active domain, which were delineated based on areas defined in the water balance study (SRK, 2020). Evaporation decay curves estimated for each zone, were represented in the model by several linear segments (up to four). Figure 12-3 shows the distinct evaporation zones represented in the model.
- Production wells: pumping was simulated using the "CLN" package of Modflow-USG, allowing for more precise responses to pumping, skin factors, and flow reduction in the case that the dynamic pumping level reaches the bottom of the screened layer. SQM and Albemarle pumping was simulated during the calibration period (2015 -2020) using available provided data.

During the 2015 to 2020 period, the simulated water balance of hydrologic inflows (e.g., recharge) and outflows (e.g., evaporation and pumping) is given in Table 12-2. It can be observed that the storage inflow term is important due to production pumping, and the error (i.e., difference between the simulated inflows and outflows) is only 0.1%, indicating that mass is properly conserved. Furthermore, the total inflows and outflows of the model are consistent with the conceptual basin recharge defined by SRK (2020) during the operational period (from 1994 onward) as well as with the recent Hydrogeological Conceptual model (SQM, 2021).

Table 12-2. Average Simulated Water Balance Components, 2015-2020 Calibration Period

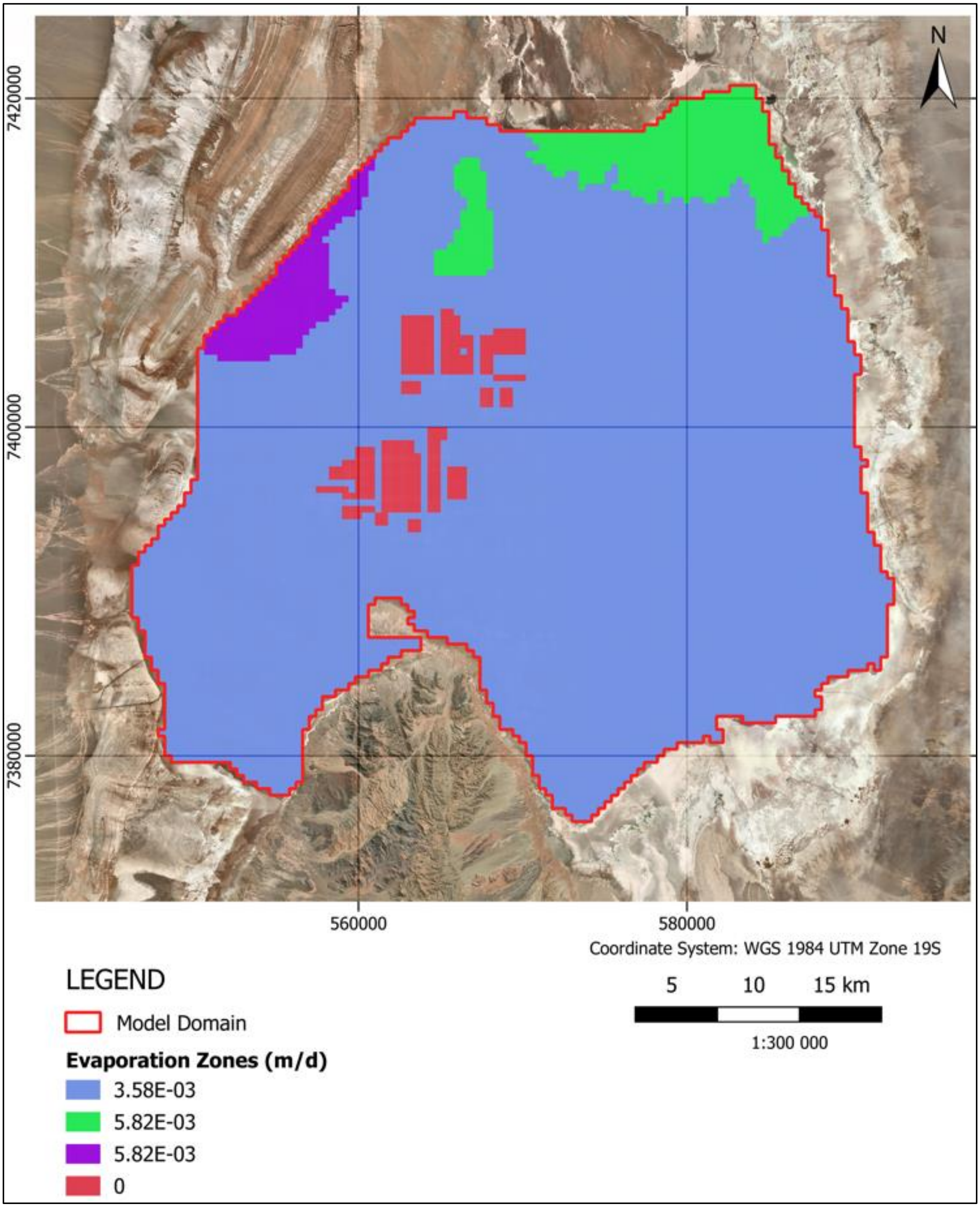
Component	Average Volumetric Flow (L/s)
Total brine extraction in the salt flat nucleus	2,059
Evaporation from the salt flat nucleus	400
Storage outflow	742
TOTAL OUTFLOW	3,201
All direct recharge in the salt flat nucleus	707
All brine underflow from adjacent areas	466
Storage inflow	2,024
TOTAL INFLOW	3,197
Error (%)	0.1%

Figure 12-2. Direct Recharge and Lateral Recharge Zones



Note: * Conceptual lateral recharge in Peine was modeled as a direct recharge zone of 7 L/s

Figure 12-3. Evaporation Zones in the Numerical Model



12.1.2 Numerical Model Hydraulic Properties

Hydraulic properties of the numerical model inherent to the brine reservoir correspond to hydraulic conductivity (K), specific storage (Ss), specific yield (Sy), and effective porosity (Pe). These parameters were largely defined based on lithology type. For example, the spatial distribution of Sy and Pe was assigned based on the resource block model (Section 11), and hydraulic conductivity was calibrated based on lithology to properly constrain the range of values. Dispersion was considered for simulating the spreading of solutes. Each hydraulic property is described below:

- Hydraulic conductivity: representative model sections of the K zone distribution are shown in Figure 12-4 and utilized model values are presented in Table 12-3. The horizontal hydraulic conductivity (Kh) ranges between 1E-5 m/d to 5,000 m/d depending on the lithology with the wide range explained by the presence of caverns and structures. While K ranges were aimed to be consistent with the conceptual range for each hydrogeological unit defined by SQM (2020 b,c,d), the general trend of each unit with depth is consistent with the lithology type and presence/absence of secondary porosity (geometric mean of Table 12-3). The vertical-horizontal anisotropy (Kv/Kh) was also set during the calibration (Table 12-3) and justified by the type of deposition of each unit.
- Effective porosity/Specific yield: Effective porosity values were transferred from the resource block model (Section 11) and were obtained by averaging block model centroids within the corresponding numerical model cells. In areas with information gaps, the value of the nearest neighbor of calculated cells was adopted. Effective porosity was assumed to be equivalent to Sy due to the general lack of material (e.g. clay) in the nucleus where differences between Pe and Sy can be important (Sections 6, 7, and 11). Representative sections of Pe are also shown in Figure 12-4.
- Specific storage: The distribution of Ss was set based on the type of lithology and hydraulic conductivity zonation, where less permeable units generally have a lower compressibility.
- Dispersion: Dispersion controls the rate of solute spreading and the following values were specified: 10 m for longitudinal dispersion, 1 m for transverse dispersion, and 0.1 m for vertical dispersion. Molecular diffusion was not included in the numerical model, because it is assumed to be negligible in large-scale models, and the active domain covers an extensive area (Section 12.1).

Table 12-3. Summary of Assigned Model Parameters

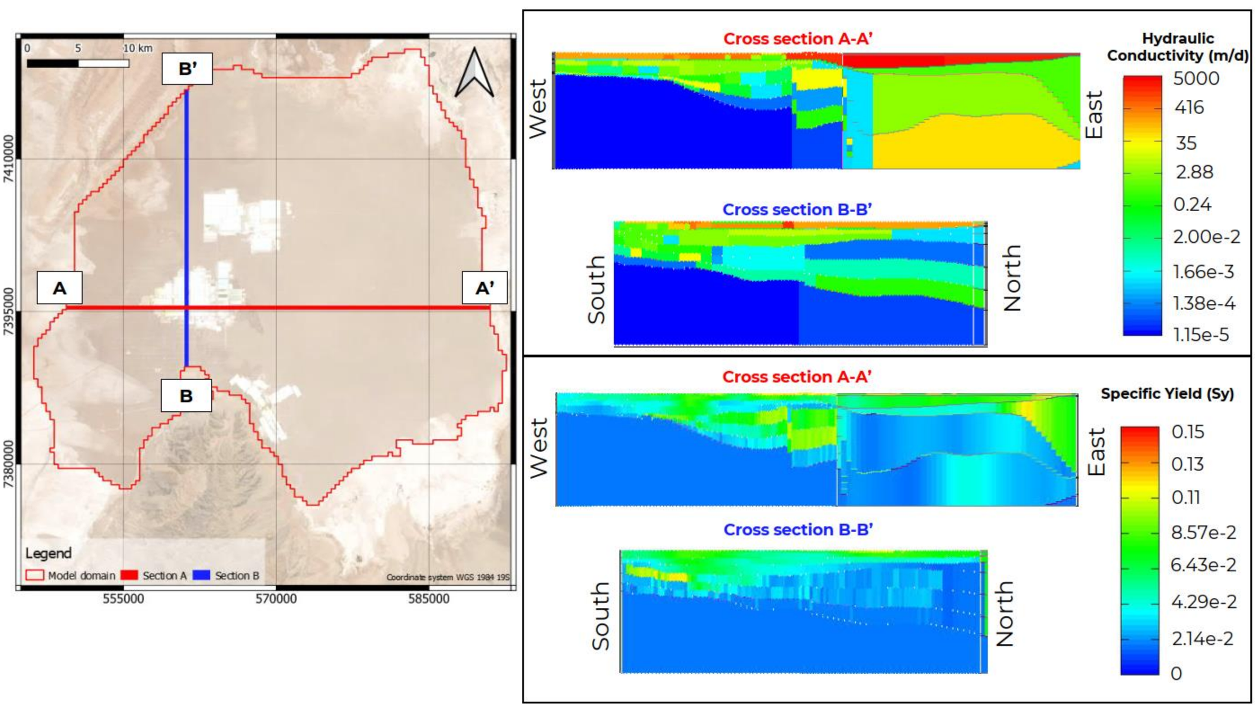
Layer(s)	Hydrogeological Unit (HU)	Horizontal Hydraulic Conductivity (Kh) (m/d)	Anisotropy (Kv/Kh)		Specific Storage (Ss) (1/m)		Specific Yield (Sy) and Effective Porosity (Pe) [(2)]	
		Geometric mean [(1)]	Min	Max	Min	Max	Min	Max
1 and 2	UA	190	0.05	10	1E-05	1E-02	0.02	0.136
3	UAB	0.05	0.05	10	3.1E-05	5E-03	0.02	0.134
4 and 5	UB	1.7	0.01	1	1E-05	5E-03	0.016	0.09
6, 7, and 8	UC	0.02	0.0003	58.6	1E-07	5E-03	0.015	0.24
9	UD	1.6E-05	0.1	1	1E-06		0.0177	

Notes:

[(1)]Within the most refined quadtree zone

[(2)] Within the AAE

Figure 12-4. Representative Hydraulic Conductivity (Kh) and Specific Yield - Effective Porosity (Sy -Pe) Distribution in Numerical Model



12.2 Numerical Model Calibration

The numerical groundwater model was calibrated to transient conditions during the period of January 2015 to the end of December 2020 using the available brine level measurements for on-site shallow and deep wells (see Head Calibration Targets in Figure 12-5), as well as extracted Li and K concentrations from SQM's production wells.

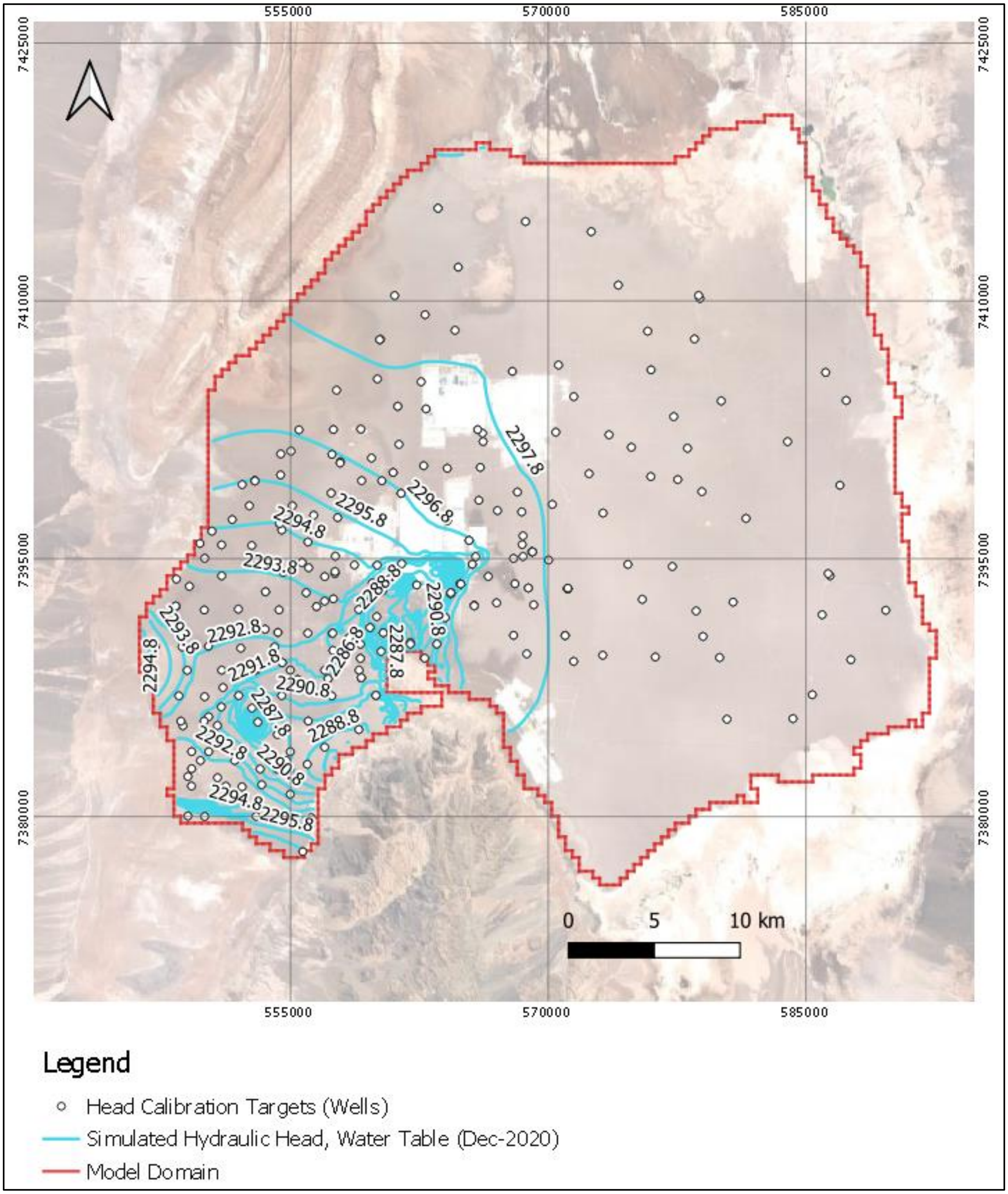
12.2.1 Initial Conditions (Calibration)

Initial conditions for hydraulic head were based on piezometric contours from the beginning of the year 2015. Initial conditions for transport include Li and K; their assignment was based on block model concentrations and transfer of values to the numerical model cells.

12.2.2 Head Calibration

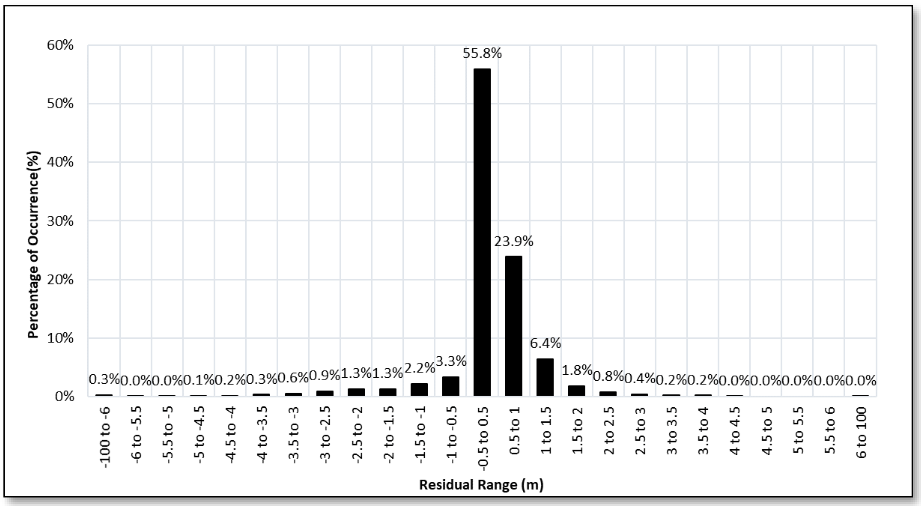
Simulated brine levels were obtained from the numerical model based on composite heads from the screened well layers, and they were compared with registered brine levels from observation wells (Figure 12-5) that span the model domain and various hydrogeological units. A simulated piezometric contour map at the end of December 2020 is shown on Figure 12-5.

Figure 12-5. Head Observation Targets and Simulated Water Table for the End of the Calibration Period

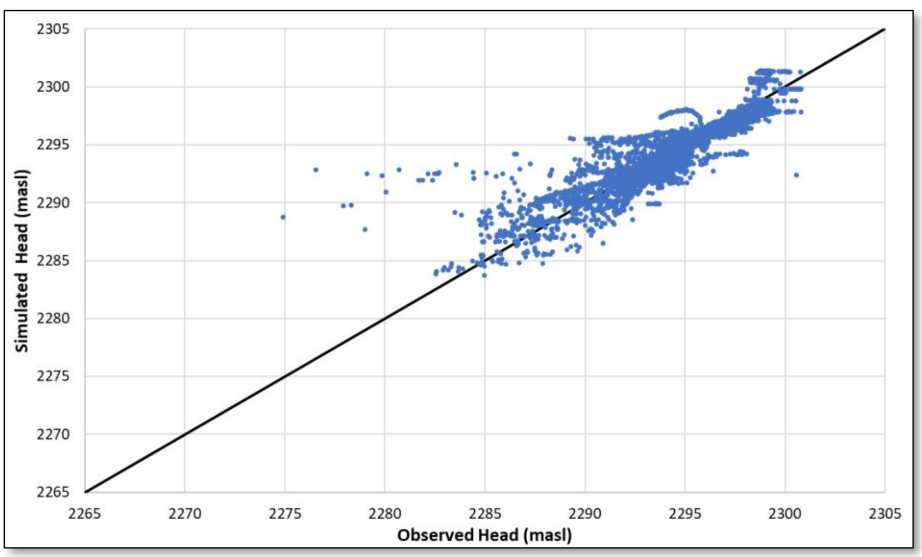


Regarding head calibration statistics, results for the entire model include a mean residual of 0.18 m and RMS of 1.05 m, with most residuals within the range of -0.5 m to 0.5 m (see Figure 12-6). The Scaled Absolute Residual Mean and Scaled Root Mean Square (RMS) error for the transient calibration were 2.5% and 4.0%, respectively. This is deemed acceptable based on international modeling guidelines ([Reilly and Harbaugh, 2004]; [Anderson y Woessner 2015]) as well as the QP´s judgement.

Figure 12-6. Head Calibration Results



a) Brine level residual histogram

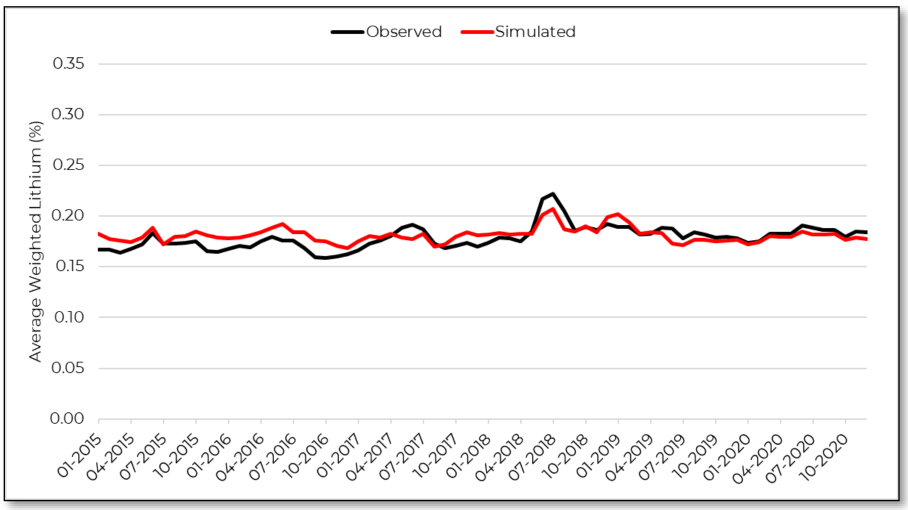


b) Simulated versus observed brine levels

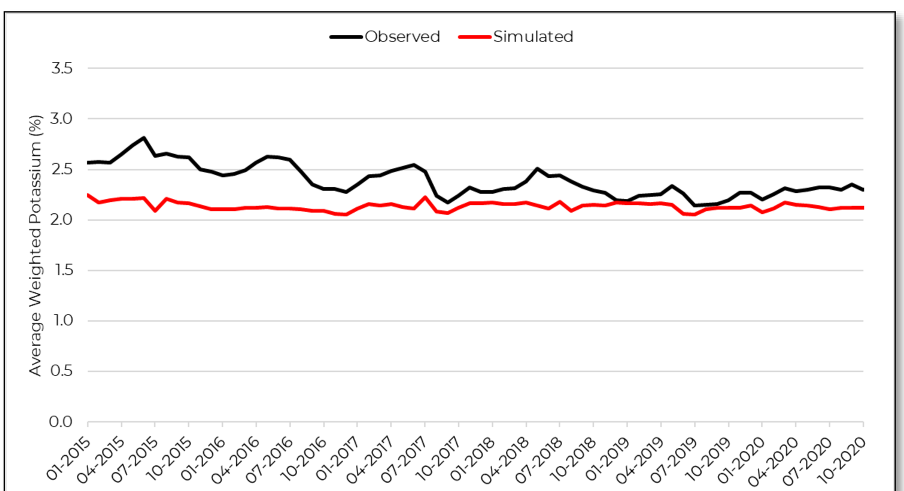
12.2.3 Transport Calibration

During the calibration period, monthly Li and K concentration values for each production well were extracted during the simulation and compared to actual extracted values pumped from SQM's production wells. Figure 12-7 shows the monthly average weighted values for the model simulation and observed average weighted Li and K values. The average Li concentrations extracted from the model adequately match the field extracted values. Both averages were weighted by the individual pumping rates of each production well. In the case of K, the results indicate an underestimation of the weighted average mainly due to an underestimation of the initial concentrations of K. In general, the QP believes that the transport calibration is adequate for the reserve estimate, given that Li is well calibrated, and K is slightly underpredicted (conservative).

Figure 12-7. Extracted Concentration Fit during the Calibration Period (2015 – 2020)



a) Extracted Li (weighted average)



b) Extracted K (weighted average)

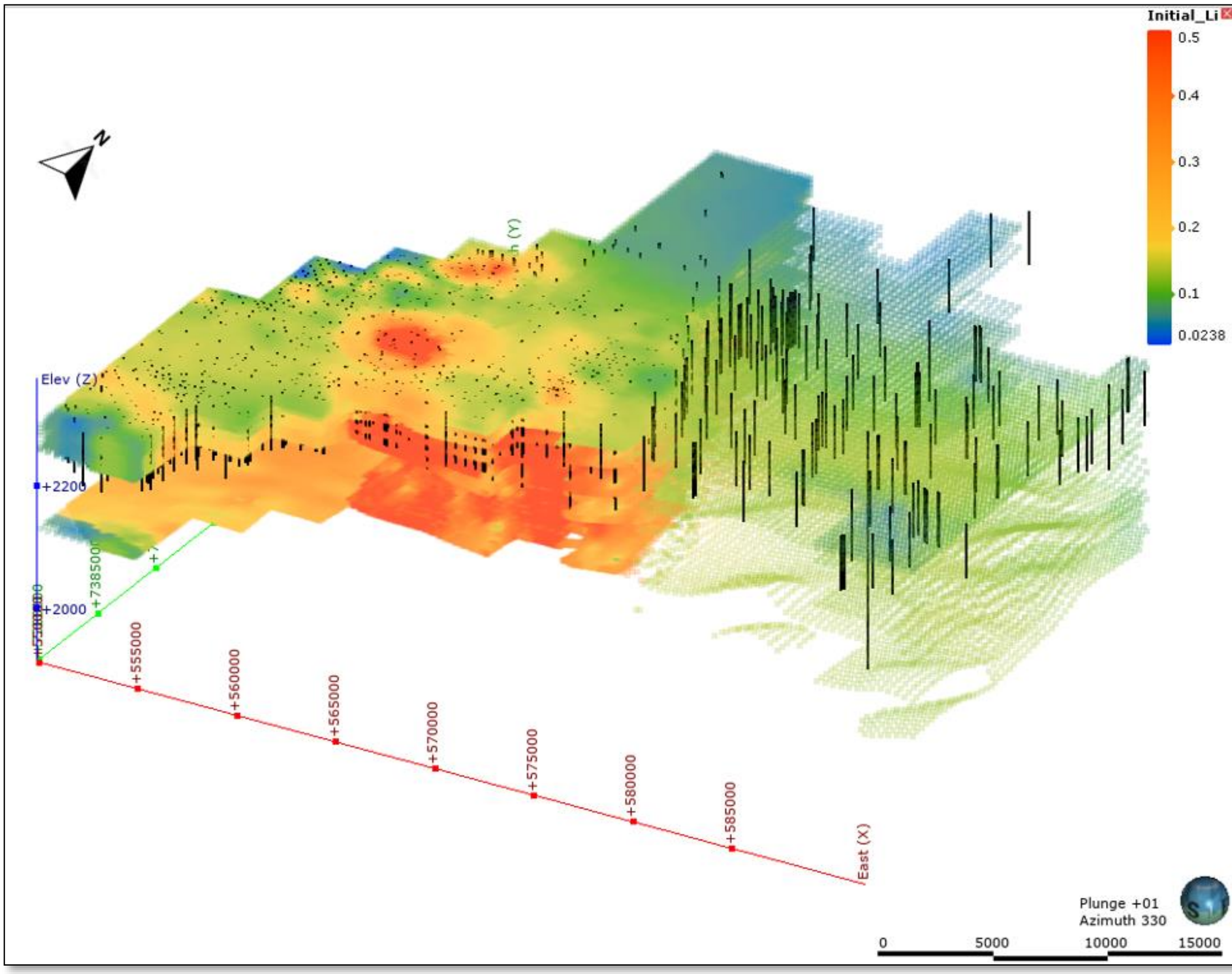
12.3 Projected Model Simulation

Following the numerical model calibration (2015 to 2020 period), brine extraction was simulated in 2021 and during the 9-year LOM (2022 to 2030 period). Modifying factors related to extraction, potential brine mixing and dilution, and processing factors were considered in the predictive pumping simulation.

12.3.1 Initial Conditions (Reserve Simulation)

At the start of the LOM, initial conditions for flow correspond to the hydraulic head solution at the end of 2021. For transport modeling, Li and K concentrations from the resource block model were assigned to the numerical model grid, as initial conditions, to ensure consistency between the Resource and Reserve. Sulfate was also simulated to determine the process efficiency associated with the type of extracted brine in each pumping well over the course of the simulation. In addition, the initial distribution of SO_4 was also taken from the block model. Given their distinct horizontal and vertical cell sizes, the specific process of transferring concentrations from the resource block model to the numerical model involved calculating mean values and searching nearest neighbors in all numerical model cells. The consistency of concentrations within the resource model was reviewed and deemed acceptable by the QP. Figure 12-8 shows the concentration distribution of Li (%) in the numerical model after the calibration period.

Figure 12-8. Lithium Concentration (%) Distribution following the Calibration Period

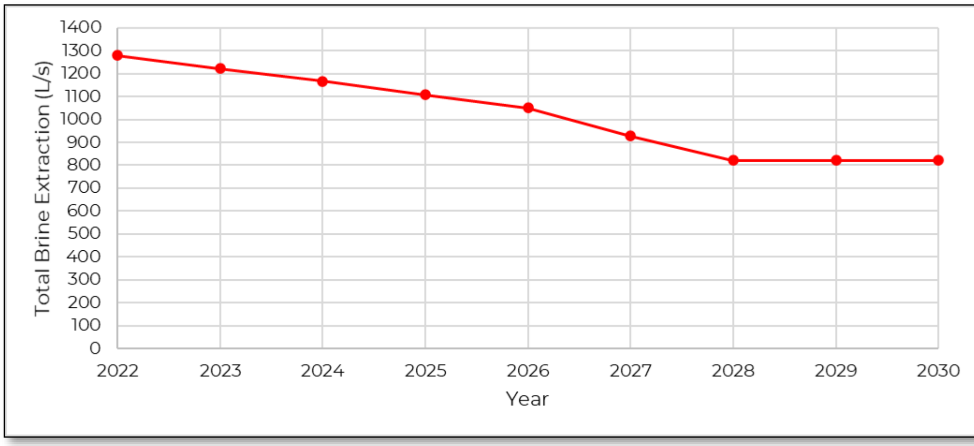


12.3.2 Predictive Model Specifics

The reserve model's hydraulic properties are based on the calibrated numerical model (Section 12.2). Aside from pumping and direct pond recharge, the water balance specifics and lateral concentration boundary conditions over the LOM are assumed to be comparable to the calibration period given its relatively short duration. To avoid artificial solute mass in the reservoir system, direct infiltration recharge from the evaporation ponds was conservatively assumed have concentrations of 0 during the LOM, and future recharge rates from the ponds were set to be negligible (<0.1% of the total recharge).

During the reserve simulation, pumping is restricted by SQM's voluntary reduction in annual brine extraction, which in turn, reduces production. The average annual brine extraction considered for the 2022 to 2030 period is given in Figure 12-9. The model simulated pumping depends on the simulated hydraulic head and bottom screened layer elevation (Option AutoFlowReduce of Modflow-USG). Therefore, the simulated pumping varies slightly; however, remain within 0.5% of target pumping rates (Figure 12-9).

Figure 12-9. SQM's Future Brine Pumping and Voluntary Reduction



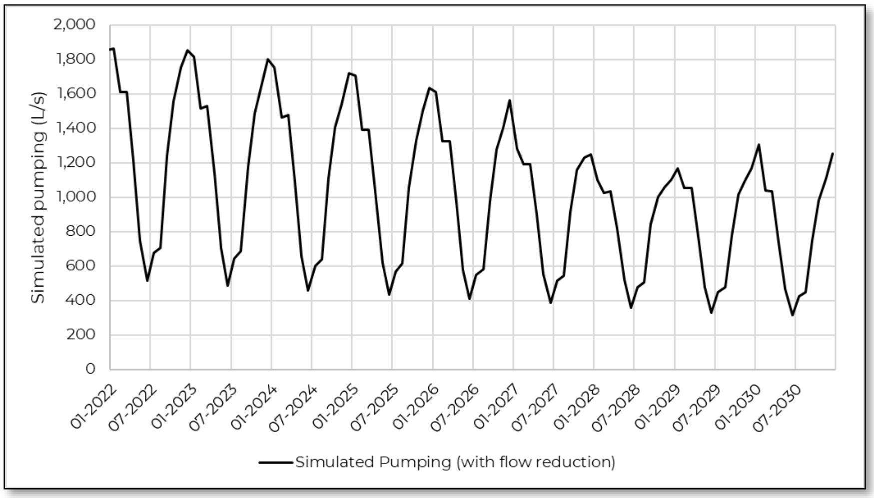
Year	total brine extraction (L/s)
2022	1280
2023	1223
2024	1166
2025	1108
2026	1051
2027	928
2028	822
2029	822
2030	822

The simulated wellfields were configured based on the pumping wells of SQM and Albemarle. To consider the potential influence of neighboring pumping, it was conservatively assumed that the current Albemarle wellfield pumps a total of 442 L/s (maximum allowed based on their latest Environmental Assessment) during the LOM.

The simulated SQM wellfield pumping was based on the current pumping scheme performed by the company and does not consider the installation of new wells in the future. The pumping scheme and rates were assigned by SQM's Production Well Ranking that takes into account the Li grade and process indicators (e.g., according to SO_4 concentrations). This internal system has allowed SQM to identify and optimize the brine chemistry of every production well as a function of the flow rates and dynamic brine levels. Given that the total allowable pumping is reduced every year (Figure 12-9), only current wells that have a low to medium SO_4 content were set to remain active for optimizing the Reserve estimate (considering process recovery factors). Figure 13-2 presents a plan view map of SQM's simulated pumping wells during the final year of the LOM.

Figure 12-10 shows the monthly results for the simulated pumping rates during the simulation period as well as SQM's voluntary reduction in total brine extraction over the LOM. Note that seasonal pumping (with higher rates in the austral summer) occurs due to greater evaporation rates in the ponds during that period and vice-versa.

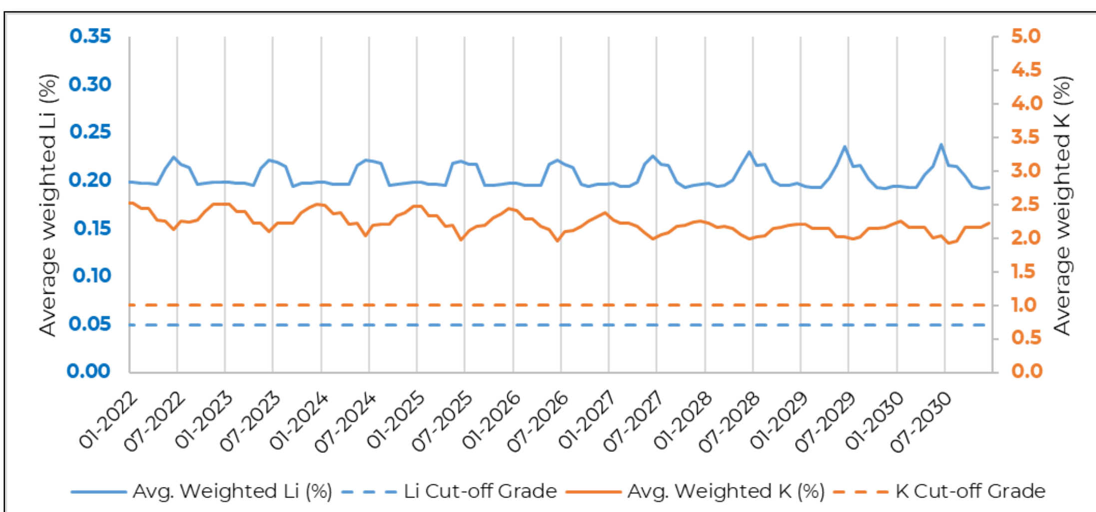
Figure 12-10. Simulated SQM Pumping Rates, Reserve Simulation



12.3.3 Extracted Concentrations

Figure 12-11 presents the average weighted Li and K concentrations extracted from all of SQM's production wells. No significant change in the extracted Li concentration occur over time with the exception of seasonal pumping changes. In the case of K, there is a slight reduction over the LOM (-1.4% annually). The averages of all simulations are 0.20 and 2.24%, for Li and K, respectively. Compared to the calibration period (2015 to 2020, Figure 12-7), an increase in the maximum weighted average of Li is observed during the projected LOM (2022 to 2030, Figure 12-11), because the projected extraction plan was also optimized to keep production wells with high Li and low SO_4 active with the reduction of pumping.

Figure 12-11. Average Weighted Concentrations Extracted from SQM's Production Wells, Reserve Simulation



12.4 Mineral Reserves

While the Mineral Resource (Section 11) represents the amount of in-situ brine in the reservoir, only a certain portion can be extracted under the proposed wellfield configuration, pumping scheme, and authorized timeframe of the SQM-CORFO lease contract (until December 31st, 2030). The Mineral Reserve estimate considers the modifying factors of converting Measured and Indicated Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency (e.g., location and screen), environmental considerations (e.g., pumping scheme), and recovery factors for Li and K.

Numerical model results from the predictive simulation were used to calculate the amount of extracted Li and K. The pumped mass of metallic Li and K was multiplied by a conversion factor of 5.322785 and 1.907 to compute lithium carbonate equivalent (LCE) and potassium chloride equivalent (KCl), respectively. The resulting values from each production well were then summed for each production year to determine the predicted annual LCE and KCl.

This sub-section contains forward-looking information related to the key assumptions, parameters and methods for the Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes and grade and process parameters.

12.4.1 Process Recovery Factors

To estimate the reserve from a reference point of already processed brine, after passing through the evaporation ponds (rather than from the production wellheads), extracted mass was multiplied by a process efficiency factor, as determined by SQM through testing of their processing method (see Chapter 14). The recovery factor depends on the extracted brine type and SO_4 content. The distinct processing efficiencies for each classified brine type are characterized below. Note that over 99% of all projected SQM pumping occurs from the MOP area; therefore, the MOP recovery factors are representative of the extracted brine in the reserve simulation:

- Lithium, low SO_4 brine: 54.5% recovery in 2022, 60% recovery from 2023 to 2030
- Lithium, medium SO_4 brine: 52.5% recovery
- Lithium, high SO_4 brine: no recovery
- Potassium, low SO_4 brine: 71.6% recovery
- Potassium, medium SO_4 brine: 76.8% recovery
- Potassium, high SO_4 brine: 64.1% recovery

12.4.2 Extracted Lithium

The extracted Li and LCE mass is summarized in Table 12-4 and Figure 12-12. During the 9-year LOM, results indicate that the total produced LCE, considering process recovery factors, corresponds to 1,944 kilotonnes (rounded to 1.95 million tonnes; Table 12-4 and Table 12-6).

Table 12-4. Simulated Li and LCE Extraction by Year

Period (year)	Cumulative Brine Volume (Mm^3) Pumped	Average Extracted Lithium Grade (wt.%)	Cumulative Extracted Mass (without process losses)		Cumulative Extracted Mass (considering process recoveries)	
			Li (Million tonnes)	LCE (Million tonnes)	Li (Million tonnes)	LCE (Million tonnes)
2022	40.26	0.204	0.10	0.53	0.05	0.25
2023	78.64	0.204	0.19	1.03	0.09	0.50
2024	115.28	0.204	0.28	1.51	0.14	0.74
2025	150.13	0.204	0.37	1.97	0.18	0.97
2026	183.13	0.203	0.45	2.40	0.22	1.20
2027	212.30	0.204	0.52	2.78	0.26	1.40
2028	238.25	0.205	0.59	3.12	0.30	1.58
2029	264.08	0.204	0.65	3.46	0.33	1.77
2030	289.98	0.205	0.71	3.80	0.36	1.95

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1. Based on the type of extracted brine at each well over the course of the simulation, the average process recovery factor is approximately 51%.

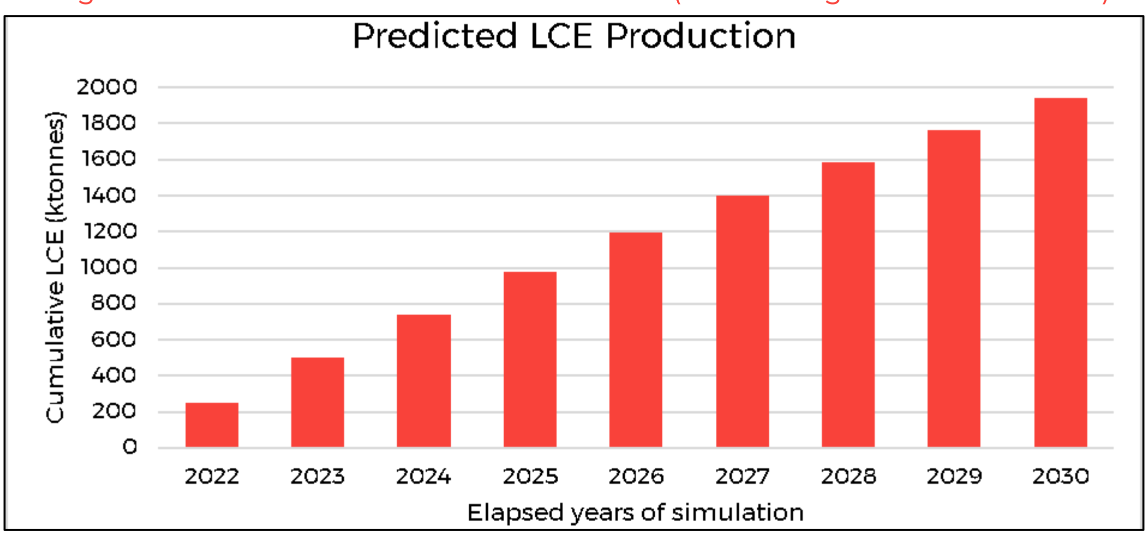
(2) Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of lithium metal.

(3) The values in the columns for "Li" and "LCE" above are expressed as total contained metals.

(4) The average lithium concentration is weighted by the simulated extraction rates in each well.

(5) Values may not add due to rounding and differences caused by averaging; comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

Figure 12-12. Predicted Annual LCE Production (Considering Process Recoveries)



12.4.3 Extracted Potassium

The extracted K and KCl over time are summarized in Table 12-5 and Figure 12-13. The total KCl over the course of the 9-year LOM, considering process recovery factors, sums to 11,496 kilotonnes (rounded to 11.49 million tonnes; Table 12-5 and Table 12-7).

Table 12-5. Simulated K and KCl Extraction by Year

Period (year)	Cumulative Brine Volume (Mm^3) Pumped	Average Extracted Potassium Grade (wt.%)	Cumulative Extracted Mass (without process losses)		Cumulative Extracted Mass (considering process recoveries)	
			K (Million tonnes)	KCl (Million tonnes)	K (Million tonnes)	KCl (Million tonnes)
2022	40.26	2.36	1.19	2.26	0.88	1.68
2023	78.64	2.33	2.30	4.39	1.71	3.25
2024	115.28	2.30	3.36	6.40	2.49	4.75
2025	150.13	2.26	4.35	8.29	3.22	6.15
2026	183.13	2.22	5.27	10.04	3.91	7.45
2027	212.30	2.17	6.05	11.54	4.50	8.58
2028	238.25	2.13	6.74	12.85	5.01	9.56
2029	264.08	2.12	7.42	14.14	5.52	10.52
2030	289.98	2.12	8.10	15.45	6.03	11.49

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation. The average process recovery factor is approximately 74%.

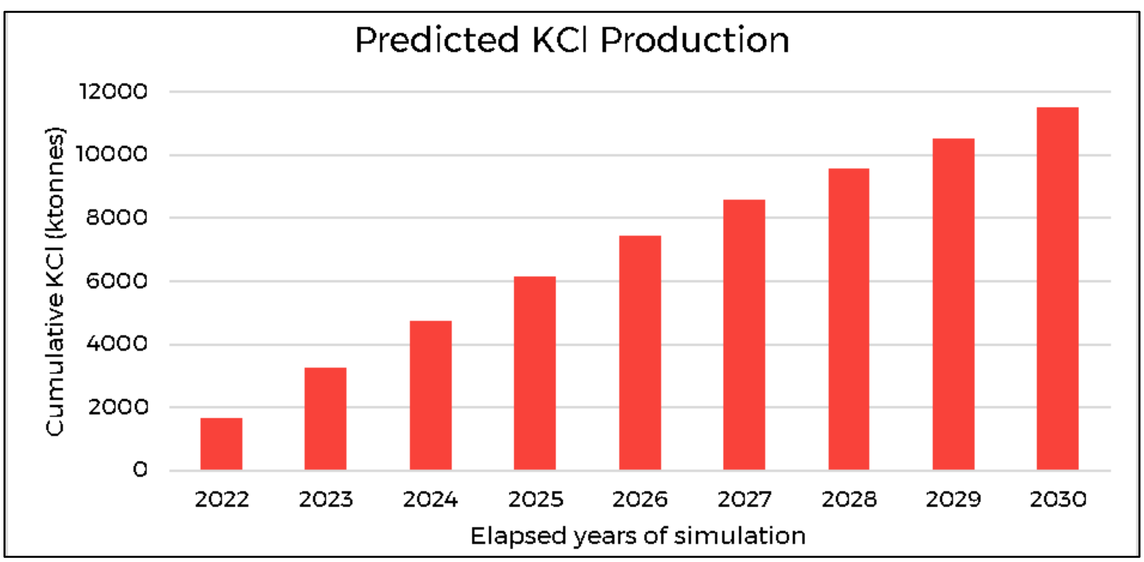
(2) Potassium chloride equivalent (KCl) is calculated using the mass of KCl = 1.907 multiplied by the mass of potassium metal.

(3) The values in the columns for K and KCl above are expressed as total contained metals.

(4) The average potassium concentration is weighted by the simulated extraction rates at each well.

(5) Values may not add due to rounding and differences caused by averaging; comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

Figure 12-13. Predicted Annual KCl Production (Considering Process Recoveries)



12.4.4 Proven and Probable Reserves

This sub-section contains forward-looking information related to Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes and grade, modifying factors including pumping and recovery factors, production rate and schedule, equipment and plant performance, commodity market and prices and projected operating and capital costs.

Table 12-6 and Table 12-7 present the categorized Li and K Mineral Reserves, respectively, which are declared from a point of reference of processed brine, after passing through the evaporation ponds (Section 12.4.1).

Table 12-6. SQM's Salar de Atacama Lithium Mineral Reserve Estimate, Considering Process Recoveries (Effective December 31, 2021)

Classification	Brine Volume (Mm^3) Pumped	Average Extracted Lithium Grade (wt.%)	Extracted Mass	
			Li (Million tonnes)	LCE (Million tonnes)
Proven Reserves	183	0.20	0.22	1.20
Probable Reserves	107	0.20	0.14	0.75
Total	290	0.20	0.36	1.95

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation, the average process recovery factor is approximately 51%.

(2) Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of lithium metal.

(3) The values in the columns for "Li" and "LCE" above are expressed as total contained metals.

(4) The average lithium concentration was weighted by the simulated extraction rates in each well.

(5) Comparisons of values may not add due to the rounding and differences caused by averaging.

(6) The Mineral Reserve estimate considers a 0.05 wt.% cut-off grade for Li based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040, a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin is considered with a small increase to accommodate the evaporation area and use of additives.

(7) This Mineral Reserve estimate differs from the in-situ *base reserve* previously reported (SQM, FORM 20-F 2020) and considers the modifying factors of converting Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency, as well as environmental and process recovery factors.

(8) Álvaro Henriquez is the QP responsible for the Mineral Reserves.

Table 12-7. SQM's Salar de Atacama Potassium Reserve Estimate Considering Process Recoveries (Effective December 31, 2021)

Classification	Brine Volume (Mm^3) Pumped	Average Extracted Potassium Grade (wt.%)	Extracted Mass	
			K (Million tonnes)	KCl (Million tonnes)
Proven Reserves	183	2.29	3.91	7.45
Probable Reserves	107	2.13	2.12	4.04
Total	290	2.22	6.03	11.49

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course

of the simulation, the average process recovery factor is approximately 74%.

(2) Potassium chloride equivalent ("KCl") is calculated using mass of KCl = 1.907 multiplied by the mass of potassium metal.

(3) The values in the columns for "K" and "KCl" above are expressed as total contained metals.

(4) The average potassium concentration was weighted by per well simulated extraction rates.

(5) Comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

(6) The Mineral Reserve estimate considers a 1 wt.% cut-off grade for K has been set by SQM based on respective costs, sales, and margin (Chapter 16 and Chapter 19).

(7) This Mineral Reserve estimate differs from the in-situ *base reserve* previously reported (SQM, FORM 20-F 2020) and considers the modifying factors of converting Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency, as well as environmental and process recovery factors.

(8) Álvaro Henriquez is the QP responsible for the Mineral Reserves.

12.4.5 Classification and Criteria

This sub-section contains forward-looking information related to the Mineral Reserve classification for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes, grade, and classification.

The Mineral Reserve was classified by the QP based on industry standards for brine projects, as well as the confidence of the model predictions and potential future factors that could affect the estimation. SQM's production well locations are based on the Measured and Indicated Mineral Resource zones (Section 11.3). While the brine reserve simulation is dynamic, and mixing occurs over time due to production pumping, numerical model results indicate that a majority of the total extracted mass is derived from Measured Resources. Furthermore, certainty in the Mineral Reserve is increased because historical production has occurred for decades by SQM in the Salar de Atacama. The QP believes that the Proven and Probable Mineral Reserves are adequately categorized, as summarized below:

- Proven Reserves were specified for the first 5 years of the LOM given that the model is adequately calibrated to the 2015 to 2020 period (Section 12.2), and the initial portion of the projected LOM has higher confidence due to less expected short-term changes in pumping, conceptual hydraulic parameters, and the water balance, among other factors.
- Probable Reserves were conservatively assigned for the last 4 years of the LOM that the numerical model will be continually improved and recalibrated in the future due to potential medium to long term changes in neighboring pumping, conceptual hydraulic parameters, and the water balance, among other factors. These future improvements will increase certainty in the final years of the model prediction.

12.4.6 Cut-off Grades

Consistent with the declared resource estimate (Section 11.4), the cut-off grade for Li has been set by SQM at 0.05 wt.% based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin (Chapter 16 and Chapter 19). Based on historical lithium prices from 2010 and the forecast to 2040 (Figure 16-5), a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin is considered (Chapter 19). A small increase from the current cost was utilized to better accommodate the evaporation area (allowing for the required Li concentration to be reached) and the use of additives employed to maintain the quality of the brine that feeds the plant.

A similar pricing basis and analysis was undertaken for K, where the cut-off grade of 1 wt.% has been set by SQM based on respective costs, sales, and margin (Chapter 16 and Chapter 19). This considers only MOP-S as a low-margin scenario, using a brine as raw material diluted with more contaminants and performance at the lower end of the range (approximately 53% recovery). In this scenario, and considering the current market conditions and recent years, the cost of MOP production remains competitive.

A sensitivity analysis was performed with distinct product prices, costs, and cut-off grades. The QP believes that the designated cut-off grades of 0.05 wt.% Li and 1 wt.% K to be appropriate and do not have any material effect on the declared Mineral Reserve, as brine extracted from the production wells is transported to the evaporation ponds, where individual brine sources are mixed to form a composite solution. As such, the weighted average concentrations extracted from the production wells were compared with the cut-off grades (Figure 12-11). The results show that the average weighted concentrations pumped from SQM's wells far exceed the designated cut-off grades for Li and K, signifying that their extraction is economically viable.

12.5 Uncertainty

WSP considered the following sources of uncertainty in the Li and K Mineral Reserve estimate and corresponding numerical model, and certain measures were taken to minimize those uncertainties:

- Potential brine dilution can vary over time due to lateral inflows. To address this, representative historical concentrations were assigned for modeled lateral inflows and direct recharge concentrations during the LOM were set to 0.
- Density driven flow could impact the hydraulic gradient; however, the model limit is set within the salt flat nucleus, where brine density does not vary significantly based on measured values.
- Potential pond infiltration represents an additional source of uncertainty, and it was conservatively not modeled to avoid introducing an "artificial" source of Li and K in the reserve estimate.

- Hydraulic parameters were calibrated based on available information. Future exploration and testing could improve the assigned model parameters and the water balance specifics could also be changed to alleviate this uncertainty. Probable Reserves were conservatively specified for the last 4 years of the LOM, even though SQM production has occurred historically for decades.
- A steady-state model calibration was not conducted given the long period of SQM's historical production; however, a comprehensive flow and transport calibration was undertaken for the 2015 to 2020 (inclusive) period.
- Future Albemarle pumping is unknown; however, a maximum rate of 442 L/s was conservatively assumed for the entire LOM based on their recent environmental assessment.

12.6 Opinion and Recommendations

It is the QP's opinion that the declared Mineral Reserve estimate and corresponding methods conform to S-K 1300 regulations. Furthermore, the reserve classification is believed to be conservative, given that brine production has already been occurring historically by SQM for decades. The presented analysis includes a detailed calibration process and time-based reserve classification to account for potential future changes in hydraulic parameters (with more field data and testing), the water balance, and neighboring Albemarle pumping, among other future uncertainties (Section 12.5).

Future recommendations to improve certainty in the reserve estimate include; (i), conducting a sensitivity analysis of key model parameters and specifics, such as the aquifer parameters; (ii), variable Albemarle pumping rates; and (iii), extension of the model's calibration period annually and continually improve the model parameters based on new field data and hydraulic testing.

13 MINING METHODS

SQM's mining operation at Salar de Atacama utilizes brine extraction from pumping wells. Brine extraction is characterized by the construction of vertical pumping wells capable of pumping brine from the subsurface reservoir. The brine is accumulated in different gathering ponds for distribution to the evaporation ponds and metallurgical plants.

This method of brine extraction was authorized by the Environmental Resolution N° 226/2006 (RCA 226/2006). In November 2021 (Res. 2389/2021), the SMA ordered provisional procedural measures, among others, to restrict the maximum (total) brine pumping rate to 1,280 L/s. Furthermore, the current lease contract between SQM and CORFO permits brine extraction until December 31, 2030 (Section 3.2).

This sub-section contains forward-looking information related to brine extraction for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geotechnical and hydrological, pumping and production rates.

13.1 Brine Extraction: Geotechnical and Hydrological Models, and Other Relevant Parameters

The utilized mining method of brine extraction by pumping wells does not require the development of geotechnical studies, because operations are executed without significant excavation. Furthermore, the dominant lithology in the salt flat nucleus (massive evaporites) is typically stable from a geotechnical perspective. However, the mining process includes some salt dumps. These salt dumps have a maximum height of 30 m (environmental restriction). SQM undertook a geotechnical analysis, concluding that the design of the dumps is stable according to the current operating conditions.

Hydrological studies developed by SQM for the purposes of this TRS have focused on the hydrogeological evaluation of natural recharge to the brine aquifer. The mining methods in this deposit and setting do not require runoff-rainfall models or a surficial water management plan to characterize peak flows for different return periods. Hydrogeological parameters, well specifics, and the pond locations are mainly considered when defining the brine production wellfield (see Section 12).

13.2 Production rates, expected mine life, mining unit dimensions, and mining dilution and recovery factors

The expected mine life of SQM's Salar de Atacama Project is 9 years, from the start of 2022 to the end of 2030. In 2021, SQM's evaporation pond area was approximately 3,227 ha, and the OMA Extraction Area covers a total of 81,920 hectares. SQM brine extraction by pumping wells reached an average flow of 1,328 L/s during 2021 (41.3 Mm^3 of brine per year). Discounting re-injected brine, a total new flow of 1,280 L/s in 2021 is considered from the reservoir to generate LCE and KCl.

The current LOM ends on December 31, 2030. Until this date, the expected total brine production was evaluated in the numerical model (Section 12) to be 290 Mm^3 for the 2022 to 2030 period, with decreasing pumping rates from 2022 (1,280 L/s) to 2030 (822 L/s) (Figure 12-9). The predicted Li concentration and K concentrations did not change substantially during the LOM (Figure 12-11), and the average process recovery factors (from the numerical model prediction) were approximately 51% for Li and 74% for K based on the type of extracted brine at each production well and SO_4 content over time (Section 12.4.1).

The hydrogeological analysis related to evaluation of Li and K reserves in the Salar de Atacama (see Section 12) considers brine pumping that is restricted to the salt flat nucleus. As such, there are no significant dilution expected of the brine from lateral recharge of freshwater. Based on historical measurements from monitoring wells, the brine density of the Salar de Atacama nucleus does not vary because of pumping due to the large distance between the SQM wellfield and salt flat margins. However, in contrast to traditional mining methods, the mining process to extract brine by pumping wells implies that only a fraction of the total declared resource can be extracted due to efficiency factors of the wellfield, location and screening of the production wells, potential retention of brine in the porous media, and environmental restrictions (reduction in pumping over time).

13.3 Requirements for Stripping, Underground Development, and Backfilling

At Salar de Atacama, requirements for stripping, underground development, and backfilling do not apply, because the exploitation system involves pumping wells that extract brine from the reservoir.

13.4 Required Mining Equipment Fleet, Machinery, and Personnel

The process used by SQM for brine extraction includes different types of drilling equipment, or rigs, to obtain geological samples, conduct hydrogeological tests, and build pumping wells. Pumping and piping systems are used to extract and direct the brine to the homogenization ponds prior to the concentration process of Lithium and Potassium Chloride (KCl) in the evaporation ponds (Figure 13-1).

To obtain geological samples, SQM uses a diamond drill rig (DDH) rig mounted on a truck (MASSENZA fu Giuseppe MI-6). SQM has implemented specific procedures for the operation of this rig. To execute and build the vertical pumping wells, SQM use three different Reverse Circulation (RC) rigs, specifically the Prominas model R-4H, Comacchio GE O900 GT, and the MASSENZA fu Giuseppe MI-28. For each rig, SQM has implemented an operational procedure to install vertical wells (injection and pumping wells). After drilling the wells and before installing the PVC casing (including the PVC-slotted screen), SQM executes various geophysical logs.

The procedure used for the pumping well construction includes a 5 ½-inch pilot well to obtain samples (brine every 3 m drilled and core every 1 m drilled). The final well is constructed with a diameter of 12 inches. Widening (reaming) of the pilot hole occurs to install the PVC casing and screen (diameter of 10 inches) as well as the annular seal without a gravel-filter pack.

The high salinity of the brine can result in production well efficiency problems as a consequence of chemical clogging and encrustation processes. Clogging reduces the hydraulic efficiency of the well and increases the energy required for pumping. In case this occurs, programs and treatment plans for rehabilitation, complemented by continual monitoring programs, are implemented. SQM typically employs a combination of mechanical and chemical treatments to maintain and improve the operational performance of the production brine wells and pipping systems to the gathering ponds.

Figure 13-1. Field Pictures of a Typical Salar de Atacama Brine Production Well, Pipe, and Gathering Pond

a) Brine production wells with surface equipment

b) General view - production brine well and HDPE pipe for directing brine to the homogenization ponds

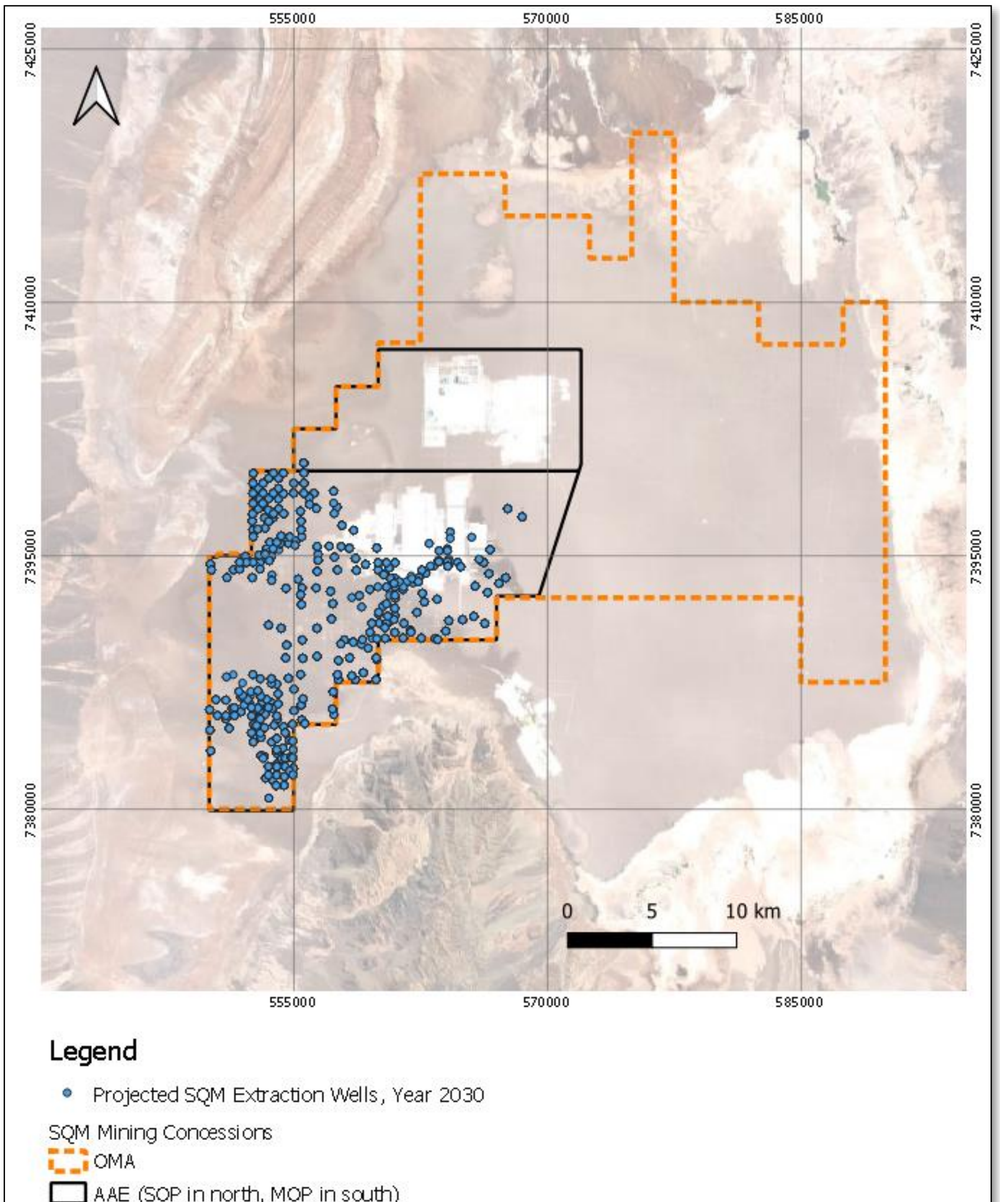
c) General view of a production brine well with an additional system for monitoring and control (telemetry)

d) Gathering ponds

13.5 Final Mine Outline

Figure 13-2 shows the simulated SQM production wellfield in December 2030 (see Section 12), considering the end of the SQM-CORFO contract on December 31, 2030 (Section 3). The simulated SQM wellfield contains current (pre-existing) production wells without newly installed (prospective) wells with a reduction of the total flow rate applied over time (Figure 12-10). Certain current wells remain active as the LOM progresses to optimize the Reserve estimate based on the type of extracted brine over time and corresponding process efficiency. During the last year of the LOM (2030), SQM expects to pump a total of 822 L/s of brine.

Figure 13-2. Final Mine Outline



14 PROCESSING AND RECOVERY METHODS

This sub-section contains forward-looking information related to the pumping and process throughput and design, equipment characteristics, and specifications for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual brine characteristics that are different from the historical operations or from samples tested to date, equipment and operational performance that yield different results from the historical operations, historical and current test work results, and recovery factors.

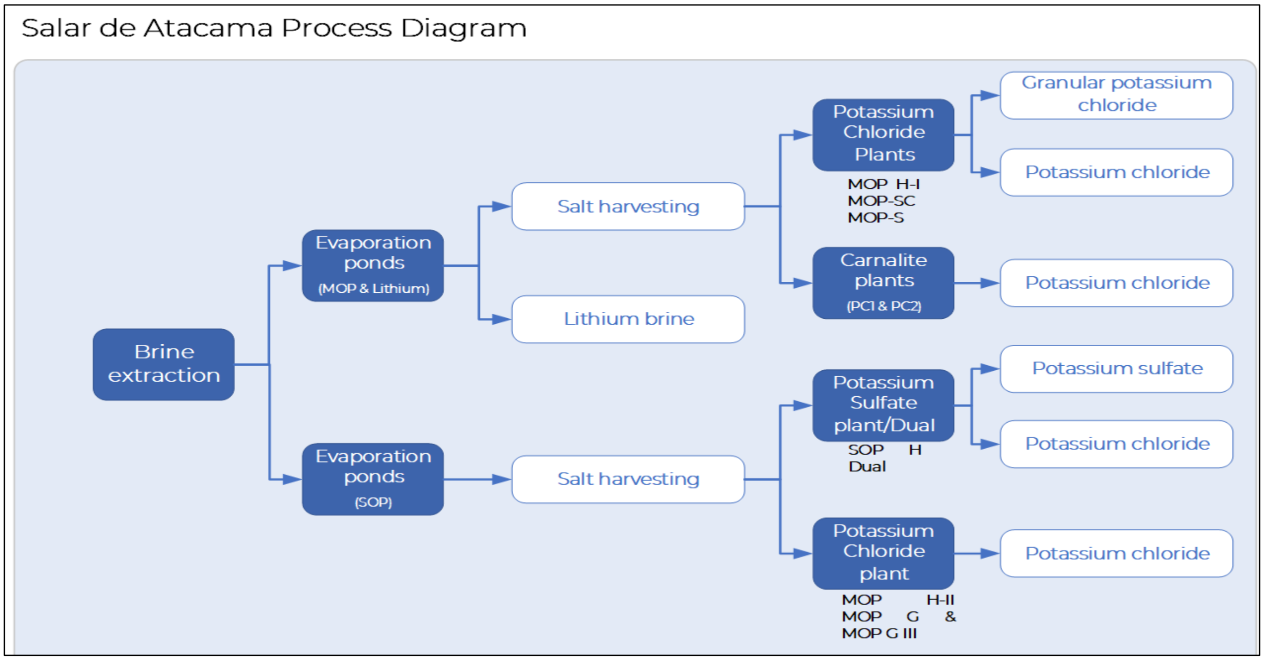
The purpose of the mine is to produce potassium chloride (KCl), potassium sulfate (K_2SO_4), lithium carbonate (Li_2CO_3), and lithium hydroxide (LiOH). The raw material for both processes is brine extracted from available salt properties, containing potassium, lithium, sulfates, boron, and magnesium. This brine is fed into evaporation pond, where different salts are precipitated. As a result of the evaporation step, a brine enriched in Li^+ ions are obtained. This lithium-rich brine is fed into a lithium carbonate production plant, which consists of purification stages to remove boron, calcium, and magnesium, a lithium carbonate precipitation stage, and a solid/liquid separation stage. Finally, one part is diverted to a drying, micronization, and packaging stage, and another part is diverted for lithium hydroxide production.

SQM's production process is characterized by being integrated, i.e., exchanging raw materials and products with each other. The processes involved in the production of the above-mentioned products run in two facilities:

- At SQM's Salar de Atacama operation, potassium chloride, potassium sulfate, and lithium brine are obtained after a series of processes.
- SQM's PQC, near Antofagasta, Chile, is responsible for complementary production through its lithium chemical plants, where lithium carbonate and lithium hydroxide are produced from lithium brines.

The simplified and global process flow diagram for potassium salts is shown in Figure 14-1.

Figure 14-1. Simplified Salar de Atacama Process Flowsheet.



To produce a lithium-rich solution that is treated in chemical plants to transform it into lithium salt, and potassium salt, from those harvested from the evaporation areas, the operation has the features the installations included in Table 14-1.

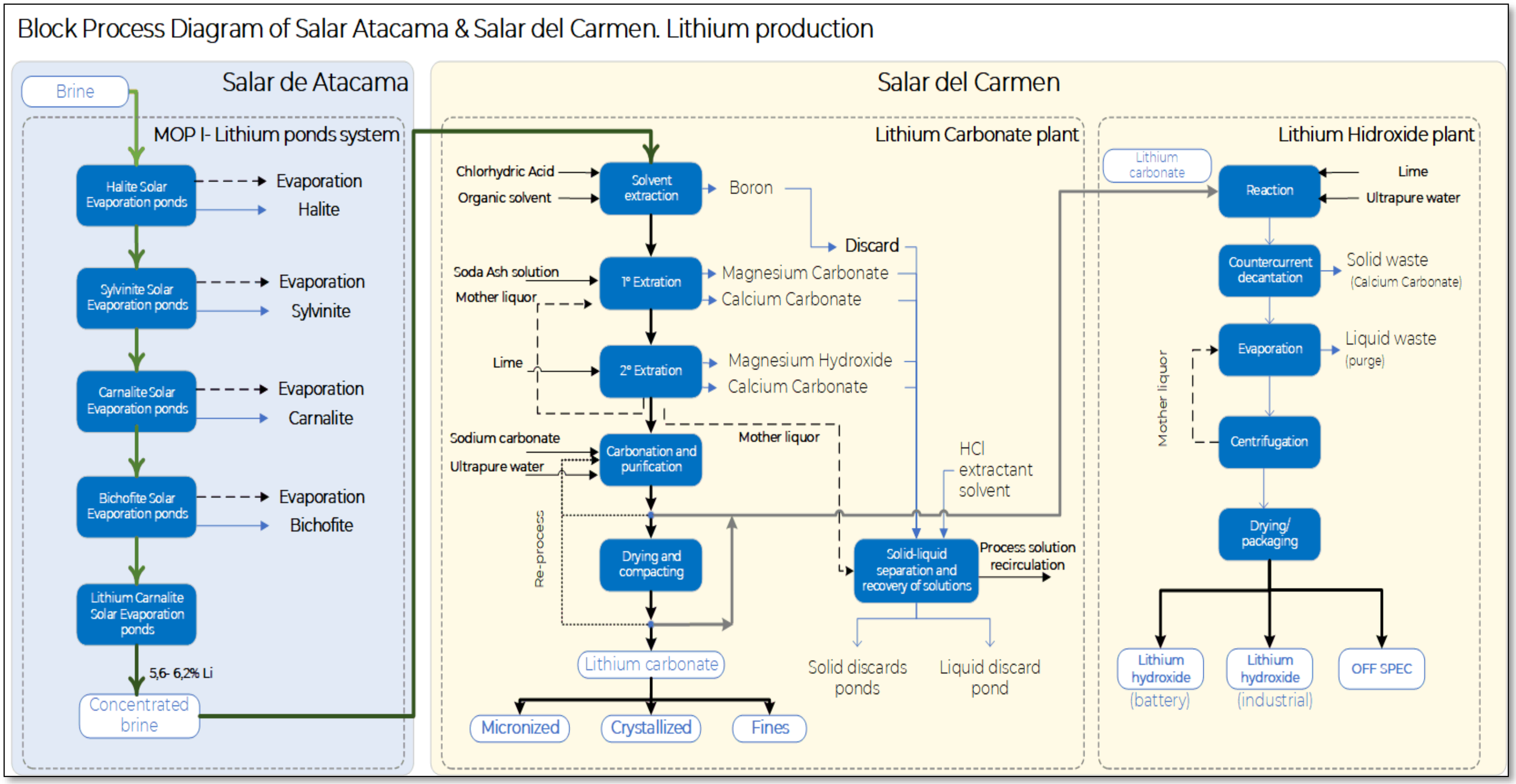
Table 14-1. Facilities Available for Productive Operations.

Production Area	Available Facilities	
Salar de Atacama mine	- Mine (brine) and industrial water supply - Solar evaporation ponds - MOP H-I plant - SOP (SOP H and DUAL) and (MOP HII) plants	- MOP-SC and MOP Standard Plant - Carnallite plants (PC1-PC2) - Plant SOP-SC - MOP-G/MOP G-III - Salt storage
Carmen Lithium Chemical Plant (PQC)	Carbonate Plant	Hydroxide Plant
	- Brine Reception and Storage - Boron Removal Plant - Magnesium and Calcium Removal Plant - Carbonation Plant	- Feed and reaction area - Clarification and filtration area - Decanting and centrifugation areas - Evaporation and crystallization area - Centrifugation area - Drying and cooling area

Figure 14-2 shows in more detail PQC's production system for lithium products from brines produced at Salar de Atacama.

In the following sections, a detailed description of the process is provided.

Figure 14-2. General Block Process Diagram for Lithium Salts Products.



14.1 Process Description

SQM developed a process model to convert lithium brine into lithium carbonate based on evaporation and metallurgical tests. This process is in line with industry standards:

- Pumping brine from reservoirs
- Concentration of brine through sequential evaporation
- Treatment of brine concentrate in a plant to produce lithium carbonate and high-quality lithium derivatives
- Treatment of potassium salts harvested during sequential evaporation to obtain refined salts

At Salar de Atacama, potassium- and lithium-rich brines are pumped and handled to produce potassium chloride, potassium sulfate, lithium sulfate, magnesium chloride (bischofite), and lithium chloride solutions. Refined finished products such as lithium carbonate and lithium hydroxide are produced at the PQC process plant (located close to the city of Antofagasta, Chile) based on solutions brought from Salar de Atacama. Production capacity to the year 2021 of the lithium carbonate at PQC plant is 120,000 metric tonnes per year, planned to increase to 180,000 metric tonnes per year. Meanwhile, the lithium hydroxide plant has a production capacity of 21,500 metric tonnes per year, with potential to increase production capacity to 30,000 metric tonnes per year.

The production process begins with the exploitation of natural resources, which are brines from the Salar de Atacama salt flats containing potassium, lithium, sulfates, boron and magnesium. The brines are pumped from two different areas of the Salar (MOP Sector and SOP Sector) to solar evaporation ponds and salt harvesting sectors. The harvested salts are processed in plants located at the site, to produce potassium chloride, potassium sulfate, and lithium brine.

The concentrated lithium chloride solution, obtained from lithium system, is transported by tanker truck to the PQC plant. This process at PQC plant starts with boron removal by solvent extraction, while a second stage is magnesium removal by chemical precipitation. Magnesium carbonate, magnesium hydroxide, and calcium carbonate residues are repulped using the plant's mother liquor and sent to waste ponds. Subsequently, the boron- and magnesium-free brine is treated with soda ash to precipitate lithium carbonate. Finally, some of it is filtered, washed, dried, packaged and exported, and some used in the production of lithium hydroxide. In the hydroxide plant, lithium carbonate is repulped in water and pumped to a battery of reactor ponds, where it is mixed and reacted with a slaked-lime solution to produce a mixture of lithium hydroxide and calcium carbonate.

The following discussion describe the treatment and production processes perfromed at the Salar de Atacama and PQC sites.

14.1.1 Salar de Atacama production process

The production units of the Salar de Atacama are:

- Mine and water supply
- Solar evaporation ponds:
    - Sulfate of potash (SOP) Area
    - Muriate of potash (MOP) Area
- SOP Sector:
    - Sulfate of potash plant SOP (SOP H and Dual)
    - Muriate of potash plant (MOP-H II)
    - Sulfate of potash drying and compacting plant (SOP - SC)
    - Potassium Chloride Drying and Compaction Plant (MOP G / MOP G III)
- MOP Sector:
    - Potassium chloride KCl plant (MOP H I)
    - Potassium chloride drying and compaction plant (MOP SC)
    - Potassium Chloride Drying Plant (MOP Standard)
    - Carnallite plants (PC1-PC2)

Potassium plants at Salar de Atacama are fed with salts from potassium salts precipitation subsystems (sylvinite, potassium carnalites, and shoenites) from both production processes. Sylvinites are reduced in size through a crushing and grinding process, where after release of the particles of interest, they enter into the flotation system. The flotation system comprises a 4-stage flotation circuit (rougher, cleaner, scavenger, and pneumatic), and with the aid of a collector that is selective of potassium, these salts are floated, and a concentrate with a high-potassium grade is obtained. The rougher flotation and pneumatic flotation tails, which are mainly oversize particles that could not be floated, go through a regrinding stage that is part of the same flotation circuit, and then re-enter into the system to recover as much potassium as possible.

Once these wet potassium products are concentrated, they go through a leaching stage, in order to reach technical grade for the final product. Then, a solid-liquid separation is realized, by means of filtration in a disc filter, and the solid part compacted and dispatched as a final potassium product. The liquid phase of this separation goes through a thickening stage, where part of the brine used in the process is recovered and returned to flotation system. Solid phase recovered in thickening stage is taken to a salt deposit (DPS). This system is shown in detail in Figure 14-3.

SQM Salar de Atacama's production process generates solid and liquid waste, called RIS and RIL, respectively. The RIS includes salts with no commercial purpose that are discarded and disposed of in stockpiles. RIL corresponds to impregnated brines, derived from the solar evaporation process, which is found accumulated in the salt inside a pond. The products of the Salar de Atacama are brines, harvested salts and refined potassium products, which are detailed in the Table 14-2 according to the production units.

Table 14-2. Products of the Salar de Atacama

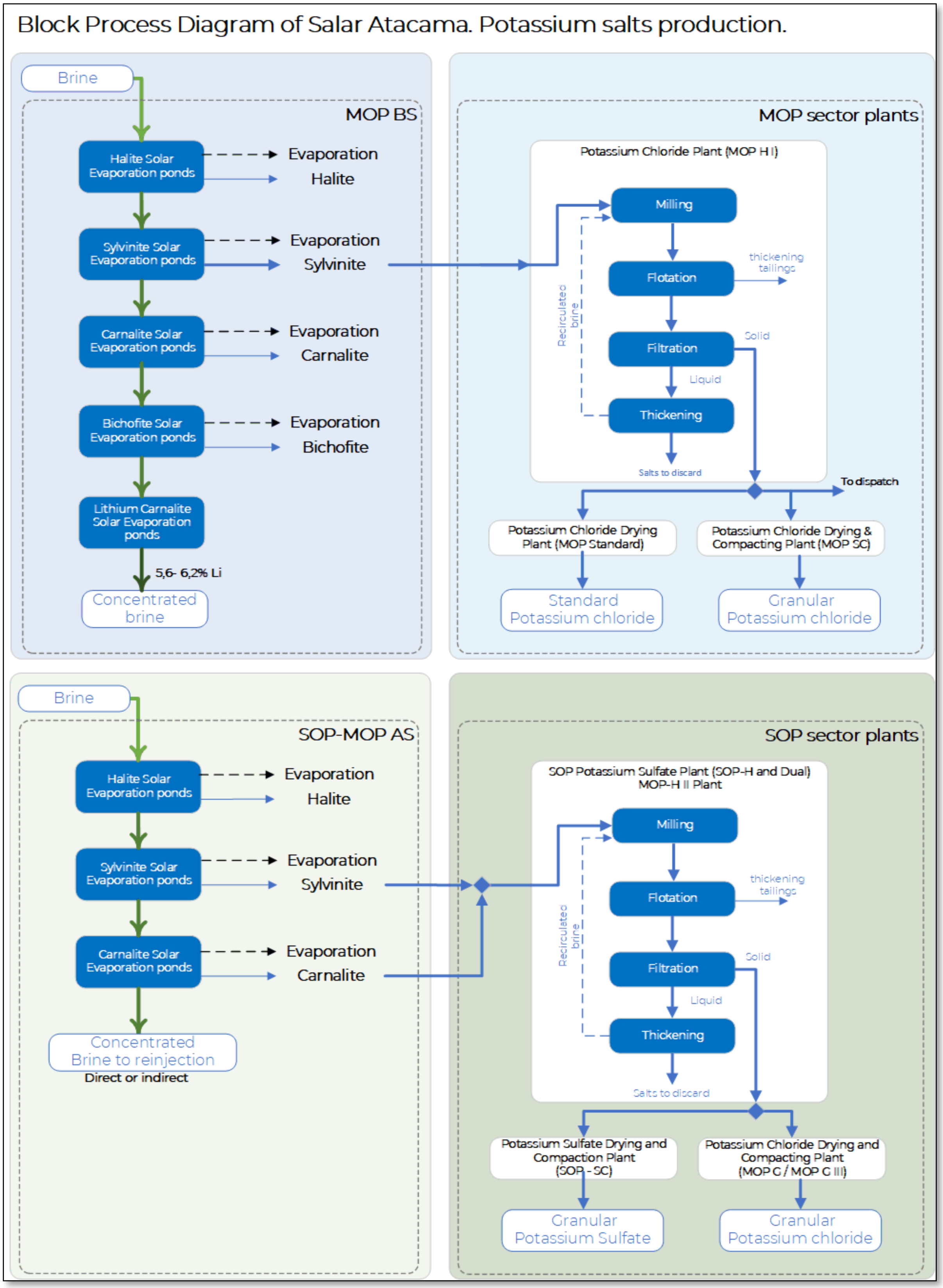
Production Unit	Products	
Solar evaporation ponds	Brines	-Pre-concentrated brine sent to the lithium production system. -Remaining brine sent for re-injection. -Concentrated lithium brine for dispatch to PQC.
	Harvested salts	-SOP sector potassium sulfate, potassium chloride is obtained. -MOP sector produces potassium chloride and lithium-rich brine.
SOP sector	Potassium sulfate	-Wet Potassium Sulfate of Potash (SOP H) -Sulfate of Potash Granular (SOP G) -Standard Sulfate of Potash (SOP S) -Soluble Sulfate of Potash (SOP WS)
MOP sector	Potassium chloride	-Wet Potassium Chloride Potassium (MOP H) -Potassium Chloride Granular (MOP G) -Standard Potassium Chloride Standard (MOP S)

Figure 14-3 shows each of the brine treatment stages required to achieve potassium products through the SOP and MOP lines. In the diagram is possible to differentiate the nomenclature MOP BS and SOP-MOP AS. MOP BS corresponds to a system of evaporation ponds that due to their chemical quality have a productive focus of Lithium (to produce lithium-concentrated dispatch brine to the PQC). While SOP-MOP AS corresponds to the denomination of the evaporation ponds system focused on the production of potassium salts (mainly KCl).

The following is a description of the operations involved in the treatment of natural brine and the production of concentrated brine and potassium salts:

- Mine and water supply
- Solar evaporation ponds
- SOP Sector
- MOP Sector

Figure 14-3. General Block Process Diagram for Potassium Salts Products

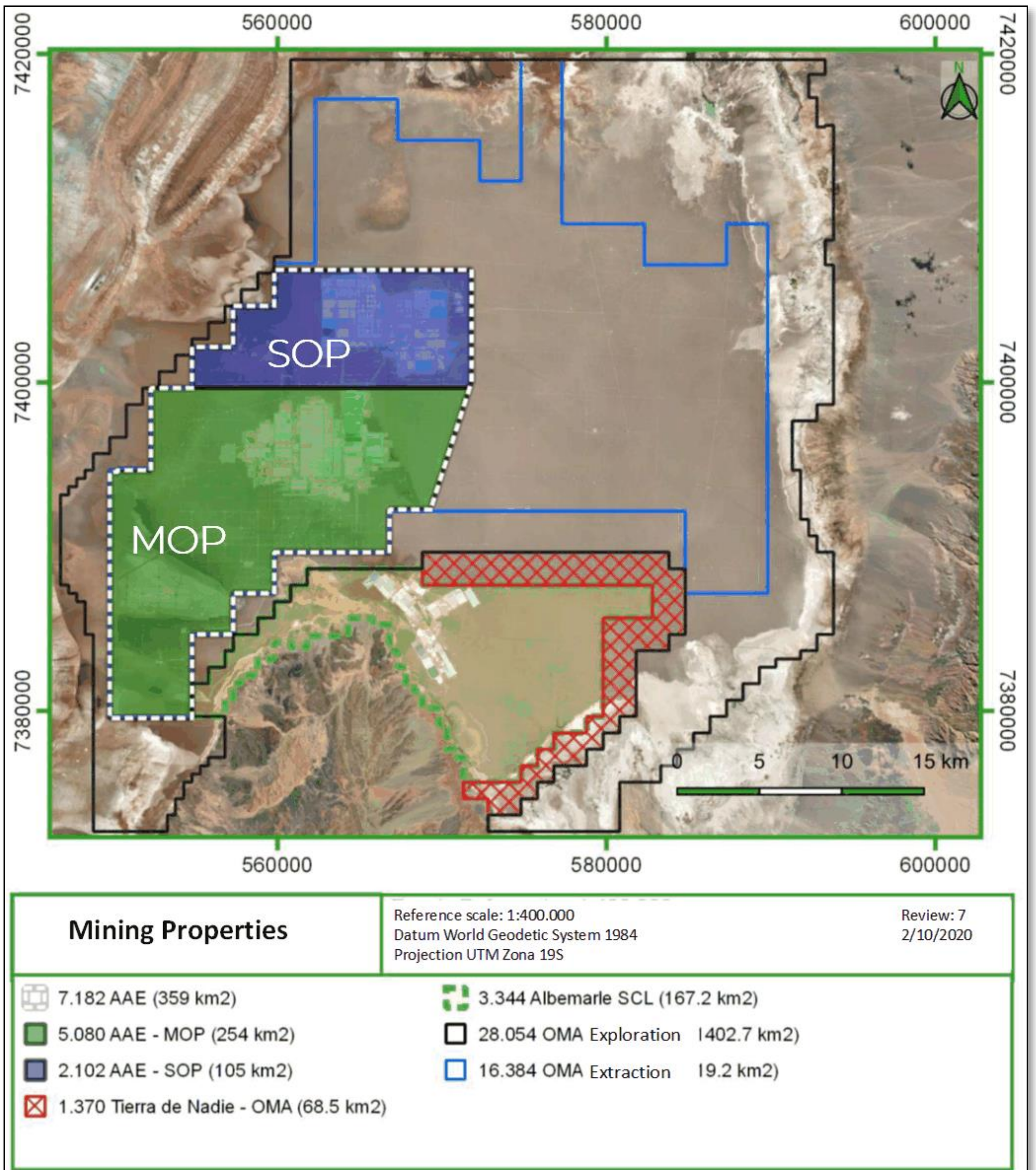


14.1.1.1 Mine and Industrial Water Supply

The first stage of the process considers brine extraction at a rate of up to 1,600 L/s. For brine pumping, two areas are defined to extract fresh brine from wells. These include a MOP sector, where potassium chloride and lithium-rich brine is produced, and SOP sector, where potassium sulfate is produced (Figure 14-4).

The MOP area is located further south in the core of the Salar de Atacama and possesses a surface area of approximately 25,399 ha. The SOP area is located further north, in the nucleus of the Salar de Atacama, possessing a surface area of approximately 10,512 ha.

Figure 14-4. Map of the location of the Brine extraction area. SQM Salar de Atacama



Compliance with project requirements is dependent on the hydrogeological properties of the soils in which the wells will be constructed. Wells have an approximate useful life of 10 years. There are currently 320 brine extraction wells in operation.

During the site visit, the WSP team was able to note that the brine exploitation system, with a lithium productive focus, has a differentiation of low chloride brine wells with a lithium concentration of around 0.6%. With this differentiation of wells, direct entry into the system of evaporation wells after the halite precipitation stage is promoted. This differentiation allows for an efficient use of resources and a significant improvement in terms of well availability, in the pumping system, and consequently, all operational tasks.

Well discharge is pumped into collection troughs, where it is sampled, and the target well system is confirmed. This check makes it possible to keep feed as stable as possible in accordance with the established brine treatment ranges determined for each well system. The check also ensures production continuity and brine product quality. In order to be closely monitored, pipelines are equipped with online sampling.

For industrial water supply, there are 5 groundwater extraction wells that are environmentally approved by RCA 226/2006. For the extraction, impulsion and transport of water, there is an infrastructure composed of HDPE lines, pumping stations and generators that allow its distribution to the different facilities where it is required.

14.1.1.2 Solar Evaporation Ponds

Solar evaporation ponds are located in the core of Salar de Atacama and involve a set of ponds and solution transfer pumps between facilities. There are different types of ponds that vary in size depending on their function. Precipitated salts in ponds are harvested and transported by earthmoving equipment and trucks to the process plant sector.

The ponds are located in two sectors, the SOP and MOP, with five areas of evaporation ponds in the SOP sector, and nine areas of evaporation in the MOP sector, as shown in the Figure 14-5. All ponds are built under the same procedure with each possessing a geomembrane and geotextile basal lining.

The evaporation ponds system is categorized by productive approach: Lithium production system and KCl production systems. Lithium production system refers to an evaporation well system that aims to produce lithium-concentrated dispatch brine to the PQC (Lithium Chemical Plant) for Li_2CO_3 and LiOH production. This system is composed of evaporation ponds that receive brines from the MOP area that are low in sulfate (MOP: Muriate of potassium; BS: low sulfate; MOP I BS and MOP III BS). . Fractional crystallization takes place in evaporation ponds where halites, sylvinites, carnallites (CK), bischofites (BX), and lithium carnallites (C-Li) precipitate.

KCl production systems is composed of evaporations ponds that receive brines from MOP and SOP area that are focused on the production of potassium salts (mainly KCl) and high in sulfate. The designation of these systems is MOP II, MOP I AS, MOP III AS and SOP .

Once brine is fed into the respective evaporation ponds systems, it follows a normal process of salt concentration and precipitation to obtain dispatch brine, or potassium salts, to feed process plants. SQM has been able to maximize salt production by sectoring solar evaporation circuits, according to brine chemistry composition by establishing sulfate (SO_4), calcium (Ca+2), lithium (Li+), magnesium (Mg+2), and potassium (K+) ion ratios in brine from a particular well. The principal indicators used to determine objective brine chemistry in evaporation ponds are based on ion ratios, such as sulfate-magnesium (SO_4/Mg), potassium-magnesium (K/Mg), sulfate-calcium (SO_4/Ca), and lithium-magnesium (Li/Mg).

For the collection of salts from ponds, SQM has implemented a technology that warns the shovel collector systems about the distance to the deck, avoiding breakage of the shovels. An infiltration detection system has also been implemented. Discard salts produced from this process are disposed of in salt discard deposits, located in the core of Salar de Atacama, near solar evaporation ponds (Figure 14-5), and others in close proximity to the process plants. Each deposit will reach a maximum of 30 metres. The Project is divided into two sectors, SOP and MOP, where the first sector has 9 salt deposits, and the second sector has 13 deposits.

Figure 14-5. Location of solar evaporation ponds (light blue zone) and salt deposits (green zone). Salar de Atacama

a) SOP sector

b) MOP sector

14.1.1.3 SOP Sector

SOP and MOP H- II Plant

After sequential evaporation from brine with favorable concentrations of sulfate and additional potassium, sulfate and potassium salts precipitate in different concentrations that are harvested and sent to be processed at the potassium sulfate plant SOP (SOP H and Dual) and MOP H II. The purpose of the plants is to simultaneously produce potassium sulfate and potassium chloride, or only potassium chloride, through the different stages, such as grinding, schoenite flotation, crystallization and flotation of KCl, flotation and leaching, regrinding, crushing, and tailings processing. These stages are equipped with impact crushers, thickeners, flotation cells, solid liquid separation equipment, vibratory dewaterers, thickeners, hydrocyclones, crushers, cell banks, mills, and screeners.

Production capacity of potassium sulfate plant is approximately 340,000 metric tonnes per year. In the dual plant, production alternates, to a certain extent, between potassium chloride and potassium sulfate. In this way, 95,000 metric tonnes are potassium chloride obtained as a by-product of potassium sulfate production process. In the dual plant, production alternates, to a certain extent, between potassium chloride and potassium sulfate.

Main by-products of potassium sulfate production are; (i), sodium chloride, which is deposited in stockpiles near production plant; and (ii), remaining solutions, which are re-injected into the Salar de Atacama, or returned to evaporation pond.

Potassium sulfate Drying and Compacting Plant (SOP - SC)

This plant, intended for drying and compacting, allows potassium sulfate, or potassium chloride, processing. These stages are enabled with equipment, such as feed hoppers, drying ovens, chutes and screws, conveyor belts, and bucket elevators.

Existing equipment:

- Feed hopper
- Horizontal and inclined conveyor belts.
- Chutes
- Screws and bucket elevator.
- Dryer

Potassium Chloride Drying and Compacting Plant (MOP G / MOP G III)

This plant is intended for drying and compacting potassium chloride in different stages, such as: drying and heating, compacting, grinding and classification, ending with the conditioning stage.

These stages are equipped with conveyor belts, dryers, hood elevators, chain conveyors, stackers, blowers, pumps, dust collectors, cyclones, mixers, ponds, compacting lines, mills, screens, and rotating drums.

14.1.1.4 MOP sector

Potassium chloride plant (MOP H-I)

From the second evaporation stage, residual brine from the first stage is sent to the second line of evaporation ponds where it precipitates sylvinite salts (potassium chloride and sodium chloride mixture), which are harvested and then sent to the wet potassium chloride plants. MOP H-I plant is intended to produce high grade Potassium Chloride in different stages, such as: wet milling, classification, flotation, leaching, thickener, solid/liquid separation and additives preparation area. These stages are equipped with: grinding equipment, flotation cells, pumping station, adduction ducts, blowers, agitators, and collectors.

Harvested salts with lower potassium and magnesium content are used in cold leaching plants, where magnesium salts are removed and potassium salts are reused.

Some of the potassium chloride is transported by truck some 300 kilometers to Coya Sur's facilities, where it is used in potassium nitrate production. By using potassium chloride at Coya Sur, third party purchases and imports of potassium chloride are avoided, and at the same time, a significant savings in raw material value is captured. Remaining potassium chloride is exported from Tocopilla port in its dry or granular form, where it is mainly used as a specialty fertilizer.

Potassium Chloride Drying and Compacting Plant (MOP-SC)

Plant designed to produce granular potassium chloride, which has a series of facilities that allow normal operations through different stages. These stages are equipped with equipment such as: dryer, conveying equipment, feeder, conveyor belts, blowers, pumps, stacker, dust collectors, cyclone mixers, compressors, tanks, screws and others.

Potassium Chloride Drying Plant (Standard MOP)

Plant designed to produce granular potassium chloride, which has a series of associated installations that allow normal operations to be executed through different stages. These stages are equipped with equipment such as: dryer, transport equipment, feeder, conveyor belts, blowers, pumps, stacker, dust collectors, cyclone mixers, compressors, tanks, among others.

Potassium Carnallite Plants (PC1- PC2)

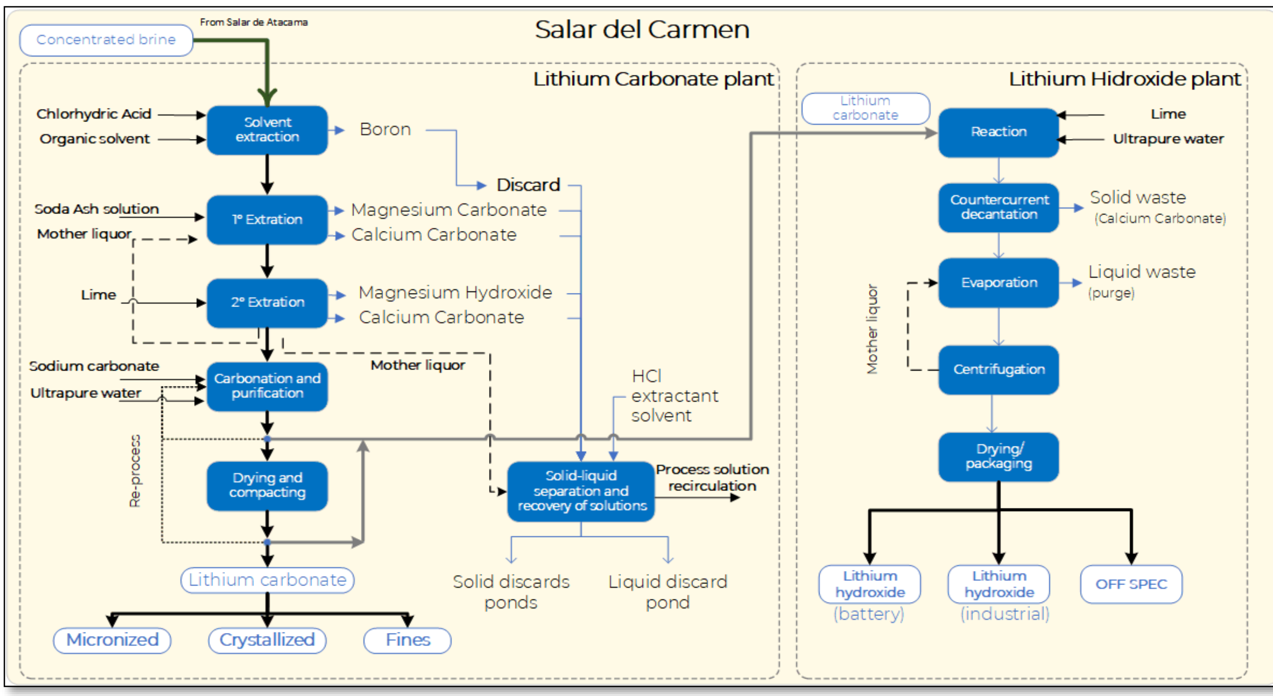
This Potassium Carnallite salt is processed at the Potassium Carnallite Plant (PC1 and PC2), which aims to increase Potassium Chloride (KCl) content in non-saturated brine. This KCl rich brine is fed to solar evaporation ponds, where sylvinite (KCl and sodium chloride (NaCl) mixture) is precipitated, and then fed to the existing KCl production plant, increasing the overall yield from efficiency of brine use extracted from the Salar.

The Potassium Carnallite plant contains a number of facilities that allow normal operations to run through the different stages, such as leaching and solid-liquid separation stages. These stages are equipped with equipment such as filters, tanks, reactors, among others.

14.1.2 PQC production process

The concentrated brine is shipped in tanker trucks to PQC's lithium chemical plant near Antofagasta. PQC's facilities, which focus on lithium compound production, consist of lithium carbonate plant and lithium hydroxide plant. The production process at lithium chemical plant, which involves lithium carbonate and lithium hydroxide production, is presented in Figure 14-6.

Figure 14-6. Block process diagram of PQC Operations.



The production plants at this facility include the lithium carbonate plant, with a production capacity of 120,000 tons per year, and the lithium hydroxide plant, with a production capacity of 21,500 tons per year. During 2022, will expect to expand the production capacity to produce 180,000 tons and 30,000 tons of lithium carbonate and lithium hydroxide per year, respectively.

The process generates solid and liquid waste, both abbreviated as RIS-Industrial Solid Residue and RIL-Industrial Liquid Residue, respectively. The process plant has an area for the final disposal of liquid (RIL) and solid (RIS) industrial waste from the process, which currently has 15 disposal pits with an authorized surface area of 537,900 m2. The composition of the process waste is as follows:

- Liquid waste: water with boron and mother liquor.

- Solid waste: magnesium carbonate pulp and magnesium hydroxide (process pulp and ash, also with high boron content).

For the RISs, it is note that there is solids discard control system to control the evaporation of the water still contained in the solids, reduce the size of the pile and make better use of the storage surface.

As for the RILs, which correspond to mother solutions loaded with impurities, these are stored in ponds and a plan has been designed to recover water from this mother liquor in order to reduce the water that is finally sent as waste. In terms of technological changes, there is a constant search for continuous improvement, focused on achieving a higher quality of generated products, i.e. by increasing the production quantity of both carbonate and lithium, with a lower generation of out-of-specification products, which improves product quality. This continuous improvement has been achieved by integrating operators' knowledge, managers and development and integration area, which are responsible for reviewing bottlenecks and new methodologies.

The production units of the PQC are:

- Lithium carbonate plant
    - Brine reception and supply
    - Boron removal plant
    - Calcium and magnesium removal plant.
    - Carbonation plant
- Lithium hydroxide plant

Treatment products of the concentrated and purified Lithium Chloride Solution (LiCl) in Lithium Chemical Plants are:

- Technical Grade Lithium Carbonate
- Battery Grade Lithium Carbonate
- Lithium Hydroxide Technical Grade

  Lithium Hydroxide Battery Grade

14.1.2.1 Lithium carbonate plant

The lithium recovery process consists of reacting lithium chloride with sodium carbonate to produce lithium carbonate, which will be dried, compacted and packaged for shipment and later commercialization. However, prior to the final reaction, it is necessary to purify the brine of contaminants, specifically boron, magnesium and calcium content are removed from the brine.

The main process steps correspond to:

The Production capacity by the end of the year 2021 of the lithium carbonate plant at Carmen Lithium Chemical Plant (PQC) is 120,000 metric tonnes per year, with plans to increase to 180,000 metric tonnes per year from the year 2022.

Brine reception and storage.

Brine reception area (high boron lithium chloride solution) includes 4 brine storage ponds, which, with a total storage capacity of 5,400 m3.

Boron Removal Plant

This plant removes boron by means an extraction process by solvent, via acidification with hydrochloric acid and solvent extraction of boron in mixer-decanter units.

The brine from the salar with high lithium chloride and high boron content is subjected to a dilution and acidification process prior to entering the solvent extraction units, whereby the action of an extractant and an organic solvent, the boron is extracted obtaining a boron-free solution and an organic phase enriched in boron. This loaded organic phase is subjected to a regeneration process so that it can be reused again in the process, while the boron-free solution continues its purification process.

Magnesium and calcium removal plant

Magnesium and calcium extraction consists of a two-step process by changing pH of the solution and crystallization of the contaminants. This requires soda ash solution (soda ash) and calcium hydroxide solution (slaked lime), both of which are prepared in lithium chemical plant (PQC) using powdered solid soda ash in a mixer and quicklime in a stirred reactor as raw materials, with water added.

Carbonation Plant

Lithium chloride solution with low calcium and magnesium content is sent to a final carbonation stage where solution is heated and sent to a battery of reactors, where it is mixed with a sodium carbonate solution. In these reactors, under sodium carbonate action and temperature the lithium carbonate precipitates.

Product from precipitation reactors is sent to a hydrocyclone battery where its underflow is passed to belt filters where it is separated from the precipitated lithium carbonate. Wet lithium carbonate is sent to final product area where it is dried. This dry product is sent to a compacting area to obtain micronized and fine material released in the screen is transformed into a product of same name. According to market requirements, lithium carbonate is marketed as granular, micronized, crystallized, or fine, lithium carbonate.

14.1.2.2 Lithium Hydroxide Plant

Lithium hydroxide is synthesized from lithium carbonate (Li_2CO_3), which is the main raw material for lithium hydroxide monohydrate production. Lithium carbonate is dissolved in water and pumped into a battery of reactor tanks, where it is mixed with slaked lime to produce a brine of liquid lithium hydroxide (LiOH) and solid calcium carbonate ($CaCO_3$).

The mixture obtained in the reactor is pumped to a clarifier, obtaining a lithium hydroxide solution that is filtered, thus eliminating any traces of calcium carbonate carried over from the previous stages. The filtered lithium hydroxide solution is sent to the evaporation stage to crystallize the lithium hydroxide monohydrate ($LiOHxH_2O$), which is sent to the centrifugation stage for the elimination of entrained chloride and sulfate impurities.

Finally, the lithium hydroxide monohydrate crystals from the centrifuges are dried in a vibrating fluidized bed system and then cooled.

On the other hand, the calcium carbonate pulp obtained from the first stage is conveyed to a countercurrent washing and solids decantation process, in order to recover the entrained lithium hydroxide and obtain a decanted calcium carbonate solid, with very low lithium content.

The main process steps correspond to the following Figure 14-6.

Feed and reaction: In this stage, the lithium carbonate is dissolved in water and pumped to a battery of reactor tanks, where it is mixed with slaked lime to produce a brine of liquid lithium hydroxide (LiOH) and solid calcium carbonate ($CaCO_3$).

- Clarification and filtration: The mixture obtained in the reactor is pumped to a clarifier, obtaining a lithium hydroxide solution and a calcium carbonate pulp. The lithium hydroxide solution is filtered, thus eliminating any trace of calcium carbonate.
- Decanting and centrifugation: The calcium carbonate pulp is conveyed to a countercurrent washing and solids decantation process to recover the entrained lithium hydroxide and obtain a decanted calcium carbonate solid with very low lithium content. The washed and decanted calcium carbonate pulp is fed to a solid-liquid separation equipment, from which a solid with low moisture content is obtained and discarded.
- Evaporation and crystallization: at this stage, multiple-effect evaporation allows crystallization of lithium hydroxide monohydrate ($LiOHxH_2O$).
- Centrifugation area: In this area, the crystals formed from the liquid saturated in lithium hydroxide are separated, eliminating entrained chloride and sulfate impurities.
- Drying and cooling: The lithium hydroxide monohydrate crystals from the centrifuges are dried and subsequently cooled. This process is carried out in totally encapsulated equipment, to avoid any emission that could affect the environment or the product, and under controlled temperature and humidity conditions.

The lithium hydroxide plant has a production capacity of 13,500 metric tonnes per year and expansion of its production capacity to 30,000 metric tonnes per year is in progress.

During 2019 and 2020, progress was made on the expansion project of a new lithium hydroxide production module with an additional annual capacity of 8,000 tonnes. The lithium hydroxide plant has a production capacity of 21,500 metric tons per year (Mtpy) by the end of the year 2021, with plans to increase production capacity to 30,000 Mtpy by 2022.

14.2 Process Specifications and Efficiencies

The nominal production capacities at Salar de Atacama and PQC facilities are summarized in Table 14-3.

Table 14-3. Nominal Production Capacity per Process Plant Updated for the Year 2021

Mine	Production	Nominal Capacity (thousands of metric tonnes/year)
Salar de Atacama	Potassium chloride (KCl)	2,680
	Potassium sulfate (K_2SO_4)	245
PQC	Lithium carbonate	120
	Lithium hydroxide	21.5

The main limiting factors for SQM is the permitted brine extraction rate. The brine extraction permit allows 1.600 L/s and corresponds to the current extraction rate. With this flow rate, for a 365-days/year, approximately 72 million metric tonnes are extracted from the aquifer. This is equivalent to 669.490 tonnes of LCE with an average lithium concentration of 0.17%.

Lithium yield in the Salar has been around 43%, and the global potassium yield is 63%. With the implementation of process improvement opportunities raised by SQM's production and research teams, the lithium recovery rate is expected to increase to 56%.

At the PQC lithium chemical plants, current process yields are approximately a maximum value of 81% and 87% for lithium carbonate and lithium hydroxide production, respectively. Both values are increased to 90% through plant improvement strategies by2030.

Table 14-4 shows the production data for 2021, 2020, and 2019:

Table 14-4. Production Data for 2019 to 2021.

Salar de Atacama	2021	2020	2019
Metric tonnes of lithium carbonate produced	108.4	72.2	62.3

Metric tonnes of potassium chloride and potassium sulfate and potassium salts produced	1,407	1,476	1,049

The following subsections provide a description of the brine extraction and re-injection values, with the potassium products generated, their yield, and projected production included.

14.2.1 Brine extraction and Potassium products

Brine extraction levels from the brine fields are regulated in the lease agreement. SQM is currently in the fourth step of brine extraction at 1,600 L/s, with a commitment to reduce the required brine extraction from the Salar gradually to 50% by 2030.

The extraction brine information is public and transparent, since it is automatically processed everyday and reported online at https://www.sqmsenlinea.com/, where it is possible to find the average daily extraction flow. According to the information provided, the average volumes extracted, the re-injected values for the years 2019 and 2021 are shown in Table 14-5.

Table 14-5. Average Volume of Brine Extracted and Re-injected per Year

Average monthly Flow (L/s)	2021	2020	2019
Gross abstraction	1,523	1,736	1,572
Re-injection	271	275	243
Net Extraction	1,252	1,461	1,329

Source: https://www.sqmsenlinea.com/

The net brine extraction complies with the maximum brine extraction limit of 1,600 L/s, as permitted by the RCA.

The potassium products generated at Salar de Atacama in 2020 are shown in Table 14-6. It should be noted that in summer months SOP H plant does not produce potassium due to brine containing lithium grades that do not allow processing.

Table 14-6. Potassium Products Generated at Salar de Atacama in 2020

Process Plant	Potassium products [tonnes]	Potassium (K) [tonnes]
MOP SC I	574,776	---
MOP SC II	61,260	---
MOPG III	1,708,665	---
MOP H	840,011	407,687
MOPH-II	541,494	267,685
SOP H	44,265	19,420

As shown inTable 14-6 potassium sulfate products account for 3% of the total production of potassium products at Salar de Atacama in 2020.

14.2.2 Plant Throughput and Forecast

14.2.2.1 Salar de Atacama and PQC Production Yields

At Salar de Atacama, two types of yields are managed to include global and specific. Global Salar de Atacama yield refers to lithium and potassium yields in the lithium-producing and KCl-producing systems. This yield value is lower than the specific, or "IGS yield," because it considers processes in which lithium enters, but lithium is not produced, or is produced in very low quantity, which lowers yield value. IGS yield corresponds to the lithium yield, but only of the lithium production system, which considers MOP I BS and MOP III BS.

The values of the overall yield and the IGS yields for 2019 and 2020, respectively, are shown inTable 14-7:

Table 14-7. Global Yield and IGS Yield for 2019 and 2020

Yield Type	2019	2020	2021
Global Yield	42.98%	42.89%	42.80%
IGS Yield	43.70%	54.50%	50.70%

For the future, there is a yield enhancement plan at Salar de Atacama that consists of a set of unit operations and improvements in on-site procedures with a goal of being able to recover a greater amount of lithium in the output from the lithium production system. The operations and improvements considered as part of the yield enhancement plan are described in Section 10 and are as follows:

1. Bischofite platforms
2. Improved harvesting
3. Miscellaneous improvements
4. CK platforms
5. Li_2SO_4 project
6. Calcium Source
7. Improved C-Li recovery
8. Soil repair

Yield values considered by yield enhancement plan only consider IGS yield, and do not consider the global Salar de Atacama yield. As shown in the plan Table 14-8, the scale-up strategy focuses on a sequencing of improvements (numbers denote items listed above) by initiative that allows for staggered growth from 2019 to 2023, and thereafter, a 61.7% IGS yield.

Table 14-8. Projected Yield Increase in the Lithium Production System Based on the Yield Increase Plan

Ramp-Up	2019	2020	2021	2022	2023	2024	2025
IGS yield	43.7%	54.5%	53.6%	57.6%	61.7%	61.7%	61.7%
Initiative 1			1.0%[1]	2.0%[1]	0.7%[5]		
Initiative 2			0.4%[2]	1.4%[5]	3.1%[7]		
Initiative 3			2.4%[4]	0.6%[3]	0.3%[8]		
Initiative 4				2.6%[6]			

As shown in Table 14-6, by the year 2021, improvements; 1., Bischofite platforms; 2., Improved harvesting; and 4., CK platforms are integrated.

In the case of lithium processing plants, since the year 2017, a project was initiated to increase lithium carbonate and lithium hydroxide production capacity at the PQC mine to 70,000 t/year and 32,000 t/year, respectively, by means of new facilities, improvements in production processes, and waste management. The higher production of lithium carbonate from lithium concentrate solution is achieved by optimizations, or technological improvements, to production process that consider the replacement of existing equipment with higher capacity and better technology, such as:

- Solid-liquid separation systems that will optimize and provide more efficient cleaning processes at all stages.
- Heating systems that will improve conversion and reaction in all processes.
- Increase processing capacity of fluid transport systems and existing general equipment.
- Operational control by improving field instrumentation.
- Upgrading and technology changes of major equipment.
- Change and upgrading of operation control systems and controls, including ongoing staff training.
- Improvements to existing operational systems will improve overall plant performance and efficiency.

By the year 2020, PQC's lithium carbonate and lithium hydroxide production capacity was 70,000 t/year and 13,500 t/year, respectively. Overall plant throughput against a concentrated brine feed averages 77.9% (maximum 81%) for carbonate production and 85.7% (maximum 86.9%) for hydroxide production. By 2021, the production expansion of the carbonate plant, and optimizations and technological improvements was completed, allowing for the production of

120 ktonnes per year. A sequential annual increase in lithium carbonate production is planned to reach a production capacity of 180 ktonnes during 2022 and 250 ktonnes by 2025.

The expansion project was developed in stages. The project for lithium hydroxide production is in the second phase with a new plant of 8,000 t/year, reaching a total capacity of 21,500 t/y to be completed in 2022. A third, new plant, operating at 8,000 t/year, is planned to help achieve a production of 30,000 t/year in 2023.

Staged implemented has been defined and will depend on current market conditions linked to product demand generated by the Salar de Atacama operations.

14.2.2.2 Production forecast

In 2020, a sustainable development plan was announced, that included the voluntary expansion of monitoring systems, encouraging deeper conversations with neighboring communities as well as becoming carbon neutral, reducing water use to 120 L/s by 2030, and reducing brine extraction by 50%. The production program evaluated in this Reserve estimate includes all improvements, strategies, and investments, as well as lithium brine concentration reductions (Table 14-9).

Table 14-9. Industrial Plan for 2022 to 2030 for the Salar de Atacama and PQC Operations

Year	Unit	2022	2023	2024	2025	2026	2027	2028	2029	2030
Brine Extraction										
Total, Net Extraction	L/s	1,280	1,223	1,166	1,108	1,051	994	937	879	822
Total, Gross Extraction	L/s	1,342	1,287	1,224	1,172	1,113	1,047	982	915	847
Water Extraction										
Total Water	L/s	240	240	240	240	240	240	240	240	240
Sustainability Strategy (Reduction)	%	41%	42%	43%	44%	46%	47%	48%	49%	50%
Projected Water	L/s	141	139	136	133	131	128	125	123	120

For the period 2022-2030, the production plan contemplates:

- Global potassium yield in the ponds remains between 65% and 66%. Considering only the MOP Sector, recovery factors vary between approximately 64% and 77% depending on the brine type (differentiated into low, high, and medium sulfate), as discussed in Section 12.4.1
- Global lithium yields in ponds vary between 53% and 65%, with increased recovery over time. Considering only the MOP Sector, projected recovery factors for year 2022 are 52.5% to 54.5% for medium and low sulfate brine respectively, which is improved over time, allowing for increases of up to 60% during the 2023-2030 period (depending on the brine type). Regarding the lithium yield by brine type, they are differentiated based on low,

high, and medium sulfate content, as indicated in Section 12.4.1.

- By 2023, KCl salts shipped to Coya Sur is expected to be increased by 15% over 2022 (483 kTonnes KCl 95% Eq) and by 2030, production will be 79% over this value (866 kTonnes KCl 95% Eq).
- Average lithium grade in concentrated brine of 5.78%.
- Sequential annual increase in the carbonate plant's yield from 87% to 90%, while the lithium hydroxide plant is expected to increase from 88% to 90%.
- By 2022, it is projected to produce 24.5 ktonnes of lithium hydroxide (Annual Fresh Production) and when the expansion work is completed. From 2023 onward it is expected to produce 30 ktonnes per year.

14.3 Process requirements

This sub-section contains forward-looking information related to the projected requirements for energy, water, process materials and personnel for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual requirements that yield different results from the historical operations.

The current needs of the lithium and potassium salt process, such as energy, water, labor and supplies are met as it is a mature operation with many years of production supported by current project infrastructure. In terms of planned requirements, mining operations have a 2030 planning horizon, which will be described at the end of this section.

14.3.1 Power and fuel requirements

Power supply comes from installations of permanent power lines to each worksite. The power supply system has to supply electricity to the industrial areas for their operations and to supply electricity to adduction system specifically through existing substations. Salar de Atacama operations require 178,661 MWh/year, while PQC operations require 44,725 MWh/year. Total electricity consumption is 223,386 MWh/year. The operation will require the consumption of 12,660 m3/year of diesel and 1,067,715 MMBTU/year of fuel oil N°6 . It will be supplied by duly authorized refueling trucks.

Diesel fuel is also used in generator equipment for power generation and as a backup in case of power outages.

The principal energy sources used in PQC's operation are electricity and gas (LNG, liquefied natural gas, and LPG, liquefied petroleum gas). LNG consumption at PQC is 481,775 MBTU/year and LPG is 2,592 MBTU/year. The values indicated are shown in the following Table 14-10.

Table 14-10. Summary of Energy Consumption per Year

Process plant	Process lant	Electric energy	Diesel	LNG, liquefied natural gas	LPG, liquefied petroleum gas	Fuel
		MWh/Year	m3/ Year	MMBTU/ Year	Tonne/ Year	MMBTU/Year
Salar de Atacama	All plants	178,661	12,660	-	-	467,636
PQC	Lithium carbonate	31,973	-	225,419	2,592	343,724
	Lithium hydroxide	12,752	-	256,356	-	256,356
	All plants	44,725	-	481,775	2,592	600,080
Total		223,386	12,660	481,775	2,592	1,067,715

14.3.2 Water Supply and Consumption

14.3.2.1 Water supply system

Water supplies are covered for basic consumption to meet the essential needs of personnel working in the process plants (drinking water and sanitation).rinking water consumption (treated and available in water drums, dispensed by an external supplier) and that required for industrial quality work.

There are 4 groundwater extraction wells considered as sources to be used, for industrial water supply in Salar de Atacama, namely: Socaire, CA-2015, Allana and Mullay.

For water extraction, pumping and transport, there is a line that connects wells and pumping stations that allow it to be transported and distributed to the different points. The water is tested for quality control, which is recorded by the internal laboratory. Storage takes place in 5 pond, with a total retention capacity of 23,000 m3.

Water abstraction and water requirement will not exceed the committed rate of reduction to 120 L/s sequential by 2030. The extraction information is public and reported online at https://www.sqmsenlinea.com/, where it's possible to find the average daily extraction and consumption flow. Table 14-11 shows water abstraction records for the period of 2019 to 2021, showing reduction to committed rate.

Table 14-11. Annual industrial water extraction from wells

Year	2021	2020	2019
Industrial water extraction (L/s)	117.0	164.2	116.2

In PQC's case, industrial water requirements are supplied by duly authorized third-party water trucks.

14.3.2.2 Water consumption

Drinking water

Drinking water is essential for operation to cover all consumption needs and sanitary facilities for all workers. Drinking water (100 l/person/day, of which 2 l/person/day is drinking water) will be supplied to worksites and cafeterias in jerry cans and/or bottles provided by companies. Annual, drinking water consumption by 2020 in Salar de Atacama was 31,142m^3. Table 14-12 summarizes how much treated water is generated and drinking water consumption for Salar de Atacama.

Table 14-12. Drinking water consumption per year at the Salar de Atacama.

Year	Generation (m^3)	Consumption (m^3)
2019	21,855	20,050
2020	33,945	31,142

Given that, at PQC, there is an average of 455 workers per month required to operate, then the total amount of potable water required will be 45.5 m3/day.

Industrial water

At Salar de Atacama, total water consumption in operations will reach approximately 3,399,320 m^3/year. This comes from the water extraction system from wells and will be stored in the reception pond.

It should be noted that "PQC Solutions Recovery Plant" project aims to reduce water consumption at its mine site, in line with its environmental commitment under RCA057, by recovering 154 m3/h of ultrapure water, mostly from carbonate plant mother liquor and other secondary RIL flows.

14.3.3 Employee requirements

During operation, an average workforce of 1,876 workers is considered, divided between both sites, Salar de Atacama and PQC.. A summary of the requirements by operating activity is shown in the Table 14-13.

Table 14-13. Personnel required by area/activity

Personnel per year	2020		2021	
N° of employees per area	Dic	Promedio	Dic	Average
Salar Production Management	998	998	981	1,014
Lithium Production Management	445	427	342	341
Environmental Management	18	18	13	12
Salar Hydrogeology Management	219	219	206	233
Supply Chain Management	195	191	171	152
Development Manager	14	14	12	13
Innovation and Development Manager	9	9	11	22
Total, Operations Potassium Lithium	**1,898**	**1,876**	**1,736**	**1,787**

14.3.4 Process Plant Consumables

The main consumables in the MOP and SOP are flotation agents, HCl, vegetable oil, iron oxide, anti-caking / anti-dust. In the case of the PQC, the main inputs for its production are soda ash, lime, HCl, and water.

Reagents to be used in this process, which includes concentration at which reagents will be required, are shown in Table 14-14:

Table 14-14. Process Reagents and Consumption rates per year.

<table>
<tr><th>Process Plant</th><th>Process area</th><th>Reagent & Consumables</th><th>Units</th><th>Consumption</th></tr>
<tr><td rowspan="6">Salar de Atacama</td><td>MOP-H I; MOP-H II; SOP-H</td><td>Flotation Agent KCl</td><td>Tonnes</td><td>379</td></tr>
<tr><td>MOP-H I; MOP-H II; SOP-H</td><td>HCl</td><td>Tonnes</td><td>138</td></tr>
<tr><td>MOP-G3</td><td>Vegetable Oil</td><td>m^3</td><td>2,180</td></tr>
<tr><td>MOP-G3</td><td>Iron Oxide</td><td>Tonnes</td><td>104</td></tr>
<tr><td>MOP-S</td><td>Anti-caking agent/Antipowder</td><td>Tonnes</td><td>267</td></tr>
<tr><td>SOP-S/C</td><td>Anti-caking agent/Antipowder</td><td>Tonnes</td><td>32</td></tr>
<tr><td rowspan="9">PQC</td><td rowspan="4">Lithium carbonate</td><td>Soda Ash</td><td>Tonnes</td><td>144,402</td></tr>
<tr><td>Lime</td><td>Tonnes</td><td>2.536</td></tr>
<tr><td>Chlorhydric acid</td><td>m^3</td><td>11,259</td></tr>
<tr><td>Ultra-pure Water</td><td>m^3</td><td>797,259</td></tr>
<tr><td rowspan="5">Lithium hydroxide</td><td>Lime</td><td>Tonnes</td><td>11,779</td></tr>
<tr><td>Ultra-pure Water</td><td>m^3</td><td>70,524</td></tr>
<tr><td>Sulfuric acid</td><td>Tonnes</td><td>561.1</td></tr>
<tr><td>Scaid</td><td>Tonnes</td><td>82.37</td></tr>
<tr><td>Alcohol</td><td>Tonnes</td><td>38</td></tr>
</table>

14.3.5 Consumption and Waste Projection

According to the industrial plans of the lithium chemical facilities, Table 14-15 shows a projection of raw material consumption, such as concentrated lithium brine, lithium carbonate, and process agents, such as soda ash, lime, HCl (32%), scaid (diluent), exxal (extractant), H_2SO_4, NaOH, and filter earth. The fuel consumption (Natural Gas [LNG], Liquefied Gas [LPG], Petroleum Diesel), water consumption, and waste generation per year for the period of 2022 to 2030 is also indicated.

Table 14-15. Consumption of Material and Generation of RIL/RIS on Carmen Lithium Chemical Plant (PQC)for 2022 to 2030

Lithium Carbonate Plant	Unit	2022*	2023*	2024*	2025*	2026*	2027*	2028*	2029*	2030*
Soda Ash	Tonnes	381,600	381,600	381,600	381,600	381,600	381,600	381,600	381,600	381,600
Lime	Tonnes	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
HCl (32%)	m^3	32,180	32,180	32,180	32,180	32,180	32,180	32,180	32,180	32,180
Scaid (Diluent)	L	10,437	10,437	10,437	10,437	10,437	10,437	10,437	10,437	10,437
Exxal (Extractant)	L	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719
H2SO4	Tonnes	6,045	6,045	6,045	6,045	6,045	6,045	6,045	6,045	6,045
NaOH	Tonnes	39,600	39,600	39,600	39,600	39,600	39,600	39,600	39,600	39,600
Filter Earth	Tonnes	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800
Natural Gas (LNG)	MMBTU	39,795	39,795	39,795	39,795	39,795	39,795	39,795	39,795	39,795
Liquefied Gas (LPG)	MMBTU	33,948	33,948	33,948	33,948	33,948	33,948	33,948	33,948	33,948
Petroleum Diesel	MMBTU	22,852	22,852	22,852	22,852	22,852	22,852	22,852	22,852	22,852
Consumed Water	m^3	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000
RIL	Tonnes	959,805	959,805	959,805	959,805	959,805	959,805	959,805	959,805	959,805
RIS	Ton	765,339	765,339	765,339	765,339	765,339	765,339	765,339	765,339	765,339
Lithium Hydroxide Plant	**Unit**	**2022***	**2023***	**2024***	**2025***	**2026***	**2027***	**2028***	**2029***	**2030***
Lime	Tonnes	41,050	41,050	41,050	41,050	41,050	41,050	41,050	41,050	41,050
H2SO4	Tonnes	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546
Filter Earth	Tonnes	352	352	352	352	352	352	352	352	352
Natural Gas (LNG)	MMBTU	47,546	47,546	47,546	47,546	47,546	47,546	47,546	47,546	47,546
Liquefied Petroleum Gas (LPG)	MMBTU	36,277	36,277	36,277	36,277	36,277	36,277	36,277	36,277	36,277
Petroleum Diesel	MMBTU	39,270	39,270	39,270	39,270	39,270	39,270	39,270	39,270	39,270
Consumed Water	m^3	278,080	278,080	278,080	278,080	278,080	278,080	278,080	278,080	278,080
RIL	Tonnes	59,805	59,805	59,805	59,805	59,805	59,805	59,805	59,805	59,805
RIS	Tonnes	11,961	11,961	11,961	11,961	11,961	11,961	11,961	11,961	11,961
*According to RCA 057/110										

Source: SQM (2021) l.

14.4 Qualified Person´s Opinion

Gino Slanzi Guerra, QP in charge of metallurgy and resource treatment, expressed the following opinions:

- Recently, the company has been intensively searching for new technologies for the improvement in recovery of lithium from brines. Focusing on the chemistry of brine processing, and in attention to the sustainability of the process as well as to the environmental commitments acquired, it has developed a plan to improve the overall lithium production yield, including new recovery methodologies to reduce impregnation losses.
- A significant methodology implemented successfully is the "Bischofite Platform" where the lithium recovery it is realized from impregnated salts. This initiative allows an increase of 3% yield.
- Another methodology proposed is the depletion of sulfate in the brine, an activity known as "calcium sourcing". To reduce or eliminate lithium losses by precipitation, the sulfate in the brine is abated with calcium chloride, thus preventing the lithium from precipitating as lithium sulfate. However, this measure competes almost exclusively with another alternative, which recovers lithium from precipitated salts as lithium sulfate. The "Li_2SO_4 Project", which aims to recover the lithium that precipitates as lithium sulfate in the MOP and SOP systems. It is advisable to review both alternatives, the "Li_2SO_4 Project" and "calcium sourcing", in terms of performance and cost impact.
- Because the cost of $CaCl_2$ per Tonnes of sulfate removed can be significantly high, it is necessary to consider a liming process with an alternative calcium source. Alternatives should be evaluated by laboratory testing to allow scalability to operating ponds.
- Resource variability in ratios of ions such as sulfate-magnesium (SO_4/Mg), potassium-magnesium (K/Mg), sulfate-calcium (SO_4/Ca) and lithium-magnesium (Li/Mg) must be studied and projected into the production plan since the ratios can directly impact compliance. The control of these parameters is of such importance that they can determine the decision to carry out engineering works for operational continuity.
- If this study confirms the variability of the chemical composition on brines, which implies a decrease of a specific species or ratio, for example, sulfate-calcium, engineering studies should be carried out for early incorporation of the process to prevent any unfavorable, or detrimental, effects.

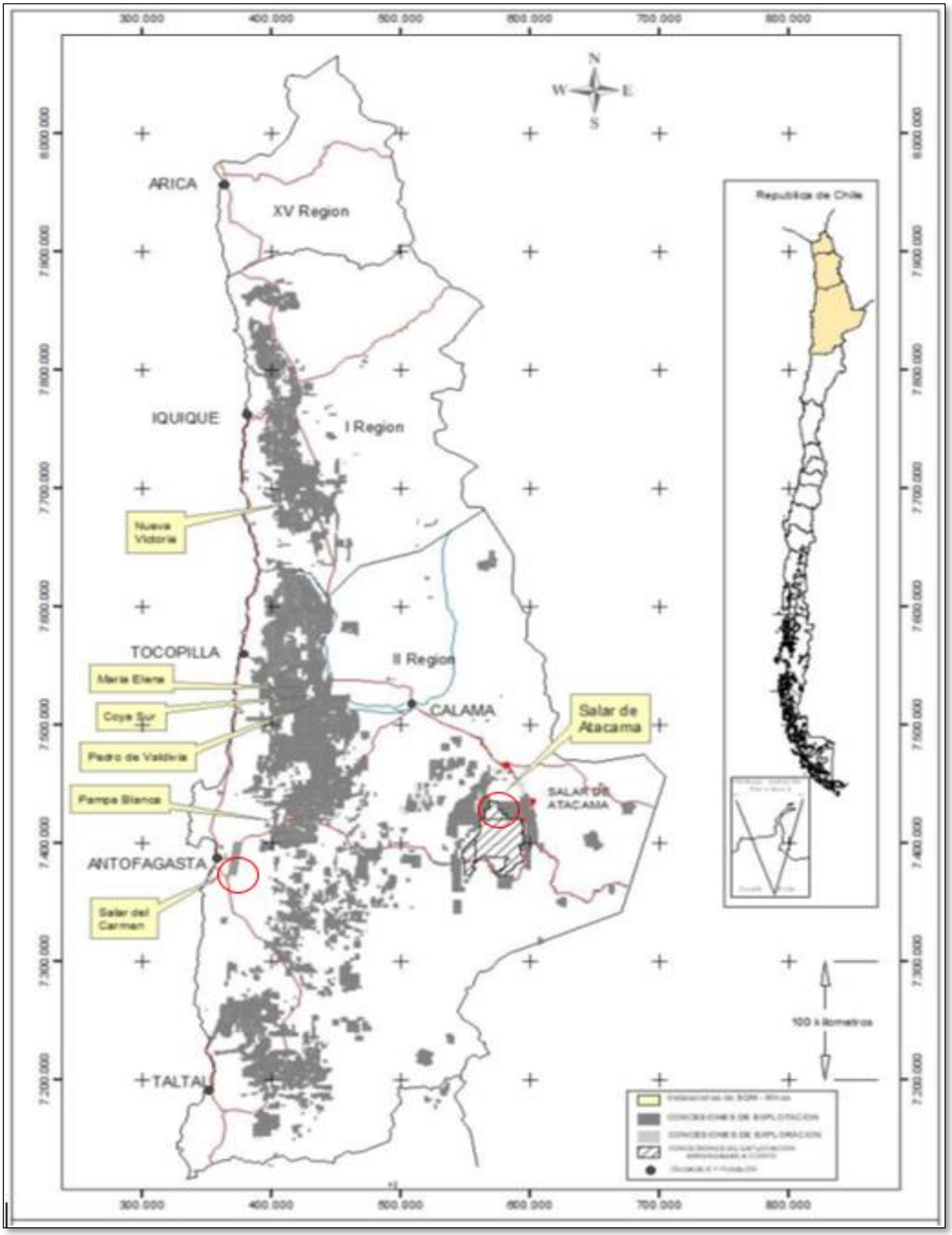
15 INFRASTRUCTURE

This section contains forward-looking information related to Locations and designs of facilities comprising infrastructure for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Project development plan and schedule, available routes and facilities sites with the characteristics described, facilities design criteria, access and approvals timing.

The analysis of the infrastructure in the Salar de Atacama has been developed considering the existing facilities and the requirements associated with future projects. This section describes existing facilities and planned expansion projects.

The Salar de Atacama is located in the Antofagasta Region, province of El Loa, commune of San Pedro de Atacama. Figure 15-1 shows the geographical location of SQM's productive areas, including the Salar de Atacama, Salar del Carmen, Coya Sur, and Nueva Victoria sites.

Figure 15-1. General Location Salar de Atacama Site



The Salar de Atacama productive area is located in the Salar of the same name, 270 km east of the city of Antofagasta and 190 kms southeast of María Elena, and includes sectors for the extraction of brine and industrial water, sectors for solar evaporation ponds and salt harvesting, potassium chloride plants, potassium sulfate plants, a boric acid plant, and drying and compacting plants.

The harvested salts are processed in the plants located at the site for the production of potassium chloride, potassium sulfate, boric acid and lithium carbonate brine. Potassium chloride and lithium-rich brine are obtained in the MOP sector. Potassium chloride, potassium dulfate and boric scid are obtained in the SOP sector.

The plant has the installed capacity to produce potassium chloride at 2,680,000 tonnes/year, potassium sulfate 245,000 at tonnes/year, and boric acid at 15,000 tonnes/year.

The Salar del Carmen productive area, located approximately 255 km from the Salar de Atacama, by land, considers the area where the lithium carbonate and lithium hydroxide production plants are located. The concentrated lithium chloride brine comes from the Salar de Atacama that is transported in cistern trucks to Salar del Carmen.

The Salar del Carmen site is located approximately 20 km east of the city of Antofagasta. The production plants of this site include the lithium carbonate plant, with a current capacity, as of 2021, to produce 120,000 tonnes/year, and the lithium hydroxide plant, with a current capacity, as of 2021, to produce 21,500 tonnes/year. The main energy sources used in the Salar del Carmen operation are electricity and natural gas.

The finished products of the Salar del Carmen (Lithium Carbonate and Lithium Hydroxide) are packed in large bags and later consolidated in containers, which are transported by trucks mainly to the ports of Antofagasta (15 km west of the Salar del Carmen) or to Mejillones (80 km north of the Salar del Carmen via the Route 1 or Route 5 and B-400 highways) or to Iquique (430 km north of the Salar del Carmen via the Route 1 or Route 5 highway).

15.1 Access to Production Areas, Storage, and Port Shipping

The finished products, provided bulk from the Salar de Atacama for export, are transported by trucks to the Port of Tocopilla (owned by SQM), located 370 km from the Salar de Atacama. Alternatively, the Port of Mejillones is used, located north of Antofagasta, 310 km from Salar de Atacama.

Another important client of the finished products from the Salar de Atacama is the Coya Sur Nitrates Plant, owned by SQM, located northwest of the Salar de Atacama, 315 km by land.

The potassium chloride produced at the Salar de Atacama facilities is transported by truck, either to the port of Tocopilla, Coya Sur, or to an alternative port (Mejillones), for shipment. The product transported to Tocopilla is a final product for shipment, or transport, to the end customer, or subsidiary.

The lithium chloride solution high in boron, produced at the Salar de Atacama facilities, is transported, via route B-385, to the lithium carbonate plant in the Salar del Carmen area, where the finished lithium carbonate is produced.

SQM's products and raw materials are transported by trucks operated by third parties through long-term contracts on a dedicated basis, using bischofite, or standard highway routes.

The Salar de Atacama area has accessibility through the B-385 road that connects to the Route 5 highway. This standard highway (the main highway in the country) leading to the Salar del Carmen, Port of Tocopilla, and Coya Sur; or through routes B-367, 23, 24, or 25 that also connect to the north, through Route 5, as an alternative route to the three destinations indicated above.

The maintenance of Route B-385 (Baquedano-Salar) is the responsibility of the local government; however, SQM has a road repair crew, Excon, from km 22 to km 150, for the Machinery Salar de Atacama area.

The maintenance of Route B-367 is also the responsibility of the local government.

The interior work roads of the Salar de Atacama and the road to the Andean camp are maintained by the same road repair crew, Excon.

The Port of Tocopilla (186 km north of Antofagasta), owned by SQM with an area of 22 ha, is the main facility for the storage and shipment of finished, bulk, and packaged products of nitrates and potassium chloride as well as for the handling of consumable materials.

The Salar del Carmen Plants are located 20 km from the city of Antofagasta, next to the Route 5 highway, which serves to go to its main destination (Puerto de Tocopilla). Some of the lithium carbonate is fed to the adjacent lithium hydroxide plant, where finished lithium hydroxide is produced.

These two products, from the Salar del Carmen, are stored in the same facilities or external warehouses. Subsequently, they are consolidated in containers that are transported by truck to a transit warehouse or directly to port terminals for subsequent shipment. The terminals currently used are those suitable for receiving container ships located in Antofagasta, Mejillones and Iquique.

The facilities of the Terminal of the Port of Tocopilla allow the loading of bulk products to ships, shipment of packaged products to ships (it has a 40-ton capacity crane) and a nitrate mixing unit for finished products.

The storage facilities consist of a system of six silos, with a total storage capacity of 55,000 metric tonnes, and a mixed shed and open storage area of approximately 250,000 metric tonnes. In addition, to meet future storage needs, the subsidiary will continue to make investments in accordance with the investment plan drawn up by management. The products are also bagged at the Tocopilla port facilities, where the bagging capacity is provided by two bagging machines, one for polypropylene bags and bulk bags, and one for FFS polyethylene. What is packaged in Tocopilla can be later shipped in the same port, or it can also be consolidated in trucks, or containers for later dispatch to clients by land, or sea, via container from other ports, mainly Antofagasta, Mejillones, and Iquique.

For bulk product transportation, the conveyor belt system extends over the shoreline to deliver products directly into bulk cargo ship hatches. The rated load capacity of this shipping system is 1,200 tonnes per hour. The transport of the packaged product is carried out in the same bulk carriers using barges without motors that are located on the dock and loaded through the 40-tonne crane of the Port of Tocopilla Terminal. These are later towed and unloaded by means of ships cranes in the corresponding holds.

Bulk cargo ships are typically hired to transfer product from the Port of Tocopilla Terminal to hubs around the world, or for direct customers, that in certain instances, use their own chartered ships for delivery.

15.2 Productive Areas and Infrastructure

The main facilities of the Salar de Atacama production area are:

- Mine and water supply
- SOP Sector (sulfate of potash, producer of potassium chloride and potassium sulfate):
  - Evaporation ponds
  - SOP Potassium Sulfate Plant (Wet and Dual SOP)
  - MOP-Wet Plant II
  - Potassium Sulfate Drying and Compacting Plant (SOP – SC)
  - Potassium Chloride Drying and Compacting Plant (MOP G / MOP G III)
  - Boric Acid Plant (ABO)
  - Auxiliary facilities
- MOP Sector (muriate of potash, lithium concentrated brine producer):
  - Evaporation ponds
  - Potassium Chloride KCl Plant (MOP H I)
  - Potassium Chloride Drying and Compacting Plant (MOP SC)
  - Potassium Chloride Drying Plant (Standard MOP)
  - Carnallite Plants (PC1-PC2)
  - Auxiliary facilities
- "Cañón del Diablo" Non-Hazardous Industrial Waste Landfill
- Hazardous Waste Storage Yard

Figure 15-2. SOP and MOP Plants

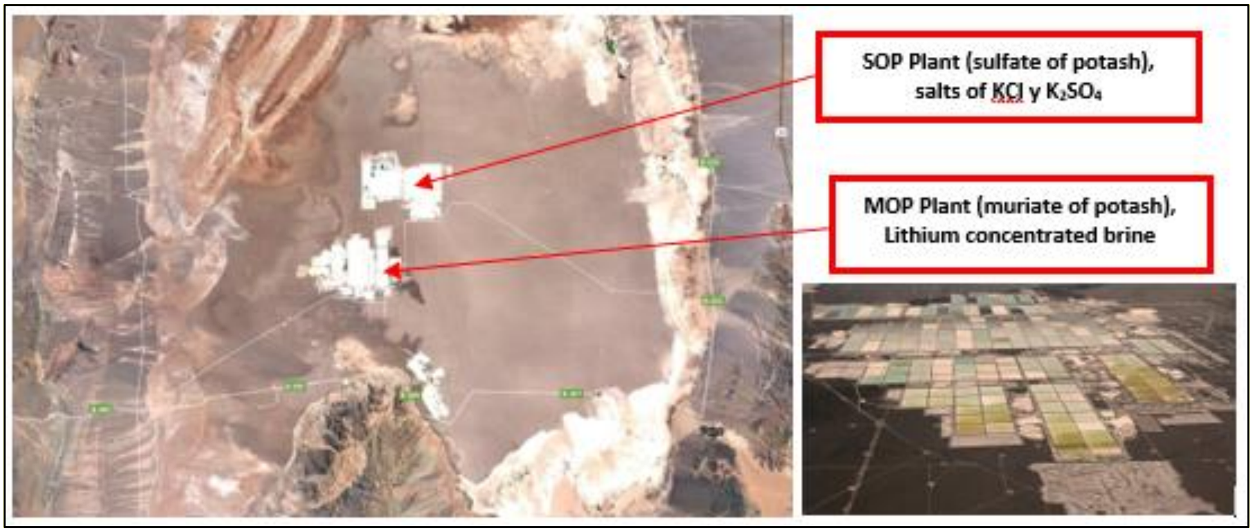


Figure 15-3. Location SOP and MOP Plants

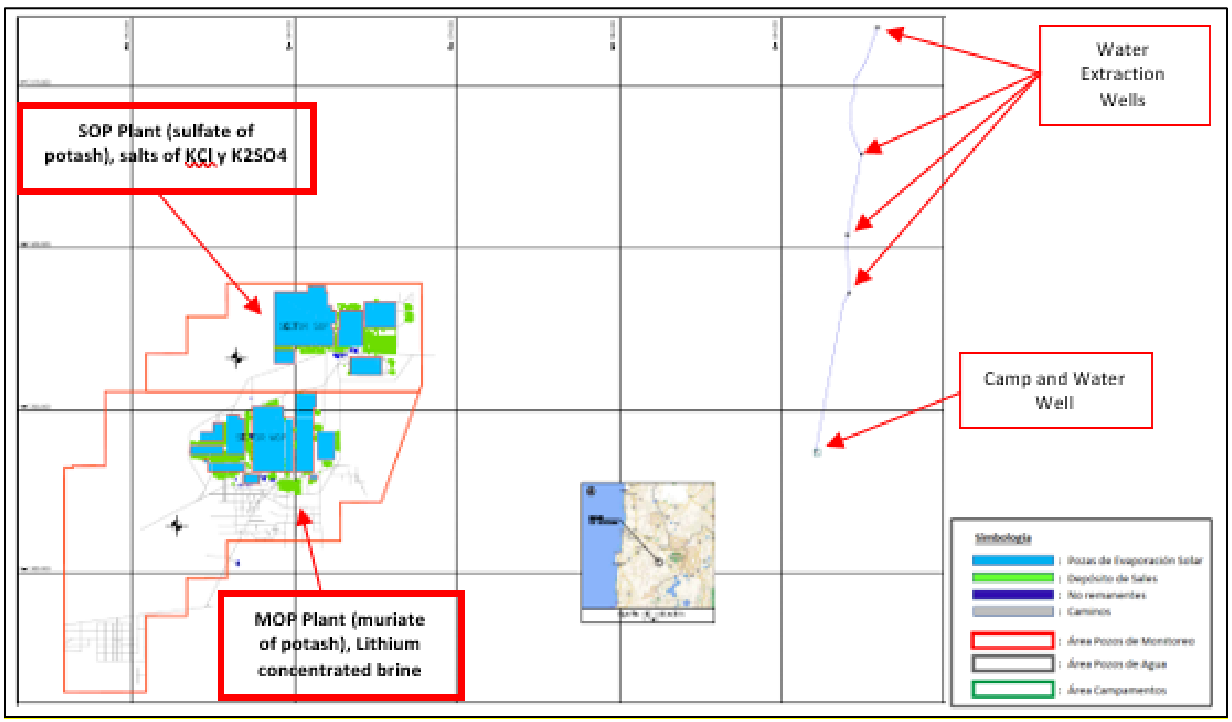


Figure 15-4. Facilities MOP

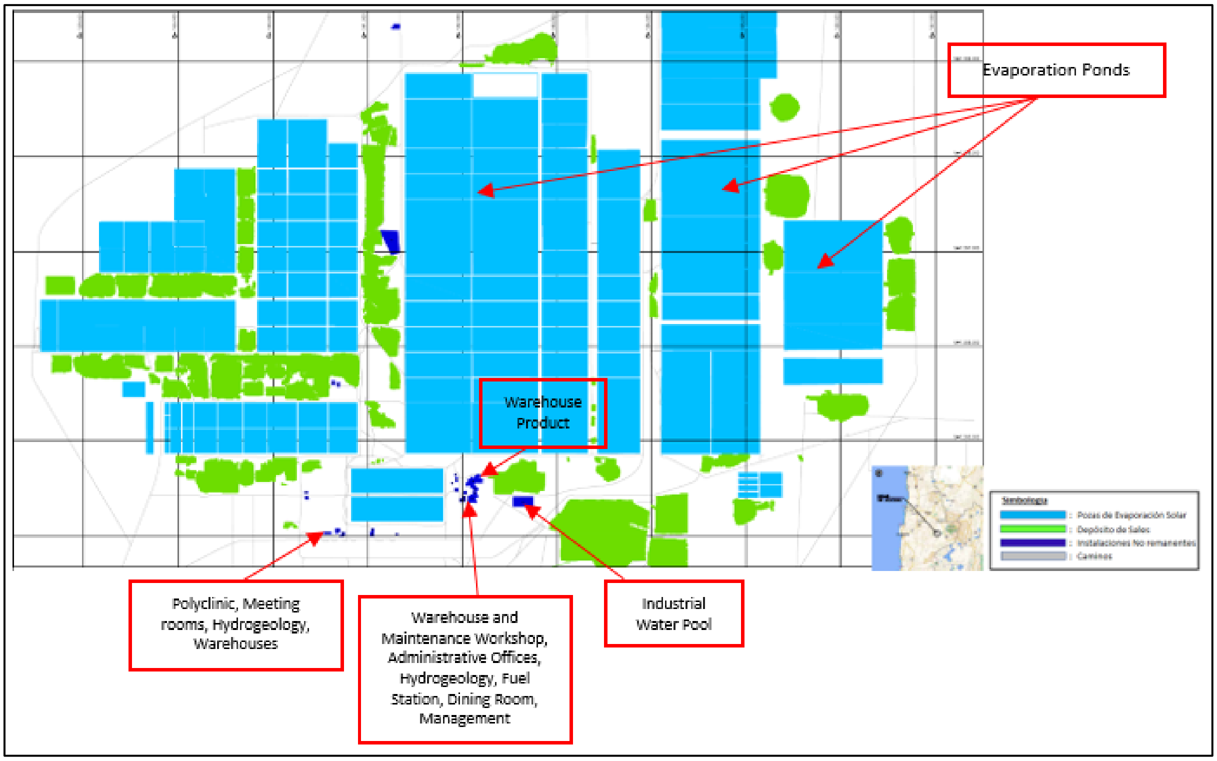
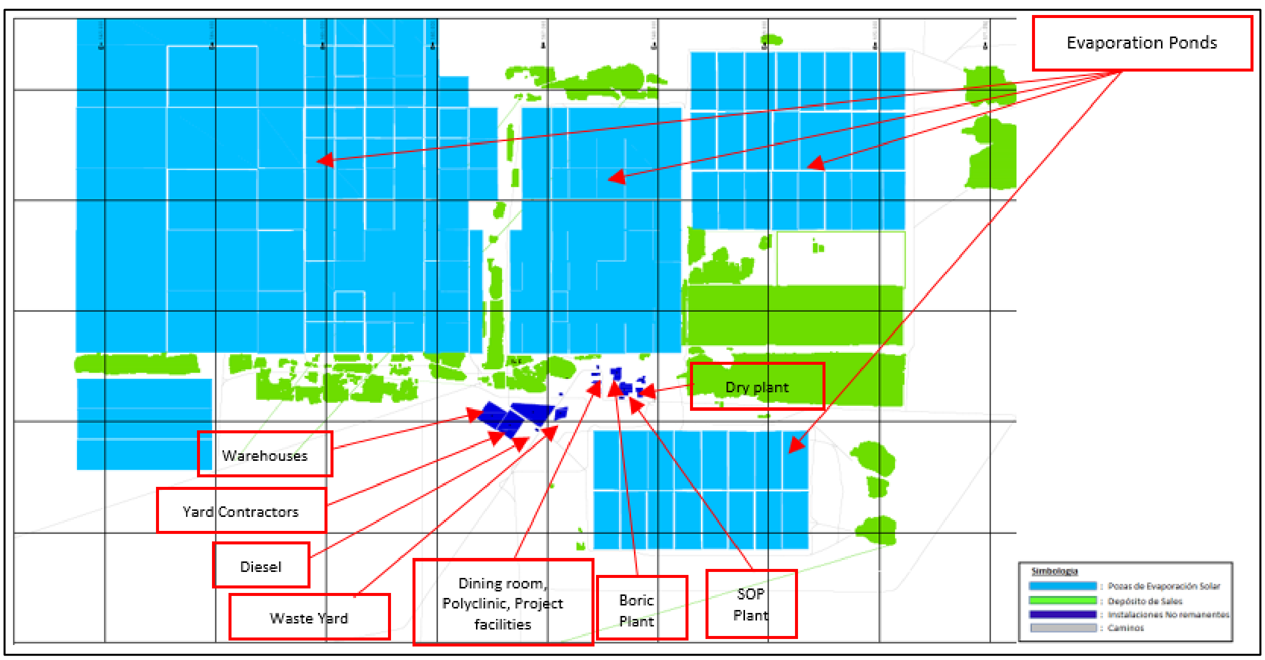


Figure 15-5. Facilities SOP



The Salar de Atacama facilities are broken down as follows:

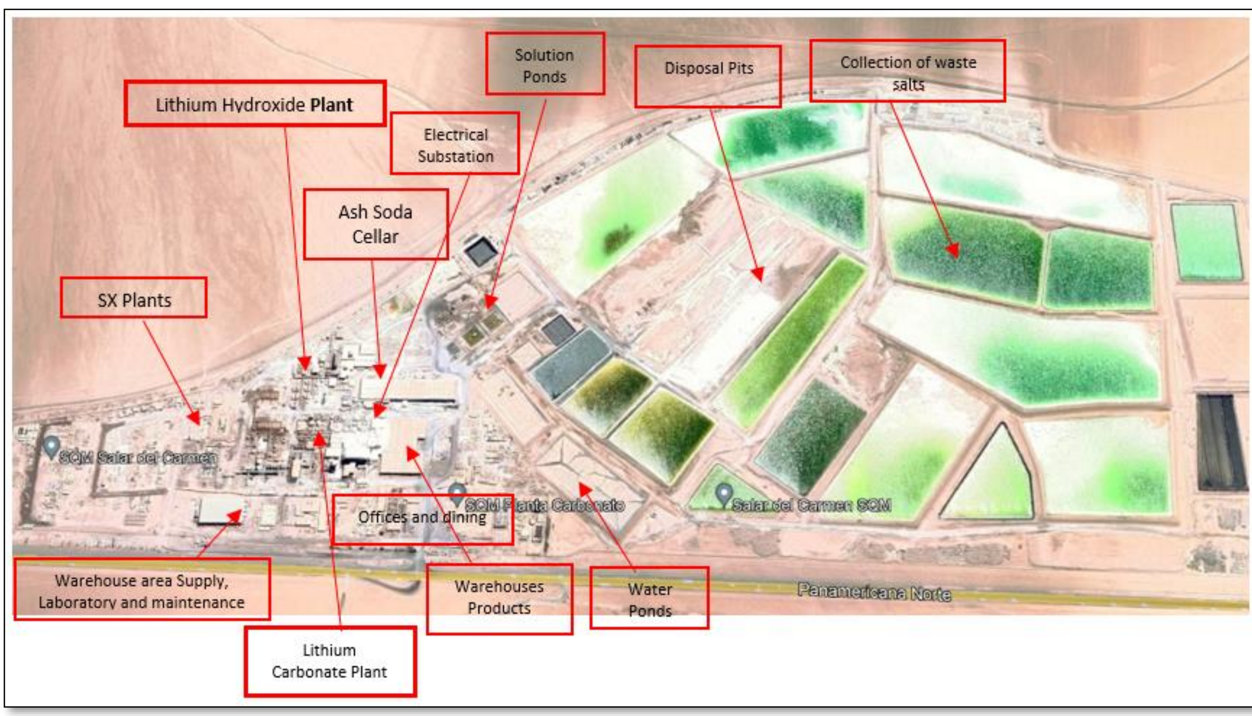
- Extraction Wells:
  - Operating Wells 2021: 379 Operating Wells / Average Depth: 39.5 m each.
  - Wells Out of Offer 2021: 31 Wells Out of Offer during 2021.
  - 45 pumps in SDD, (19 are stand-by pumps)
  - 379 Submersible Well Pumps (Each operating well has 1 pump)
  - HDPE pipe
- Evaporation ponds:
  - 2,555 ha distributed in a total area of 4,992 ha.
  - 1,033-ha halite ponds (evaporation and removal of Sodium Chloride).
  - 986-ha sylvinite ponds (evaporation and removal of potassium chloride, potassium sulfate, and sodium chloride).
  - 536-ha evaporation ponds to remove carnallite, bischofite and lithium chloride.
  - Currently, there are about 360 evaporation ponds with a wall height close to 3 m on average.
- Process Plants:
  - PC1 (Ancient Carnalite Plant)
  - PC2 (Carnalite Plant in disuse)
  - PC3 (Extended PC1 Carnallite Plant)
  - SOP H (Potassium Sulfate Wet Plant or Dual Plant)
  - MOP H (Potassium Chloride Wet Plant)
  - MOP H – II (Potassium Chloride Wet Plant 2)
  - MOP-S (Potassium Chloride Drying Plant)
  - MOP G (Granular Potassium Chloride Plant)
  - SOP S/C (Potassium Sulfate Drying/Compacting Plant).
- Storage areas for intermediate or discarded products:
  - Halites discard salts
  - Sylvinite stockpile
  - Carnallite stockpile
  - Bischofite stockpile
  - Carnallite lithium stockpile
  - Potassium sulfate plant stockpile

- Product storage areas for sale or dispatch
- Machinery and equipment in product handling areas (stockpiling, discarding, and dispatch):
    - MOP-H Plant I Stockpile Feeding: 1 Loader and 1 Excon Bulldozer
    - Removal of Stacker MOP-H I and power supply MOP-S: 1 Excon Charger
    - Removal of Stacker MOP-S and Product Dispatch: 1 Excon Charger
    - Sylvinite Dispatch: 1 Excon Charger
    - Plant PC- I Feeding and Stacker removal: 1-2 Excon charger, depending on feed rate.
    - MOP-H II Plant Stockpiling Feeding: 1 Loader and 1 Excon Bulldozer
    - Plant SOP-H Stockpiling Feeding: 1 Excon Loader
    - Removal of Stacker MOP-H II and SOP-H: 1 Excon Charger
    - MOP-G III Power Plant: 1 Excon Charger
    - Planta MOP-G III Alimentación: 1 Cargador Excon
    - Removal Stacker MOP-G III: 1 Astudillo Charger
    - MOP/SOP Sales Deposit: 2 Excon Excavators
- Camp (facilities and services): simultaneous capacity of 1,321 users
- Offices
- Workshops:
    - Mine Maintenance
        - Thermofusion equipment workshop
        - Lathe workshop
        - Welding shop (2)
        - Main maintenance workshop
    - Plants Maintenance
        - Turner store - (MOP H-I)
        - Welding workshop ((MOP H-I))
        - Electric Store
        - Mechanical store
- Laboratories:
    - Chemical Laboratory
    - Metallurgical Laboratory
- Inner Roads.

a) <u>The main facilities of the Salar del Carmen production area are:</u>

- Storage Areas for Lithium Chloride and Raw Materials
- Product storage areas for sale or dispatch
- Process Plants:
    - Lithium Carbonate Plant
        - Boron SX
        - Purification (removal of Ca and Mg)
        - Carbonization
    - Lithium Hydroxide Plant
- Offices
- Workshops and Laboratories
- Common areas (casinos, exchange house, polyclinic, interior roads)

Figure 15-6. Main Facilities of the Salar del Carmen



Infrastructure and main equipment in Lithium Carbonate Plant:

- Buildings (offices, casino, supply warehouses, laboratories, maintenance, soda ash warehouse, product warehouse and other minors) // Filters // Disposal wells // Water pools // Stockpiles of discarded salts // Centrifuges // Piping // Ponds (TK) // Drying equipment // Electrical equipment installations) // Laboratory equipment // Exchanger // Valves // Pumps // Instrumentation equipment // Boiler // Warehouse // Microfiltration System

Infrastructure and main equipment in Lithium Hydroxide Plant::

- Crystalizer // Buildings // Drying Equipment // Thickener

Infrastructure and main equipment Powerhouse:

- Transformer // Electrical equipment facilities

Infrastructure and main equipment in stockpiling and dispatch:

- Truck loading station // Trucks // Equipments // Scales, washing and sampling // Dumps

15.3 Communications

15.3.1 Salar de Atacama and Salar del Carmen:

The facilities have telephone, internet and television services via satellite link.

At the Salar del Carmen, the facilities have telephone, internet and television services through fiber optics supplied by an external provider.

Communication for operations personnel is via communication radios with the same frequency.

The communication for the control system, CCTV, internal telephony, energy and data monitoring is carried out through its own optical fiber, which communicates the process plants and the control rooms.

15.4 Power Supply

The facilities are connected to the National Electric System. The electrical system in the north of the country is called “Sistema Interconectado Norte Grande,” or SING.

15.4.1 Salar de Atacama

A 110-kV, high-voltage line reaches the Salar de Atacama. This line is called Minsal 110 kV – H3 Tap off West Line – Minsal, whose owner is the company AES Andes (former AES Gener S.A.) that in the Minsal substation, through a transformer, lowers the voltage from 110 kV to 23 kV. There is currently an electricity supply contract with the company AES Andes (former AES Gener S.A.) (one of the main electricity producers in Chile).

The supplied energy that is distributed by the facilities passes through an electrical transformer that allows it to be transformed to voltages lower than 380 V, which is the one required by the equipment of the facilities.

The facilities also have diesel generators to serve as backup power, or to generate power during peak-rate hours.

- 53 prime mode generators with capacities from 10 to 250 kVA, located in industrial water wells, brine wells, wells.
- 33 stand-by mode generators to support power outages, from 15 to 1,000 kVA located in facilities, plants, wells, accumulation systems, powerhouse SW-34.

Additionally, for electricity generation, there are solar panels distributed as follows:

- 31 solar panels on grid system mine maintenance workshop
- 45 solar panels well W-UB-53
- 10 solar panels in 5 wells with PV power on GPRS boards
- 32 solar panels in industrial water wells
- 7 solar panels in well flowmeters

During the year 2020, the consumption of electrical energy for each site was as follows:

- Salar de Atacama: 178,661 MWh
- Salar del Carmen: 44,725 MWh

15.5 Supply of Fuels

15.5.1 Salar de Atacama

The facilities require:

- Diesel: During 2020, 467,636 MBTUs were consumed for extraction wells and production plant operations. Currently, there is a supply contract with the local supplier company (COPEC).

15.5.2 Salar del Carmen

The facilities require:

- Liquefied Petroleum Gas (LPG): For its lithium carbonate operations. During 2020, 2,592 tonnes/year or 118,287 MBTU/year were consumed. Currently, there is a supply contract with a supplier of this supply.
- Liquefied Natural Gas (LNG): For its lithium carbonate operations. During 2020, 481,775 MBTU/year were consumed. Currently, there is a supply contract with the company Engie.

Diesel oil is received through cistern trucks and is stored in one tank, located near the solvent extraction stage.

LPG is received through cistern trucks and is stored in two tanks, located in the central sector of the site (to the south of the Superintendent offices).

LNG is received through the Mejillones gas pipeline and is not stored inside the site.

15.6 Water Supply

15.6.1 Salar de Atacama

Drinking water is obtained through a treatment process by reverse osmosis plants, which are fed from freshwater wells, with a subsequent stage of drinking water. There is currently a contract with the Oservim company, which operates the Reverse Osmosis plant and the TAS plants, which is valid until August 2025. During 2021 there was a drinking water consumption of 131,153 m3/year (~4.2 L/s).

15.6.2 Salar del Carmen

At the Carmen site, the industrial water supplied comes from the wastewater treatment processes of the city of Antofagasta, currently there is a contract with the company Sembcorp (until August 2024), which has allowed supplying, in 2021, almost 73% of the industrial water consumption required by the site. The remaining consumption is supplied through the purchase of water, from desalinated seawater, currently a purchase contract is maintained with the company AES Gener. Industrial water is currently stored in two storage pools with a combined maximum capacity of ~60 m^3.

16 MARKET STUDIES

This section contains forward-looking information related to commodity demand and prices for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this section including prevailing economic conditions, commodity demand and prices are as forecast over the LOM period.

SQM is the world's largest producer of potassium nitrate, iodine and lithium. It also produces specialty plant nutrients, iodine derivatives, lithium derivatives, potassium chloride, potassium sulfate and certain industrial chemicals (including industrial nitrates and solar salts). The products are sold in approximately 110 countries through SQM worldwide distribution network, with more than 90% of the sales derived from countries outside Chile.

The products are mainly derived from mineral deposits found in northern Chile. Mine and process caliche ore and brine deposits. The brine deposits of the Salar de Atacama, a salt-encrusted depression in the Atacama Desert in northern Chile, contain high concentrations of lithium and potassium as well as significant concentrations of sulfate and boron.

At the Salar de Atacama, it extracts brines rich in potassium, lithium, sulfate and boron in order to produce potassium chloride, potassium sulfate, lithium solutions and bischofite (magnesium chloride). It produces lithium carbonate and lithium hydroxide at its plant near the city of Antofagasta (Salar del Carmen), Chile, from the solutions brought from the Salar de Atacama. It markets all of these products through an established worldwide distribution network.

The SQM´s products are divided into six categories to include specialty plant nutrients, iodine and its derivatives, lithium and its derivatives, potassium chloride and potassium sulfate, industrial chemicals, and other commodity fertilizers.

Lithium and its derivatives are mainly used in batteries, greases, and frits for production of ceramics. Potassium chloride is a commodity fertilizer that is produced and sold all over the world. Potassium sulfate is a specialty fertilizer used primarily in crops such as vegetables, fruits, and industrial crops.

Salar de Atacama produces mainly lithium and its derivatives and potassium chloride and potassium sulfate.

16.1 Material Contracts for Salar de Atacama

SQM subsidiary SQM Salar S.A. ("SQM Salar"), as leaseholder, holds exclusive and temporary rights to exploit mineral resources in the Salar de Atacama in northern Chile. These rights are owned by CORFO, a Chilean government entity, and leased to SQM Salar pursuant to 1993 lease agreement over mining exploitation concessions between SQM Salar and CORFO. The Lease Agreement expires on December 31, 2030.

16.2 Lithium and its Derivatives, Market, Competition, Products, Customers

SQM is a leading producer of lithium carbonate, which is used in a variety of applications, including electrochemical materials for batteries used in electric vehicles, portable computers, tablets, cellular telephones and electronic apparatus, frits for the ceramic and enamel industries, heat-resistant glass (ceramic glass), air conditioning chemicals, continuous casting powder for steel extrusion, pharmaceuticals, and lithium derivatives. It is also a leading supplier of lithium hydroxide, which is primarily used as an input for the lubricating greases industry and for cathodes for high energy capacity batteries.

In 2020, the SQM´s revenues from lithium sales amounted to US$383.4 million, representing 21.1% of the total revenues. The lithium chemicals' sales volumes accounted for approximately 19% of the global sales volumes.

Lithium: Market

The lithium market can be divided into:

I. lithium minerals for direct use (in which market SQM does not currently participate directly)

II. basic lithium chemicals, which include lithium carbonate and lithium hydroxide (as well as lithium chloride, from which lithium carbonate may be made), and

III. inorganic and organic lithium derivatives, which include numerous compounds produced from basic lithium chemicals (in which market SQM does not participate directly).

Lithium carbonate and lithium hydroxide are principally used to produce the cathodes for rechargeable batteries, taking advantage of lithium's extreme electrochemical potential and low density. Batteries are the leading application for lithium, accounting for approximately 75% of total lithium demand, including batteries for electric vehicles, which accounted for approximately 54% of total lithium demand. There are many other applications both for basic lithium chemicals and lithium derivatives, such as lubricating greases (approximately 5% of total lithium demand), heat-resistant glass (ceramic glass) (approximately 5% of total lithium demand), chips for the ceramics and glaze industry (approximately 2% of total lithium demand), chemicals for air conditioning (approximately 1% of total lithium demand), and many others, including pharmaceutical synthesis and metal alloys.

During 2020, lithium chemicals demand increased by approximately 6%, reaching approximately 330,000 metric tonnes. It expects applications related to energy storage to continue driving demand in the coming years.

Lithium: Products

The annual production capacity of the lithium carbonate plant at the Salar del Carmen is now 120,000 metric tonnes per year. SQM is in the process of increasing the production capacity to 180,000 metric tonnes per year. Technologies used, together with the high concentrations of lithium and the characteristics of the Salar de Atacama, such as high evaporation rate and concentration of other minerals, allow SQM to be one of the lowest cost producers worldwide.

The lithium hydroxide facility has a production capacity of 21,500 metric tonnes per year and SQM is in the process of increasing this production capacity to 30,000 metric tonnes per year. In addition, in February 2021 SQM approved the investment for the 50% share of the development costs in the Mt. Holland lithium project in the joint venture with Wesfarmers, which SQM expects will have a total production capacity of 50,000 metric tonnes.

Lithium: Marketing and Customers

In 2020, SQM sold the lithium products in 42 countries to 187 customers, and most of the sales were to customers outside of Chile. SQM make lease payments to CORFO which are associated with the sale of different products produced in the Salar de Atacama, including lithium carbonate, lithium hydroxide and potassium chloride.

SQM sells lithium carbonate and lithium hydroxide through the own worldwide network of representative offices and through the sales, support, and distribution affiliates. In December 2020, SQM signed a nine-year sales contract with LG Energy Solution for up to 55,000 metric tonnes of lithium carbonate equivalent.

Lithium: Competition

Lithium is produced mainly from two sources: concentrated brines and minerals. During 2020, the main lithium brines producers were Chile, Argentina and China, while the main lithium mineral producers were Australia and China.

With total sales of approximately 64,600 metric tonnes of lithium carbonate and hydroxide, SQM's market share of lithium chemicals were approximately 19% in 2020.

One of the main competitors is Albemarle Corporation ("Albemarle"), which produces lithium carbonate and lithium chloride in Chile and the United States, along with lithium derivatives in the United States, Germany, Taiwan and China, with a market share of approximately 22%.

Albemarle also owns 49% of Talison Lithium Pty Ltd. ("Talison"), an Australian company, that is the largest producer of concentrated lithium minerals in the world, based in Western Australia. The remaining 51% of Talison is owned by Tianqi Lithium Corp. ("Tianqi"), a Chinese company producing basic lithium chemicals in China from concentrated lithium minerals. Talison sells a part of its concentrated lithium mineral production to the direct use market, but most of its production, representing approximately 21% of total lithium chemical demand, is converted into basic lithium chemicals in China by Tianqi and Albemarle. They are planning to begin production at its lithium hydroxide plant in Australia in late 2021. Tianqi is also a significant shareholder of SQM, holding 25.86% of the shares.

Another important competitor is Livent Corporation ("Livent"), with an estimated market share of approximately 6%. Livent has production facilities in Argentina through Minera del Altiplano S.A., where it produces lithium chloride and lithium carbonate. In addition, Livent produces lithium derivatives in the United States, the United Kingdom and China. Orocobre Ltd., based in Argentina, produces lithium carbonate, with a market share of approximately 3%.

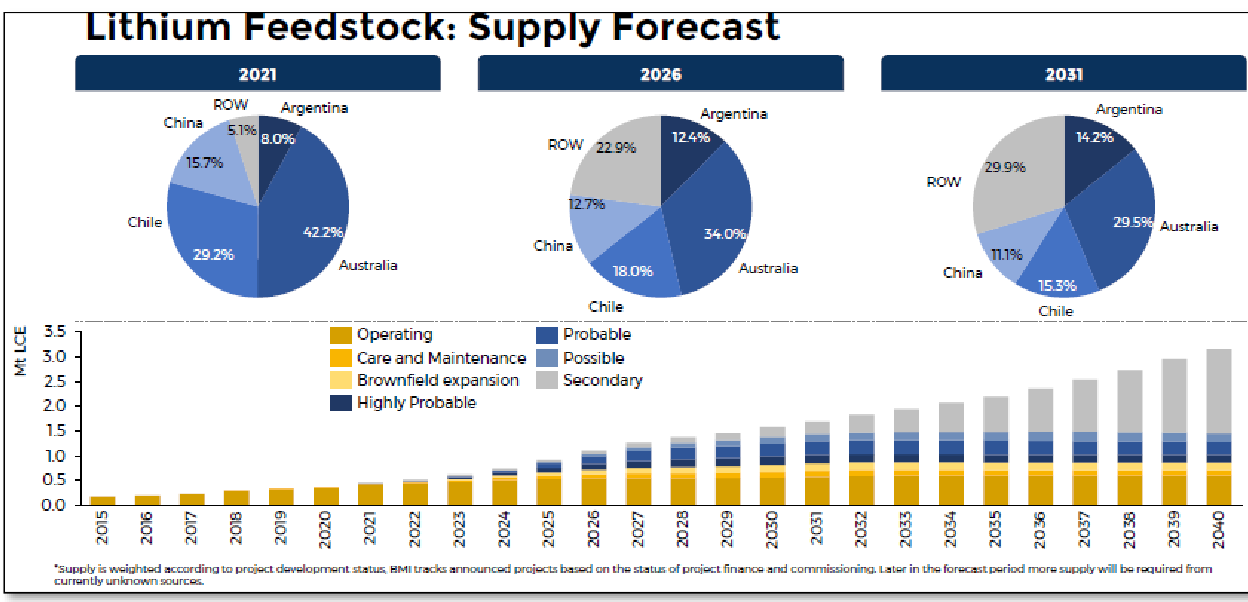
In addition, there were at least ten other companies producing lithium in China from brines or minerals in 2020.

It is expected that lithium production will continue to increase in the near future, in response to an increase in demand growth. A number of new projects to develop lithium deposits has been announced recently. Some of these projects are already in the advanced stages of development and others could materialize in the medium term.

16.3 Supply

According to Benchmark Mineral Intelligence "Q3 2021 Forecast", 2021 mined supply has been revised up to 458.6 kt LCE. It is estimated that 136.3kt of lithium hydroxide and 283kt of lithium carbonate will be produced in 2021. This increase is unlikely to meet rising demand, placing both chemicals in a deficit position, reflecting the strong demand-pull for feedstocks currently being felt in China.

Figure 16-1. Lithium Feedstock, supply forecast



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

In China is expected to produce around 153kt LCE of lithium carbonate, and 110kt LCE of lithium hydroxide in 2021. The majority of feedstock is imported. Most lithium chemical production in China is produced from Australian spodumene, in addition to a very small amount imported from Brazil. Supplementing this, and largely feeding directly into battery demand, is 41kt LCE of lithium carbonate imported from Chile and Argentina in 1H21.

In Australia, there are four spodumene producers currently operating, with around 191kt LCE of spodumene concentrates expected to be produced in 2021.

In Argentina, there are currently two lithium producers: Livent and Orocobre. These producers operate from the Salar del Hombre Muerto and Salar de Olaroz respectively. Expectations on output for 2021 remains unchanged this quarter, with both operating at or close to production capacity.

SQM is expected to produce 90kt LCE of lithium carbonate at Salar del Carmen (up from 78kt LCE previously) and convert 10kt LCE of this to lithium hydroxide. Output is not expected to reach 130kt LCE capacity until around 2023, with production from a second round of expansions not expected to hit markets until 2025. Albemarle is expected to produce around 42kt LCE of lithium carbonate in 2021. MSB (majority owned by Lithium power International) is targeting an initial capacity of 15kt LCE for its Maricunga project, not expected to enter the market until 2025 at the earliest.

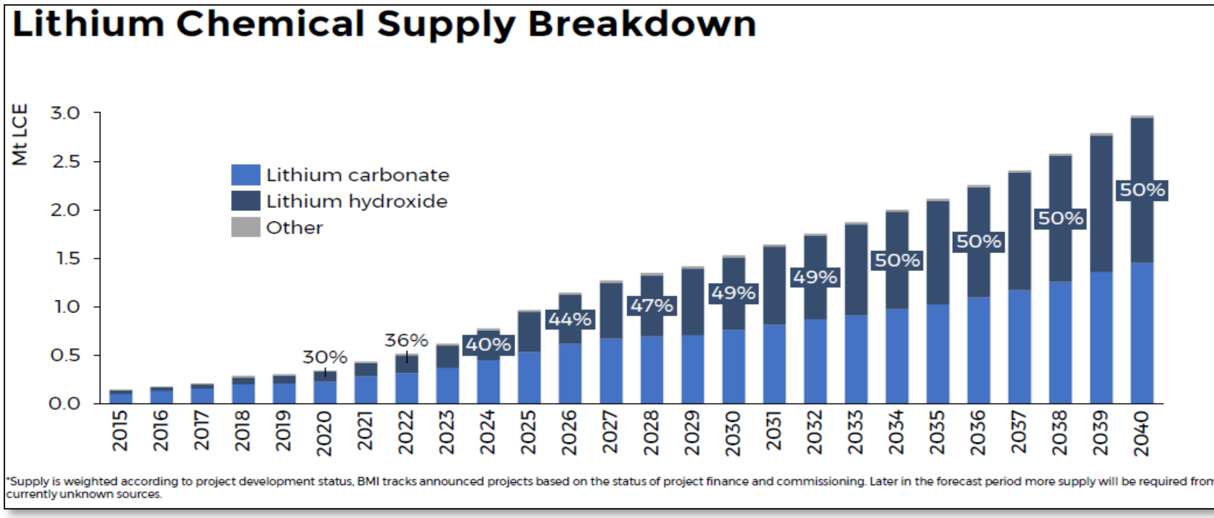
16.4 Demand

Demand estimates for lithium in LFP (Lithium Ferro Phosphate) cathodes have increased in Q3 2021 to 66.4kt LCE in 2021. Medium and long-term demand has also been revised upwards as cell manufacturers continue to bring new LFP capacity into production.

Increased demand for LFP cathodes comes at the expense of NCM (Nickel, Cadmium and Manganese) cathodes. LFP cathode market share is expected to make up roughly 22% of cathode demand in 2030, while NCM has been downgraded to 60% of the market.

Total base-case battery demand is expected to climb to 346 GWh in 2021, translating to an adjusted 339kt LCE lithium demand in 2021, up from 225kt LCE in 2020. Adjusted base case demand from battery end-use is expected to reach 473kt LCE in 2021. The upward revision comes as China’s EV penetration rates continue to climb.

Figure 16-2. Lithium Chemical Supply Breakdown



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.5 Balance

Short-term market

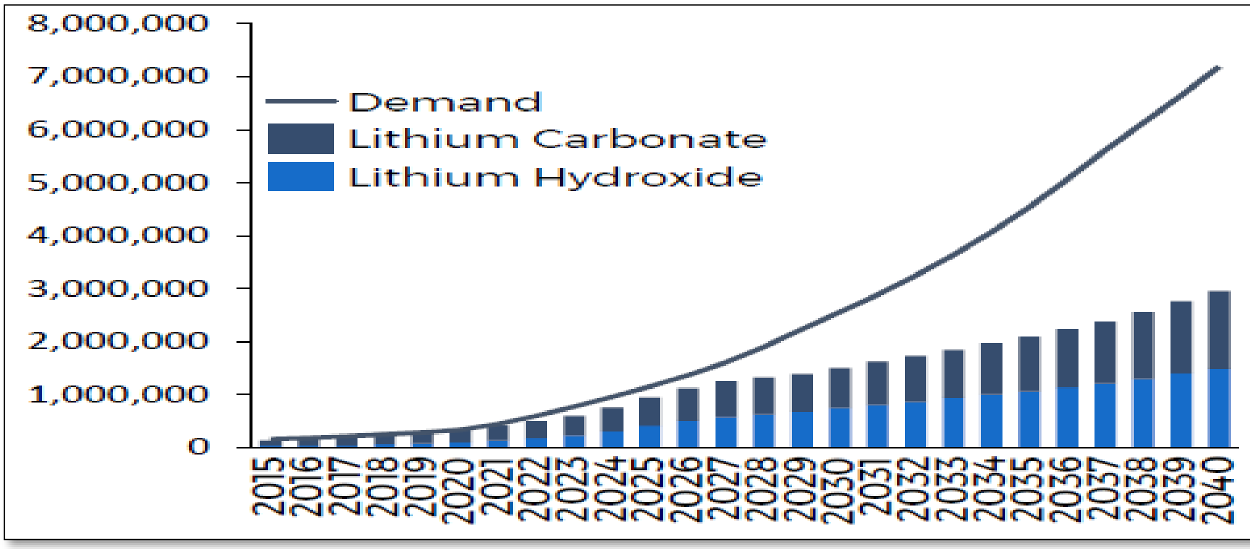
- 2021 is expected to finish in a deficit position of around 14.8kt LCE tonnes. The deficit position is despite a stronger than expected response from Talison and SQM, with the latter being able to leverage pond capacity originally intended for the potash market.
- 2021 base-case demand has been revised up to 473kt LCE this quarter, with further upside potential.
- The deficit in lithium chemicals is greater than that of overall supply, owing primarily to conversion losses but also the lack of ability to ramp up to full capacity targets, particularly in China.
- A renewed focus on LFP battery production is expected keep pressure on carbonate supply in the short-term. This latest update shifts the deficit more heavily towards carbonate from 2021-2023.

Medium to long term market dynamics

- 2023 is expected to be in a significant deficit position despite the restart of various idled operations.
- Due to the ramp-up time and investment required to bring new projects online, there is little chance that the market will move into surplus before 2025.
- In the extremely unlikely event that all projects to enter production on or before 2025, the market has the potential to balance from that year until 2029. However, in this case, it would be likely that demand would enter an upside scenario, placing the market back into a deficit.

- It is likely that in the medium-long term that PEV penetration will be limited by material supply, rather than demand.

Figure 16-3. Lithium Carbonate and Hydroxide demand



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.6 Lithium Price

Historic Price Evolution (in Chinese Yuan)

Figure 16-4. Lithium historic Price Evolution

Source: https://tradingeconomics.com/commodity/lithium

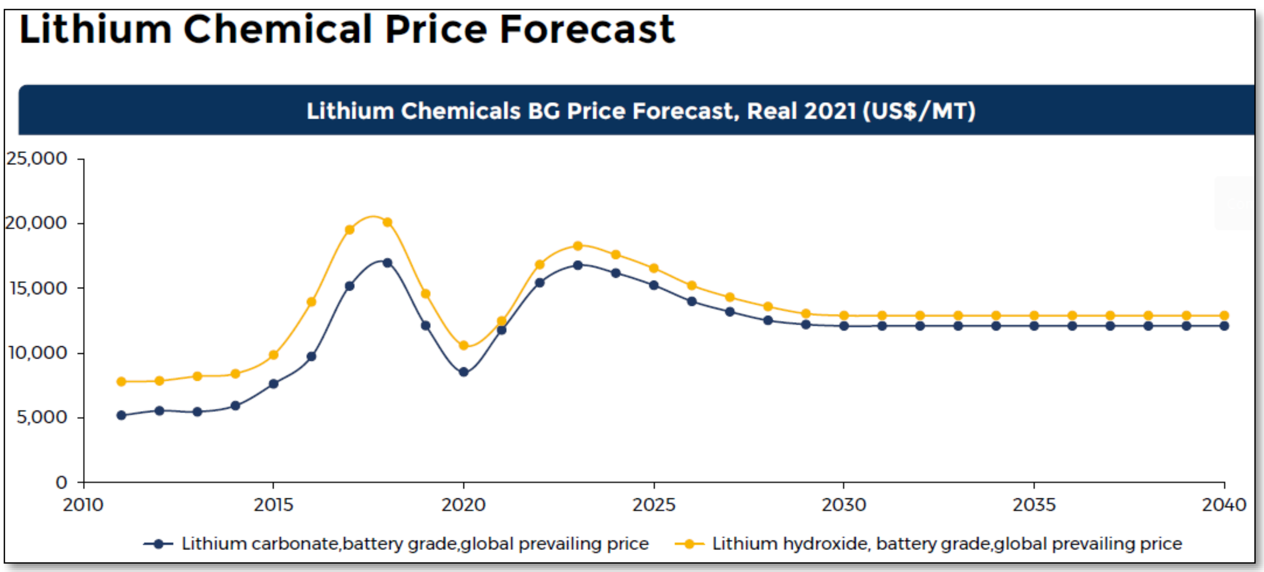
Short term

- In the near-term, prices are expected to continue to rise as demand outstrips supply, with no additional tonnage available to ease market tightness in the coming months.

Long term

- Prices are expected to increase but likely to be unsustainable at US$16,000-18,000/ton. Even in the case where supply cannot meet demand, prices will likely stay high but fall back to a sustainably higher price which is able to incentivize new supply. While the chemicals industry in China seems to have little barrier to ramping up, supply bottlenecks at the mine-site level exist and will need to be solved.
- Long-term price incentives: it remains the view that long-term incentive price for lithium carbonate of USD12,110/ton will be required to sustain new project development post-2030.

Figure 16-5. Lithium chemical Price forecast



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.7 Potassium

SQM produces potassium chloride and potassium sulfate from brines extracted from the Salar de Atacama. Potassium chloride is a commodity fertilizer used to fertilize a variety of crops including corn, rice, sugar, soybean, and wheat. Potassium sulfate is a specialty fertilizer used mainly in crops such as vegetables, fruits, and industrial crops.

Potassium Market, Competition, Customers, Products

In 2020, the potassium chloride and potassium sulfate revenues amounted to US$209.3 million, representing 11.5% of the total revenues and a 1.3% decrease compared to 2019, because of decreased average prices. SQM accounted for approximately 1% of global sales of potassium chloride in 2020. Since 2009, the effective product capacity has increased to over 2 million metric tonnes per year, granting us improved flexibility and market coverage.

Potassium: Market

During the last decade, growth in demand for potassium chloride, and for fertilizers in general, has been driven by several key factors, such as a growing world population, higher demand for protein-based diets and less arable land. All these factors contribute to fertilizer demand growth as a result of efforts to maximize crop yields and use resources more efficiently. For the last ten years, the compound annual growth for the global potassium chloride market was approximately 1 to 2%. That demand increased 3 million metric tonnes in 2020, reaching approximately 67 million metric tonnes.

Potassium: Products

Potassium chloride differs from the specialty plant nutrition products because it is a commodity fertilizer and contains chloride. SQM offers potassium chloride in two grades: standard and compacted. Potassium sulfate is considered a specialty fertilizer and SQM offer this product in soluble grades. The following table shows the sales volumes of and revenues from potassium chloride and potassium sulfate for 2020, 2019 and 2018:

Table 16-1. Volumes of and Revenues from Potassium Chloride and Potassium Sulfate

	2020	2019	2018
Potassium chloride and potassium sulfate (Th. MT)	726.7	597.3	831.8
Total revenues (in US$ millions)	209.3	212.2	267.5

The sales volumes in 2020 were approximately 21.7% higher than sales volumes reported last year. Average prices for potassium chloride during the fourth quarter of 2020 were about US$244/metric ton, flat when compared to the third quarter of 2020.

Potassium chloride and potassium sulfate revenues for the nine months ended September 30, 2021, totaled US$208.0 million, higher than revenues reported for the nine months ended September 30, 2020, which totaled US$143.0.

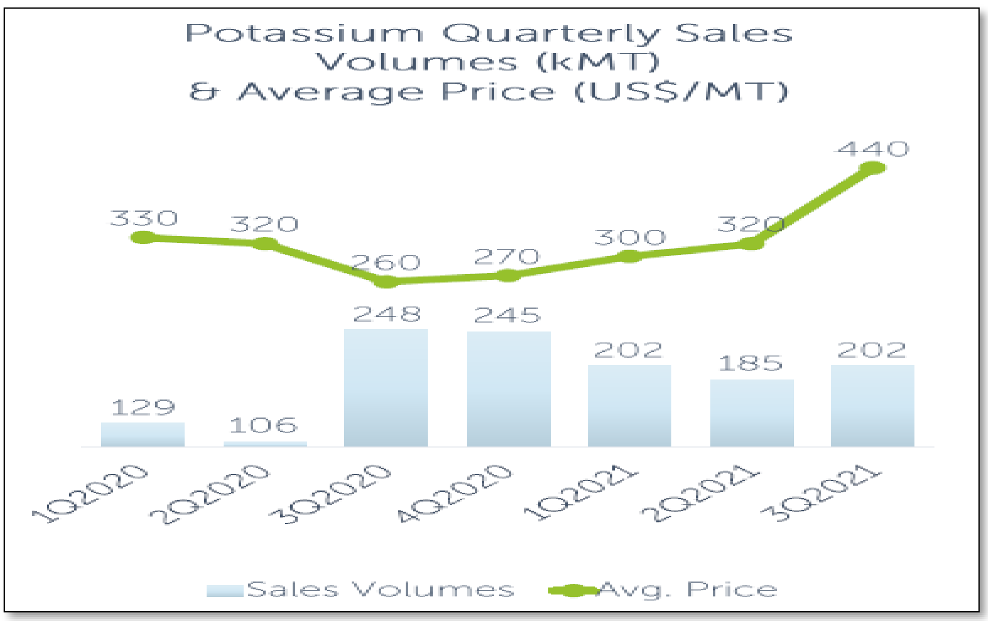
Potassium Chloride and Potassium Sulfate Volume and Revenues:

Table 16-2. Potassium Chloride and Potassium Sulfate Volume and Revenues

		9M2021	9M2020	2021/2020	
Potassium Chloride and Potassium Sulfate	Th. MT	588.6	482.1	106.5	22.1%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	208.0	143.0	65.0	45.5%
		3Q2021	3Q2020	2021/2020	
Potassium Chloride and Potassium Sulfate	Th. MT	201.8	247.5	-45.7	-18%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	88.7	65.5	23.3	36%

Source: SQM Reports Earnings for third Quarter of 2021

Figure 16-6. Potassium Quarterly Sales Volumes and Average Price



Source: SQM Third Quarter 2021 Results

Average prices in the potassium market increased significantly in the first nine months of 2021, with an SQM realized average price close to US$ 440 per metric ton in the third quarter, an increase of over 66% compared to the same period of 2020.

Potassium: Marketing and Customers

In 2020, SQM sold potassium chloride and potassium sulfate to approximately 509 customers in 41 countries. No individual customer accounted for more than 10% of the revenues of potassium chloride and potassium sulfate in 2020. SQM sends about 10% of its production to another SQM facility (Coya Sur) as raw material for production of Nitrates. SQM make lease payments to CORFO which are associated with the sale of different products produced in the Salar de Atacama, including lithium carbonate, lithium hydroxide and potassium chloride.

Potassium: Competition

SQM accounted for approximately 1% of global sales of potassium chloride in 2020. Main competitors are Nutrient, Uralkali, Belaruskali and Mosaic. In 2020, Belaruskali accounted for approximately 18% of global sales, Nutrient accounted for approximately 19% of global sales, Uralkali accounted for approximately 16% of global sales, and Mosaic accounted for approximately 14% of global sales.

17 ENVIRONMENTAL STUDIES, PERMITTING AND PLANS, NEGOTIATIONS OR AGREEMENT WITH LOCAL INDIVIDUAL OR GROUPS

This sub-section contains forward-looking information related to permitting requirements, plans and agreements with local individuals or groups as related to the project the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including regulatory framework is unchanged for Study period and no unforeseen environmental, social or community events disrupt timely approvals and project execution.

The following section details the regulatory environment of the Project. It presents the applicable laws and regulations and lists the permits that will be needed in order to begin the mining operations. The environmental impact assessment (EIA) process requires that data be gathered on many components and consultations be held to inform the Project relevant stakeholders. The main results of this inventory and consultation process are also documented in this section. The design criteria for the water and mining waste infrastructure are also outlined. Finally, the general outline of the mine's rehabilitation plan is presented to the extent of the information available now.

17.1 Environmental Studies

The Law 19,300/1994 General Bases of the Environment (Law 19.300 or Environmental Law), its modification by Law 20.417/2010 and Supreme Decree N°40/2012 Environmental Impact Assessment System regulations (DS N°40/2012 or RSEIA)) determines how projects that generate some type of environmental impact must be developed, operated, and closed. Regarding mining projects, the art. 10.i of the Environmental Law defines that mining project must be submitted to the Environmental Impact Assessment System (SEIA) before being developed.

Salar de Atacama project is in the commune of San Pedro de Atacama commune in Antofagasta Region. The Project produces mainly potassium chloride and low lithium chloride solution for the production of lithium hydroxide, and lithium carbonate in Sala del Carmen- Antofagasta. The productive process considers the extraction of underground water and the extraction of brine from Salar de Atacama.

17.1.1 Base Line of different components

Each time the project has been submitted to the SEIA, baseline environmental studies have been carried out. The following is a more detailed analysis of the baseline components, taking into consideration the EIA of the project "Plan de Reducción de Extracciones en el Salar de Atacama" submitted in January 2022 and other previous studies:

17.1.1.1 Soil and land use:

In the area of influence of the project were identified 5 soil units, which are:

- Soil in old alluvial fans: the use observed in this unit was seasonal grasslands with very open cover or shrublands with very open to open canopy cover
- Soil in active channels and recent alluvial fans: the use observed in all the sampling points is seasonal grasslands with very open cover or shrublands with very open to open canopy cover
- Soil in depressive area: the use soil observed in all the samplings points was hydromorphic vegetation.
- Soil in evaporitic deposit in transition: the used observed in all the samplings points is shrublands with variable cover between very open to dense
- Soil in evaporitic deposit: in all samplings points was observed bare soil.

Additionally, two other units were observed. The units observed were lagoons and intervened areas. The intervened areas are areas where the original characteristic were modified as consequence of construction of towns, or mine operations in the area.

Table 17-1. Soil units observed in the project area

Unit	Soil use classification	Surface (ha)
Soil in old alluvial fans	VI-VIII	3.56
Soil in active channels and recent alluvial fans	VII-VIII	2.18
Soil in depressive area	V	1,039.02
Soil in evaporitic deposit in transition	VIII	1.74
Soil in evaporitic deposit	VIII	8.62

17.1.1.2 Terrestrial fauna

The EIA submitted in January 2022, identified a total of 60 species in the study area: 1 amphibian species, 4 reptile species, 42 bird species and 13 mammal species. of the total species observed 22 are listed according with their conservation status, 1 of them considered as a threatened species (Lagartija de Fabián).

17.1.1.3 Vegetation

In the area of influence were observed the following type of vegetation:

- Bushes (19,1 % of the total surface).
- Grasslands (8% of the total surface).
- Mixed formations conformed by bushes and herbaceous (1% of the total surface).
- Xerophyte plants which are originated from the presence of Proposis alba and Proposis tamarugo.
- Vascular Flora: 36 species are in this area.

Of the total of species observed, 2 species are native of Chile (Proposis alba and Proposis tamarugo) and 3 species are in some conservation category (Proposis alba, Nitrophila atacamensis and Proposis tamarugo).

17.1.1.4 Aquatic Flora and Fauna

In the EIA submitted in 2022, it was defined as area of influence the easter and southern edge of the Salar de Atacama, divided in 5 sectors (Solor, Soncor, Aguas de Quelana, Peine and Tilopozo)

Due to the chemical and hydrological conditions of a salt flat, the aquatic flora and fauna found there are mainly microalgae and microinvertebrates existing in the different lagoons of the sector, which serve as food for the flamingo populations present there.

As general points, it has been found that the benthonic microalgae populations have a significative association to nitrite, the phytoplankton and zooplankton communities are no linked to any variable of water quality and zoobenthos communities are associated to a combination of calcium, electrical conductivity and total nitrogen.

17.1.1.5 Hydrology and Hydrogeology

The Salar de Atacama basin is an endorheic basin, infiltrating much of its feed water as it moves towards the center of the salar. Rainfall occurs mainly during the months of December to March. In the Salar basin 5 morphometric zones were observed. Table 17-2 details each zone.

Table 17-2. Hydrological Zones Defined in Salar Basin

Zone	Surface (km2)	Characteristics
Nucleus Zone	1,328.1	Has a low altitudinal variation, with an almost completely flat surface without surface runoff almost all year
Marginal Zone	1,648	It is characterized by very low topographic gradients, with no surface runoff throughout the year, except for the Burro Muerto Channel, which originates from groundwater emergence
Alluvial Zone	2,219.4	It is characterized by a low to medium topographic gradients, without superficial runoff during almost all year.
Subbasin zone	11,550.4	It has two domains divided by a north-south axis: the Andean subzone (east) is characterized by medium to high topographic gradients, with permanent or intermittent surface runoff throughout the year. In this subzone are the streams and rivers that recharge the Salar, whose resources come from precipitation in the upper and middle zones of the basin. In the Domeyko subzone (west) the gradients are generally high, with no permanent runoff throughout the year, except during significant rainfall events.
Arreicas zone	252.3	It is characterized by combined topographic and lithological characteristics that prevent them from being grouped in the previous classification and, in turn, do not allow the generation of any type of runoff during the year

- Additionally, 5 local system existed in the area, which are: Soncor System: Located to the northwest of the Núcleo del Salar, it holds the Puilar, Chaxa and Barros Negros lagoons. Aguas de Quelana Systems: this system is conformed for a group of shallow lagoons, located in a flat topographic zone.
- Peine System: Located southeast of the Salar Core, containing the Salada, Saladita and Interna lagoons, aligned in a southeast-northwest direction.
- Tilopozo System: Located to the south of the salar core and home to a series of vegas (most notably the Vega de Tilopozo) in addition to the La Punta and La Brava lagoon systems.

In particular, RCA 226/2006 establishes as objects of protection the Puilar, Chaxa and Barros negros lagoons (Soncor system); the vegetation of the Borde Este system, the lagoon bodies of the Aguas de Quelana system, the Salada, Saladita and Interna lagoons (Peine system) .

The latest baseline study prepared by SQM found that the water level in the nucleus of the salt flat and the alluvial aquifer system have been affected by the water extraction carried out between 1986 to 2020. Regarding the core of the Salar the largest declines occurred in the West block. In the alluvial aquifer system, the cones of descent of the extraction wells can be seen; however, in the marginal area, the decline is insignificant.

Figure 17-1. Salar de Atacama and SQM Main Areas

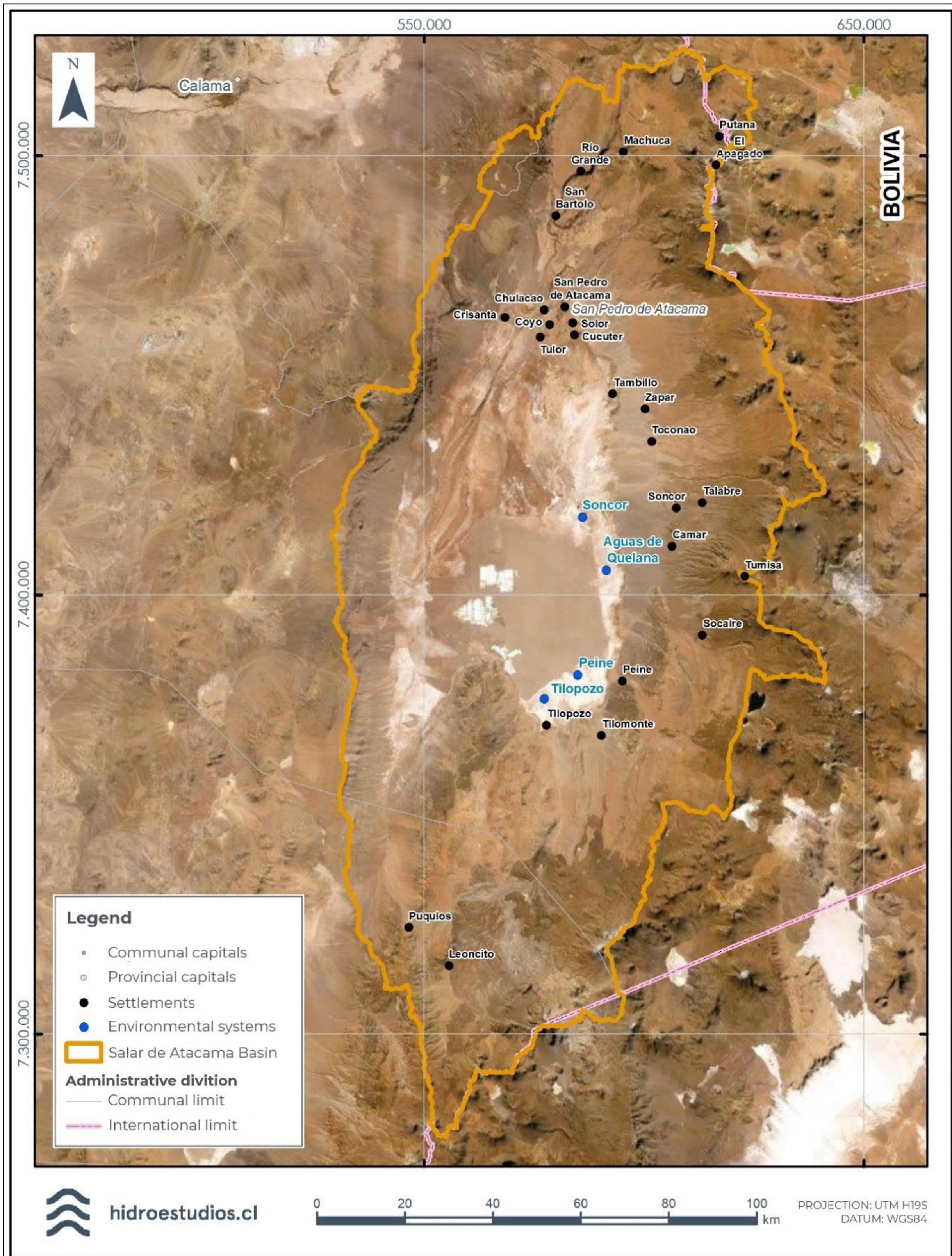


Figure 17-2. Location of Existing Wells in the Salar de Atacama

17.1.1.6 Cultural Heritage

Regarding cultural heritage, in the latest EIA no historical monuments or archeological findings were found in the area of influence.

However, considering the characteristic of the area it is not possible to rule out unanticipated findings are encountered during the construction of the works.

Regarding paleontological component, the presence of Quaternary sedimentary units was confirmed in the field, which correspond to the Salar de Atacama Saline Deposits (PlHs), Alluvial Deposits (PlHa) and Recent Alluvial and Fluvial Deposits (Ha).

In the case of the Alluvial Deposits (PlHa), paleontological findings were made at two control points, corresponding to ichnofossils, so it was granted a Medium to High paleontological potential and a Fossiliferous paleontological category.

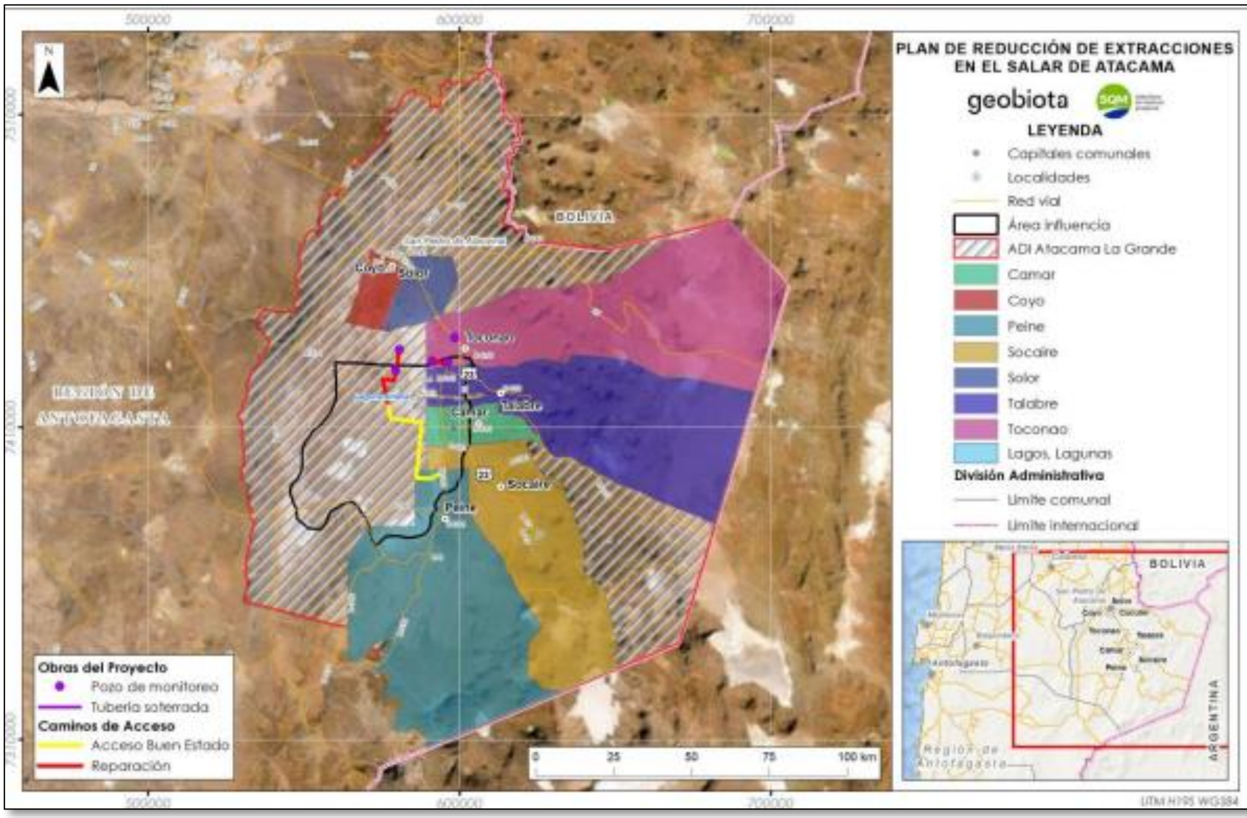
On the other hand, the units Saline Deposits of the Salar de Atacama (PlHs) and Recent Alluvial and Fluvial Deposits (Ha) were assigned a Medium to High paleontological potential and a Fossiliferous paleontological category.

17.1.1.7 Human Environment

The project and its area of influence are located within the Atacama La Grande Indigenous Location Area (ADI), a place historically inhabited by the Atacameño people. Here they have developed grazing and natural resource gathering activities. The communities located in the area are those that inhabit of the following localities:

- Locality of Toconao
- Locality of Talabre
- Locality of Camar
- Locality of Socaire
- Locality of Peine
- Rural entity of Coyo
- Rural entity of Solor
- Rural entity of Cucuter

Figure 17-3. Salar de Atacama's Human Environment



17.1.2 Environmental Impact Assesment

Since the begging of the Project operation in 1996, the holder has submitted different DIAs/EIAs to the SEIA. The environmental authority has issued 20 permits have been issued to SQM Salar S.A., but just 13 to authorize the operation of Atacama site and 7 to authorize Lithium Plant in Salar del Carmen.

The project was submitted through an Environmental Impact Study for an eventual affection of the groundwater level as a consequence of water and brine extraction. To avoid impacts in the groundwater the RCA 226/2006 defined an Environmental Monitoring Plan focused on monitoring underground water (quality and quantity), flora and vegetation, and Fauna on 6 natural systems which are "Sistema Lacustre Soncor", "Sistema Aguas de Quelana", "Sistema Peine", "Sistema Vegetación Borde Este" and "Sector Vegas de Tilopozo"

In 2016, as consequence of six non-compliance with the environmental commitment stablished in the environmental authorizations (RCA), the Environmental Superintendency started a sanction process against SQM. The infractions formulated by the SMA were the following:

- Extraction of brine over the amount authorized between 2013 and 2015: this infraction was qualified as serious.
- Failure to take measures to deal with the affectation of Algarrobo trees around the well called Camar 2: this infraction was qualified as serious
- Provide incomplete information about freshwater and natural systems linked to a water source: this infraction was qualified as minor
- The Contingency Plan (Environmental Monitoring Plan) implemented for Peine System (Sistema Peine) doesn't have the same characters as the Contingency Plan of the others systems. The Contingency Plan developed for Peine System doesn't allow to ensure maintaining the conditions of the system: this infraction was qualified as serious
- Lack of analysis of the historical data regarding meteorology, hydrological variables, and others: this infraction was qualified as minor
- Modification of the Contingency Plan (Environmental Monitoring Plan) without having environmental authorization: this infraction was qualified as very serious.

In this context, the company submitted a compliance program (PdC) to correct noncompliance. This PdC was approved in 2019 (Res. 24/2019), however, as consequence of claims presented by indigenous communities located around the project, it was revoked by the Environmental Court and the processing of the PdC was restarted.

SQM submitted a new version of the PdC in September 2021, and currently it's being reviewed by the SMA and receiving the comments of indigenous communities. If the SMA doesn't approve the PdC, the sanction process will continue, and the applicable penalties could be the revocation of the RCA, the closure of the project or fines of up to 10,000 UTA for each infraction.

Even though the PdC has not yet been approved, SQM is already implementing it. In fact, several of the actions proposed by SQM have already been executed such as:

- Reduction of the total net brine extraction flow, with respect to the authorized flow, by 9,800,922 m^3;
- Closure and dismantling of Camar 2 well.
- Online monitoring system (sqmsenlinea.com), including updated information of hydrogeological and biotic variables and parameters.
- To carry out a diagnosis of the environmental monitoring information available in the Salar de Atacama Basin;
- Inform the sectoral authority about changes in the presentation of vegetation cover data of the Biotic Environmental Monitoring Plan starting in 2013 and submit a "Consulta de Pertinencia" (screening analysis request) regarding those modifications;

- Define the wells of the Environmental Monotoring Plan of “Sistema Peine” that will be considered as System status indicators and assign them thresholds that will allow for the adoption of measures;
- Define control measures to be implemented in case the activation condition of phase I and phase II is verified in the “Sistema Peine”;
- Correlation study of hydrological, hydrogeological and meteorological variables with soil pH and salinity;

Correlation study of historical meteorological events with microenvironmental variables.

Additionally, in November 2021 (Res. 2389/2021) the SMA ordered provisional procedural measures, for a period of 30 days, against SQM, due to the fact that the approved PdC was left without effect by judgment Rol R-017-2019 of the First Environmental Court, a situation that could imply risk situations of damaging the environment and people's health. These measures mandate: to continue the implementation of the PdC, i.e to continue the operation of the online monitoring system for brine extraction; to continue the operation of an online monitoring system for industrial water extraction, available through its website; to apply the activation thresholds of Phase I and II, defined for the Peine System, both in the monitoring of the project qualified by RCA N° 226/2006, as well as in wells PN-05B and PN-08A of the sector “Alerta Núcleo” of the Plan de Alerta Temprana (point 10.18 of RCA No. 21/2016), and the corresponding control measures, when appropriate; and, finally, restrict the maximum brine flow to be pumped to 1280 l/s and the maximum industrial water flow to be pumped to 120 l/s.

It should be added, in May 2020 SQM submitted to the SEIA the EIA of the Project “Actualización Plan de Alerta Temprana y Seguimiento Ambiental, Salar de Atacama”, with the objective to modify and update the Early Warning Plan. However, this project was withdrawn in May 2021 in order to update baseline studies, since it was not processed by the Environmental Assessment System (SEA) due to Covid 19-based lockdowns and additional health measures

Finally, on January 24, 2022, SQM submitted to the SEIA the EIA of the Project “Plan de Reducción de Extracciones en el Salar de Atacama” in order to reduce the maximum amount of brine to be pumped from the authorized extraction zones in the core of the Salar and water to be extracted from wells located in the alluvial zone on the eastern margin of the Salar; implement adjustments to the environmental monitoring plan and early warning plans, and adopt measures associated with the loss of Algarrobo specimens in the Camar-2 well sector. This study was admitted for processing on January 31, 2022, and it’s currently under environmental impact assessment process. It’s worth mentioning that the presentation of this EIA was incorporated as a commitment in the Compliance Program proposed in the sanctioning process F-041-2016 of the SMA.

17.2 Environmental Management Plan

17.2.1 Requirements and Plans for Waste Disposal

Two types of waste are generated during mining operations. Mineral and non-mineral wastes. The chapter 14 detailed the amount of wastes generated.

- Mineral wastes:

  In this case, the mineral wastes or mining residues correspond to inert salts called waste salts, which vary according to the type of product. These salts are transported to certain areas for deposit, piled on the ground in the form of piles and located in the core of the Salar. The area of disposal was approved by the sectorial authority with a total surface of 20.35 km^2 divided in 12 areas with a maximum height of 30 m per deposit. However, currently de deposit area has a total surface of 17 km2.

  Regarding the management of these deposits, it should be noted that the hygroscopic properties of the salts that make up the deposits favor their high capacity for compaction and subsequent cementation.

  The storage area does not have a rainwater collection or management system, given that the porosity of the soil in the salt flat area allows rainwater to infiltrate naturally into the ground. Historically, there have been very few episodes of rainfall in the study area that could be considered for a rainwater harvesting or management solution.

  The waste salt deposits are monitored annually to verify that they are in accordance with the design variables.

- Non-mineral wastes:

  The disposal of this type of waste has the current environmental and sectoral legal authorizations described in section 17.3 below.

  In addition, the company's 2020 Sustainable Development Plan contains a set of commitments, including reducing industrial waste generation by 50% by 2025.

17.2.2 Monitoring and Management Plan Defined in the Environmental Authorization

In the Environmental Impact Study for the "Cambios y Mejoras de la Operación Minera en el Salar de Atacama" project, one of the commitments established in the RCA (RCA 226/2006) corresponds to the implementation of an Environmental Monitoring Plan (Plan de Seguimiento Ambiental), which aims to evaluate the state of the Salar de Atacama systems over time. This monitoring plan includes:

- Measurements of water levels and physicochemical quality of the water
- Measurements of meteorological variables, through two stations

The Biotic Environmental Monitoring Plan (PSAB) is used to track relevant variables to verify the state of vegetation, flora, fauna, and aquatic life in the ecosystems to be protected. The PSAB of the Salar de Atacama contemplates vegetation evaluations, in April of each year, to detect the extent of change at the end of the vegetative growth period of each season.

Regarding the report of April 2020, it was necessary to carry out a complementary campaign. This was because in April it was not possible to collect all the data for the period due to restrictions derived from Resolution N°56/2019, which approves the protocol for entering Sectors 4, 5, and 7 of Los Flamencos National Reserve. The sanitary restricts surrounding the Covid-19 pandemic contributed to this issue.

SQM also has a Hydrogeological Environmental Monitoring Plan to maintain control over the relevant hydrogeological variables in environmentally sensitive areas This is an extensive monitoring network that includes 225 monitoring points, 112 shallow wells, 84 deep wells, 5 freshwater pumping wells, 18 grids (surface water), 4 surface water gauges, 2 meteorological stations, and 48 continuous measurement points.

Regarding this Plan compromised in RCA 266/2006, biannual reports of water monitoring show that Phase 1 of the Contingency Plan was activated in 2018 in the areas of “Sistema Peine”, “Sistema Soncor” and “Sistema Agua Quelana” (note that the plan was deactivated in some wells after January 2019 rains), and during 2019 in “Sistema Vegetación Borde Este”. Phase 2 was activated during 2019 in “Sistema Soncor”; however, this was due to natural causes. In Phase 2, different measures must be developed, including the reduction of brine extraction. Additionally, during 2019, SQM has not been able to monitor inSistema Peine due to issues with the homonymous local community which has not allowed the entrance to the wells sector. This makes it impossible to complete the monitoring of the variables in this area .

According to the report for the reporting period January 2020 to June 2020, there was one activation and subsequent deactivation of Phase II (corresponding to Hydromorphic Vegetation) and for Phase I, the activation of eight indicators (of the 37 that make up the Contingency Plan), corresponding to the Soncor system and Brea-Atriplex and Hydromorphic Vegetation, adopting in all cases the committed control actions. The rest of the monitored variables showed a stable behavior, with no relevant variations except for specific situations that would not reflect a long-term trend of the system.

Concerning the report (for the reporting period July 2020 to December 2020), there was one activation and subsequent deactivation of Phase II (corresponding to status indicators L1-5 and L1-G4 of the Soncor System). During this period, there were six indicators that were shown with Phase I activated, which in some cases was continuous during the entire period (L7-6, L2-7, and L1-3 of the Borde Este- Brea Atriplex Vegetation System); in others it was intercalated with the deactivations of the Contingency Plan (L1-5 of the Soncor System and L2-28 of the Borde Este-Brea Atriplex Vegetation System), or with the activation of Phase II (mentioned above). In all cases, the committed control actions were adopted. The rest of the monitored variables showed a stable behavior, with no relevant variations except for specific situations that would not reflect a long-term trend of the system. This leads to the conclusion that the objects of protection are within their natural variability and within the expected range.

Likewise, during 2020, SQM couldn't monitor the Peine System since the community didn't allow the entrance to the wells sector.

The 2021 reports have not yet been submitted by SQM to SMA.

Also, to verify the compliance with the environmental commitments established in the RCA, the COREMA of Antofagasta ordered SQM to conduct an annual Independent Environmental Audit (AAI). Golder Associates S.A. is the independent consultant selected by COREMA, according to Ord. N° 383 of April 8, 2009, and hired by SQM in the same year to perform the AAI of the Project. Additionally, most of the environmental monitoring is performed by accredited, independent inspectors under an Enforcement Technical Entity (ETFA), supervised by the Enforcement Authority (SMA).

17.2.3 Requirements and Plans for Water Management during Operations and After Closure

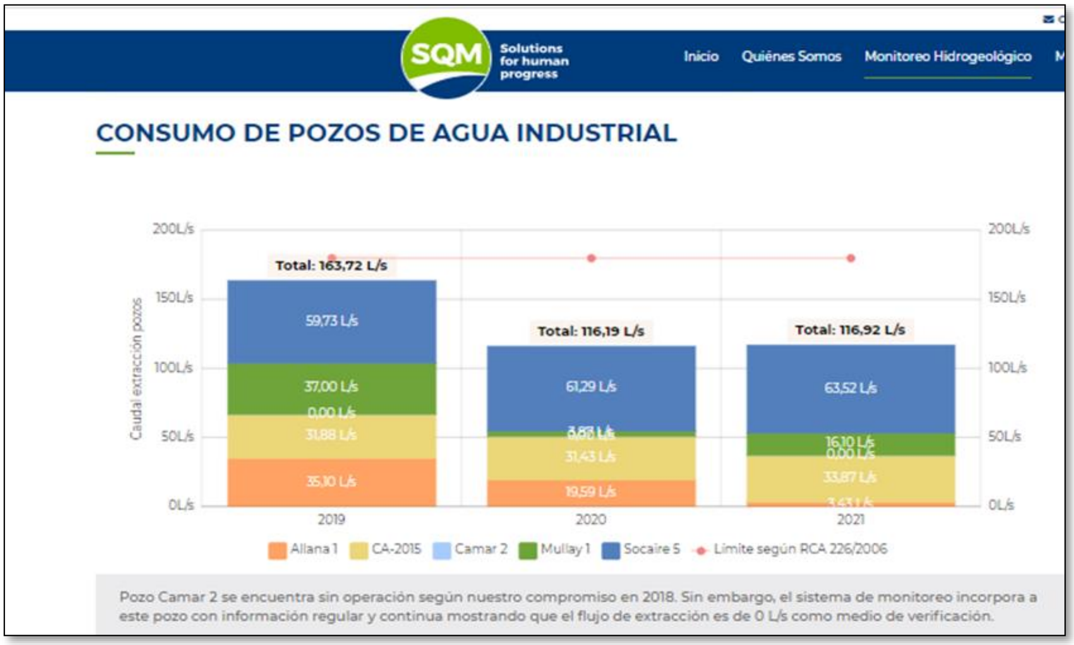
The extraction of water (not brine) for the industrial operation is environmentally approved in RCA 226/2006 for a flow of up to 240 L/s and considers the extraction from five wells in the Alluvial area in the eastern border of the Salar de Atacama that have measuring equipment with current calibration certificates.

The catchment wells are as follows:

- CA-2015 (35 L/s)
- Socaire 5 (65 L/s)
- Camar 2 (60 L/s) (this well is closed and dismantled)
- Allana (40 L/s)
- Mullay 1 (40 L/s).

The extraction information is public and transparent since it is automatically processed every day and reported online at https://www.sqmsenlinea.com/, where it is possible to find the average daily extraction flow, the historical piezometric levels measured manually, and the continuous data measured with level sensors since the beginning of the year.

Figure 17-4. Industrial Water Consumption, Total Authorized Limit and Authorized Limit in Well CA-2015



The extraction of brine (mining resource) extracted from the core of the Salar is also monitored through a series of Environmental Control Points (PCA)

It is important to note that 100% of the PCAs are incorporated into the Monitoring System. Further details on the brine extraction management and pumping plan are presented in Chapter 13 of the TRS.

Another important aspect is that SQM's 2020 Sustainable Development Plan contains a set of sustainability commitments. In more specific terms, it establishes reductions in the pumping of industrial water and brine, which are adopted with a gradual approach until the end of the useful life of the project "Cambios y mejoras de la operación minera en el Salar de Atacama", environmentally qualified by RCA 226/2006 (2030). Specifically, the project considers reducing freshwater consumption in the processes by 40% by 2030 and 65% by 2040 and reducing brine extraction by 50% by 2030, a process that began with a 20% reduction in extraction in November 2020.

These extraction reductions have been incorporated in the Compliance Program (PdC) submitted to the authority (Superintendencia del Medio Ambiente) within the current sanctioning process, mentioned in section 17.1.2, establishing the commitment to formalize them in the next Environmental Impact Study "Plan de Reducción de Emisiones en el Salar de Atacama", submitted for environmental assessment, under Chilean environmental regulations. Finally, the EIA currently under assessment includes the reduction of the extraction of freshwater and brine from 2023 to 2030.

Regarding the management and environmental monitoring of water resources, there is an Environmental Monitoring Plan (PSA) to protect the main environmentally sensitive systems, that has as objective improving knowledge of their hydrogeological and hydrological dynamics and take preventive actions in case of deviations.

Likewise, the existence of the Contingency Plan or Early Warning Plan defines actions and measures with the objective of maintaining the environmentally sensitive systems in the conditions that have historically been observed in the event that certain thresholds are exceeded in 4 objects of protection that correspond to the hydrogeological systems Soncor, Aguas de Quelana and Vegetación Borde Este and Peine.

Regarding the Hydrogeological Monitoring Plan and Contingency or Early Warning Plan, it is prudent to point out that these are being subject of modifications in the Compliance Plan submitted to the authority in September 2021, within the framework of the ongoing sanctioning process, given that the infractions raised are related to the water resource.

- Water management at closure

  As stated in the Salar Plant Closure Plan Update (in process) the works or actions contemplated for the closure of the operation and subsequent monitoring are:

  - Disable the monitoring wells.
  - Leave the limnimeters and gauging stations unaltered.
  - The perimeter staking of the lagoons will be removed, if necessary.

- The Environmental Monitoring Plan will be maintained for 5 years during the abandonment stage, at the end of which the need to extend the monitoring work will be evaluated.

17.3 Environmental and sectorial permits status

The project has been submitted 20 times to the SEIA. 20 of the projects have environmental authorization:

- RCA 403/1995: Proyecto para producción de 300 mil toneladas anuales de cloruro de potasio
- RCA 15/1997 Producción de sulfato de potasio ácido bórico con ampliación de la capacidad productiva de cloruro de potasio
- RCA 381/1997 Producción de 17500 ton/año de carbonato de litio
- RCA 110/1998 Planta secado y compactado de cloruro de potasio
- RCA 214/1999 Reemplazo parcial de pozas de evaporación solar del proyecto de producción de sulfato de potasio y ácido bórico
- RCA 24/1999 Poza auxiliar de descarte en la planta de carbonato de litio
- RCA 100/2001 Ampliación de planta carbonato de litio a 32.000 ton/año
- RCA 180/2002 Producción de cloruro de potasio a partir de sales de carnalita de potasio
- RCA 109/2002 Cambio de combustible a gas natural en planta de carbonato de litio
- RCA 18/2004 Planta de hidroxido de litio
- RCA 226/2006 Cambios y mejoras de la operación minera en el salar de atacama
- RCA 252/2009 Ampliación producción cloruro de potasio salar
- RCA 271/2009 Modificación planta SOP
- RCA 294/2009 Aumento de capacidad de secado y compactado de cloruro de potasio
- RCA 273/2010 Nueva Planta de secado y compactado de cloruro de potasio
- RCA 30/2010 Ampliación planta SOP
- RCA 1/2011 Aumento de capacidad de procesamiento de carnalita de potasio
- RCA 154/2013 Ampliación planta de secado y compactado de cloruro de potasio
- RCA 262/2017 Ampliación faena Salar del Carmen
- RCA 57/2019 AMPLIACION DE LA PLANTA DE CARBONATO DE LITIO A 180.000 TON/AÑO

Finally, the project Plan de Reducción de Extracciones en el Salar de Atacama was submitted to the SEIA in January 2022 being currently under environmental assessment.

Additionally, the Project required different sectorial permitting for operating. The following table shows the sectorial permits defined in each RCA as applicable to each project:

Table 17-3. Environmental Sectorial Permits applied to the project

Name of the Sectorial Permit (PAS)	PAS Number	Sectorial Approval Resolution
Permit for archaeological excavations	132	In the context of RCA 57/2019, the information for the PAS were submitted to the CMN, but a final decision hasn't been enacted
Permit for stockpiling mining waste	136	Res. Ex. N° 4380/98. An actualization was submitted to Sernageomin, however there is not final decision yet
Approval of the mining closing plan	137	Closure Plan was approved by Resolution No. 1426 of May 27, 2015. An updating of the Closure Plan was submitted in December 2020 to the authority for it approval
Permit for the construction, modification and expansion of any public or private work for the evacuation, treatment or final disposal of sewage water	138	Res. Ex. N° 3515/98; Res. Ex. N° 3307(03; Res. Ex. N° 4958/04; Res. Ex. N° 4550/10; Res. Ex. N° 3395/08; Res. Ex. N° 1634/08; Res. Ex. N° 1634/11; Res. Ex. N° 372/11; Res. Ex. N°2120/97; Res. Ex. N° 87/05; Res. Ex. N° 2822/18; Res. Ex 3817/18; Res. Ex. N° 4980/19
Permit for the construction, modification and expansion of any public or private facility for the evacuation, treatment or final disposal of industrial or mining waste	139	Res. Ex. N° 2520/04; Res. Ex. N° 5986/2002; Res. Ex. N° 2215/1997; Res. Ex. N° 5982/02; Res. Ex. N° 5985/02; Res. Ex. N° 542/08; Res. Ex. N° 128/06; Res. Ex. N° 1015/05; Res. Ex. N° 2589/14; Res. Ex. N° 1872/2020. In the context of RCA 57/2019, the information for the PAS were submitted to the Sernageomin, but a final decision hasn't been enacted.
Permit for the construction, modification and expansion of any garbage and waste treatment plant of any kind; or for the installation of any place for the accumulation, selection, industrialization, trade or final disposal of garbage and waste of any kind.	140	Res. Ex. N° 79/05; Res. Ex. 80/05; Res. Ex. N° 4458/04; Res. Ex. N° 1178/10; Res. Ex. N° 1016/05; Res. Ex. N° 1017/05; Res. Ex. N° 2839/08; Res. Ex. N° 5273/18; Res. Ex. N° 5464/19.
Permit for the construction of a site for the storage of hazardous wastes	142	Res. Ex. N° 5883/18.
Permit for the construction of some hydraulic works	155	Doesn't apply to the evaporation ponds. A pronouncement was requested to the DGA regarding the non-applicability of the PAS, which has not been issued.
Permit for the modification of a watercourse	156	The field is being prepared for being submitted to the DGA

Name of the Sectorial Permit (PAS)	PAS Number	Sectorial Approval Resolution
Permit to subdivide and urbanize rural land to complement an industrial activity with housing, to equip a rural sector, or to set up a spa or tourist camp; or for industrial, equipment, tourism and population constructions outside the urban limits.	160	Res. Ex n° 3/05; Res. Ex. N° 15/01; Res. Ex. N° 15/01; Res. Ex. N° 32/08; Res. Ex. N°
Permit for the qualification of industrial or warehousing establishments.	161	Res. Ex N° 723/03; Res. Ex. N° 4679/10; Res. Ex N° 4680/10; Res. Ex. N° 4678/10; Res. Ex. N° 841/12; Res. Ex. N° 841/12; Res. Ex. N° 842/12; Res. Ex. N° 843/12.

Source: own elaboration based in letter sent by SQM

17.4 Social and Community Aspect

This sub-section contains forward-looking information related to plans, negotiations or agreements with local individuals or groups for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including that regulatory framework is unchanged for the Project and no unforeseen environmental, social or community events disrupt timely approvals.

17.4.1 Social commitments defined in the environmental instruments

Regarding the social components around the project, in one hand must be mentioned that the environmental impact assessments carried out doesn't define major social commitments.

On the other hand, in the sanction process the last version of the PdC submitted in September 2021, includes some measures or activities related with the communities existed close to the project, the main actions committed are:

a) Enabling a web system with information about water and brine extraction and monitoring of biotic and hydrogeological components available to the community. The system is available since June 2019[2] (Action N° 7 of the PdC).

b) Communicate periodically to the community and other relevant stakeholder the result of the monitoring activities. This action will be implemented when the PdC is approved (Action N°18 of the PdC).

---

2 https://www.sqmsenlinea.com/

c) Delivery of fodder to the Camar Community. The action should start in September 2021. (Action N° 25 of the PdC)

d) Enabling a fodder plot. The community of Camar will work and explote the fodder plot. This action will be implemented when the PdC is approved (Action N°29 of the PdC).

e) Incorporate the community of Camar in the monitoring activities of environmental variables. This action will be executed three months after the resolution approving the PdC is issued. (Action N°30 of the PdC).

f) Implementation a Conservation Plan of the Algarrobo of Camar. The titleholder must include the community of Camar in the development and implementation of the Plan. This action will be implemented when the PdC is approved (Action N°31 of the PdC).

g) Elaboration of an Ethnobotanical Study of the Flora and Vegetation of Camar. The Study will remain in possession the Community of Camar, for its custody and custody and updating. Also, the execution of the study will include work with indigenous communities, preferably with Atacameño communities. This action will be executed 18 months after the resolution approving the PdC is issued. (Action N° 33).

Additionally, it's worth mentioning that, during 2020 and 2021, several communities have submitted comments to the PdC proposed by SQM. These communities that have participated in the review process are:

a) Comunidad de Peine.

b) Comunidad Indígena Atacameña de Socaire.

- 09/04/2021: the community required to be considered part in the process.
- 21/09/2021: The community submitted observations to the PdC. The main observation is that there is great uncertainty about the state of the ecosystem where the project is located and the risk on it, and the actions committed in the PdC are not enough to ensure ecosystem conservation and avoid risks.

c) Comunidad Indígena Atacameña de Toconao.

- 16/12/2020: the community did observations to the PdC and mentioned dis shouldn't be process by the SMA.

d) Pueblos Atacameños.

- 08/09/2021: The community points out that because of the operation of the project in contravention of its environmental obligations, a situation of imminent environmental damage has been generated.
- 21/09/2021: the community submitted observations to the PdC submitted by SQM.

e) Comunidad de Camar.

- 13/10/2021: the community submitted observations to the PdC submitted by SQM.

17.4.2 Plans, negotiations or agreements with individuals or local groups

In August 2020, the Community of Camar entered into an out-of-court settlement called "Convenio de debida diligencia, cooperación y sustentabilidad en beneficio mutuo para una nueva etapa de relacionamiento comunitario"[3] with SQM.

Nevertheless, a document or agreement was considered, in standard format, with contents such as the following: general background of the agreement; background on the community relationship; long-term relationship; validation of agreements; contributions; rendering of funds; external audit; working group and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; dispute resolution; mechanisms for reviewing the agreement; assignment of rights; anti-corruption clause; other commitments; term of the agreement; domicile.

On the other hand, the company has established agreements with indigenous and non-indigenous communities on different aspects that derive both from previous commitments and from programs associated with corporate guidelines on community relations, for example:

a) CORFO Program: the following were taken into consideration: the minutes of SQM's support in the context of the COVID pandemic contingency; the specific agreements with the communities of Cucuter and Catarpe; the meetings to define long-term agreements with the communities of Socaire and Río Grande; the monitoring campaigns and joint work with Toconao; the environmental and technical meetings with Camar; and the education, productive development, social development, and heritage programs.

b) Independent Environmental Audit Reports for the indigenous community (IC) of Camar; the IC of Peine; the IC of Talabre; the IC of Toconao and the IC of Socaire, during 2019. More recent reports were not available.

c) Working Groups for communities such as Talabre, Toconao, San Pedro, Camar and others, with respect to the year 2020.

d) Sales Force claim mechanism with activities such as: training, reports, follow-up, flows, among other aspects developed during 2021.

e) Participatory monitoring in programs with: Toconao and Laguna Chayas, which includes CONAF.

f) Other reports such as: PdC progress status (Talabre), or status of wells to Socaire. No reports or activities were seen during 2021.

3Agreement subscribed by public deed on June 2, 2020.

17.4.3 Local Hiring Commitments

SQM's voluntary commitment, as specified in RCA No. 226/2006, to report annually the local workforce hired for the operation of the project, as well as the background and results regarding the percentage of the total number of workers currently providing services and being local workforce.

Regarding hiring of local workers for the construction and/or operation of the "Proyecto Cambios y Mejoras de la Operación Minera en el Salar de Atacama", a voluntary commitment established in the RCA N° 226/2006, in 2020 the follow-up report shows an average of 2,931 workers per month, with February 2020 being the month with the highest number of registered workers at 2,975.

In addition, as part of its community relations policy, SQM has programs aimed at hiring local labor, such as:

- Employability workshops aimed at improving the resume and job interview situation.
- More Suppliers Tarapacá Program
- Program for the Development of Agricultural Suppliers in the Province of Tamarugal.
- Cowork Port.

17.4.4 Social Risk Matrix

There is no social risk matrix at SQM.

In the framework of the work meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects, but they lack a specific program or derive from a specific commitment or goal.

17.5 Mine closure

This sub-section contains forward-looking information related to mine closure for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including prevailing economic conditions continue such that costs are as estimated, projected labor and equipment productivity levels are appropriate at time of closure and estimated infrastructure and mining facilities are appropriate at the time of closure.

17.5.1 Closure, remediation, and reclamation plans

During the abandonment stage of the Project, the measures established in the Closure Plan "Faena Salar de Atacama" approved by the National Geology and Mining Service, through Resolution No. 1426 of May 27, 2015, will be implemented.

Among the measures to be implemented are the removal of metal structures, equipment, materials, panels and electrical systems, de-energization of facilities, closure of accesses and installation of signage. The activities related to the cessation of operation of the Project will be carried out in full compliance with the legal provisions in force at the date of closure of the Project, especially those related to the protection of workers and the environment.

However, currently the Closure Plan Update is in processing and pending approval by the authority, in compliance with the provisions of Law 20.551 that "Regulates the Closure of Mining Sites and Facilities" since 2012. This update includes all closure measures and actions included in the documents of the Environmental Qualification Resolution (RCA) and sectorial Resolutions, including the closure plans Res Exe. N° 768/2009 that approves the project "Planta de Beneficio y Plan de Cierre Faena Salar de Atacama"; Res Exe. N°1909/2012 approving the project "Actualización Planta de Beneficio y Plan de Cierre Faena Salar de Atacama ", and Res Exe. N°1426/2015 approving the Salar de Atacama Mine Closure Plan project. These actions and measures seek to ensure the physical and chemical stability of the mine after operational cessation.

- Closing measures

The following are the closure and post-closure measures for the main or remaining facilities, i.e., those that remain on site after the end of the mine's useful life. In the particular case of lithium mining, the remaining facilities are evaporation ponds (currently 45 ha) and waste salt deposits (currently 17 ha).

Evaporation ponds closure measures include land leveling, road closures, and installation of signage. The waste salts will remain in the disposal areas. Warning signs or signage will be installed, and slopes will be stabilized and shaped to avoid risks to the environment and people.

For the rest of the complementary and auxiliary facilities, the measures also have the objective of protecting the safety of people and animals, and these are basically the removal of structures, road closures, installation of signage, de-energization of facilities and perimeter closures, and land leveling.

Table 17-4. Closure measures and actions of the Closure Plan for the Salar de Atacama Mine.

Facility Name	Installation Type	Closing Measure	Source	Type of measure	Means of Verification
Wells	Principal	Land leveling m^2 well	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
		Road Closure (mobile barrier 6 mt.)	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
		Signage (set of 4 units)	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
Salt Deposit	Principal	Slope stabilization and profiling (10 mt.)	Risk assessment Closure Plan in process	Personal safety	Photographic report
		Signage (set of 4 units)	Risk assessment Closure Plan in process	Personal safety	Photographic report

Post-closure measures are aimed at ensuring the physical and chemical stability of the facilities, for the care of the environment and people's health, these correspond to maintenance and inspection measures, detailed below (see Table 17-5).

Table 17-5. Post-closure measures of the Closure Plan of the Salar de Atacama Mine.

Post-closure measure	Type of measure	Frequency	Duration of the measure
Maintenance of access closure	Maintenance	Every 5 years	Perpetuity
Maintenance of signage	Maintenance	Every 5 years	Perpetuity
Inspections	Monitoring	1 month	1 month
Slope correction	Maintenance	Every 50 years, and then every 100 years	Perpetuity

- Risk analysis

17.5.2 Closing costs

The total amount of the closure of the Salar de Atacama mine site, considering closure and post-closure activities, adds up to 346.411 UF (30.264 UF for closure and 40.147 UF for post-closure). Below is a summary of the costs reported to the authority in the Salar de Atacama Mine Closure Plan Update (in process) (see Table 17-6 and Table 17-7).

Table 17-6. Salar de Atacama Mine site closure costs

Item	Total (UF)
Total direct closing cost	159,339
Indirect cost and engineering	55,132
Contingencies (20% CD + CI)	42,894
Subtotal	257,365
IVA (19%)	48,899
Closing Plan Amount (UF)	306,264

Source: Annex 10 of Closure Plan Update (in process).

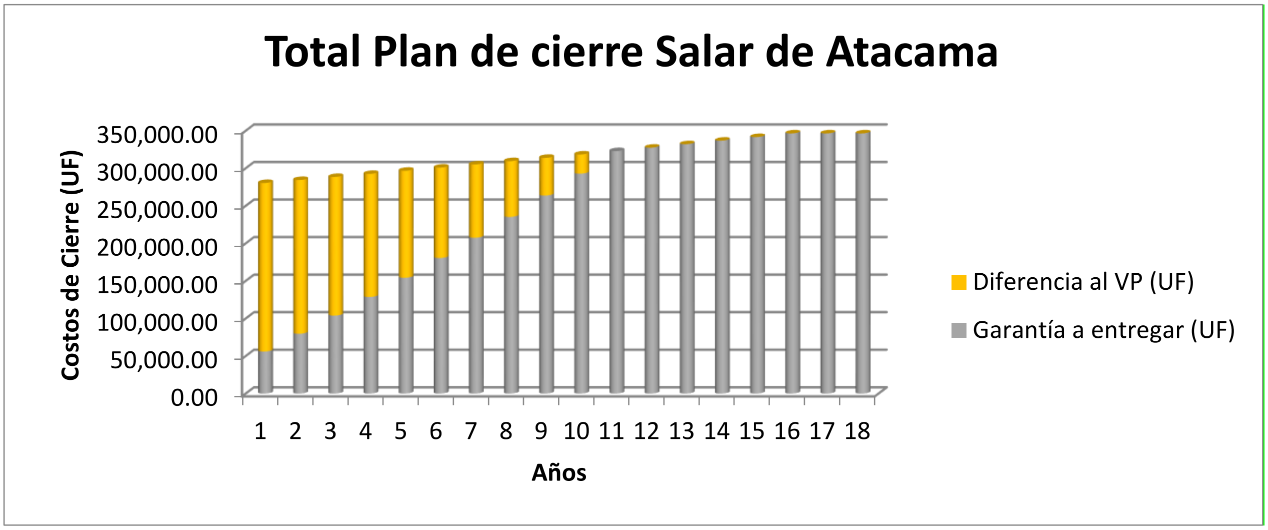
Table 17-7. Salar de Atacama Mining Site post-closure costs

Item	Total (UF)
Total direct closing cost	20,887
Indirect cost and engineering	7,227
Contingencies (20% CD+CI)	5,623
Subtotal	33,737
IVA (19%)	6,410
Closing Plan Amount (UF)	40,147

Source: Annex 10 of Closure Plan Update (in process).

The result of the calculation of the useful life for the Salar de Atacama mine in accordance with the provisions of RCA 226/2006 and the Reserves (Annual Report 2019; SQM S.A., 2020) is 22.2 years. However, the constitution of the guarantees was carried out considering the total cost of the Closure Plan, and a useful life of 16 years, as stated in the Closure Plan in Process. The development of the constitution of guarantees is shown below.

Figure 17-5. Guarantee chart Update of the Salar de Atacama Plant Closure Plan (in process).



17.6 Qualified Person´s Opinion

In terms of environmental studies, permits, plans and relations with local groups, the most relevant situation for SQM's Salar de Atacama mine is that it's currently undergoing a sanctioning process (Sanctioning File F-041-2016) due to violations detected by the authority during 2016. In this line, SQM has recently presented (September 2021) a suitable plan to address this problem that consists of a Refined, Coordinated and Systematized Environmental Compliance Program, which incorporates the observations recorded by the authority, complying with the established contents and criteria and legal requirements to ensure compliance with the infringed requirements, establishing concrete actions to improve knowledge of the environmental systems that make up the Salar de Atacama, recognize the role of the communities and provide greater transparency in the monitoring of environmental variables.

SQM has assumed the need to correct the facts that motivated the initiation of the process in the shortest possible time, and therefore, to date, a significant percentage of the proposed actions have already been implemented or are currently being implemented. Regarding this, a new EIA was submitted to the SEIA in January 2022, to assess the modification to the Contingency Plan, which was one of the infractions detected by the SMA which gave rise to the sanction process. However, considering the sanctioning process and the final judgement of the Environmental Court (R-17-2019), it can be concluded that is not possible to ensure that the management plans defined by the project are sufficient to take care and address the project's effects in the environment, especially regarding water, flora and fauna components.

In addition, however SQM has developed community relations activities, some of the communities existed near the project have shown a high level of opposition to the project. This is observed in the context of the sanction process, where communities have submitted observations and claims against the Compliance Program.

18 CAPITAL AND OPERATING COSTS

This section contains forward-looking information related to capital and operating cost estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this section including prevailing economic conditions continue such that unit costs are as estimated, projected labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

SQM is the world's largest producer of potassium nitrate and iodine and one of the world´s largest lithium producers. It also produces specialty plant nutrients, iodine derivatives, lithium derivatives, potassium chloride, potassium sulfate and certain industrial chemicals (including industrial nitrates and solar salts). The products are sold in approximately 110 countries through SQM worldwide distribution network, with more than 90% of the sales derived from countries outside Chile.

The main facilities to produce lithium and potassium are in the Salar de Atacama and the Salar del Carmen and are distributed in the following productive areas:

- Brine extraction wells
- Evaporation and harvest ponds
- Wet Plants
- Dry plants
- Lithium plants
- Offices, services, warehouses, others

The investment made in the administrative and operating infrastructure in each of the mentioned areas allows to know the aggregate Capital Cost in all the facilities related to the lithium and potassium production operations.

18.1 Capital Costs

The facilities for lithium and potassium production operations include mainly: brine extraction wells, evaporation and harvest ponds, lithium carbonate and lithium hydroxide production plants, dry plants and wet plants for chloride and sulfate potassium, as well as other minor facilities. Offices and services include, among others, the following: common areas, hydrogeology assets, water resources, supply areas, powerhouse, laboratories and research.

At the end of 2020, the capital cost that has been invested in these facilities was close to 2,300 million dollars. The cost of capital distributed in the areas related to lithium and chloride and sulfate potassium production, is shown in the following table.

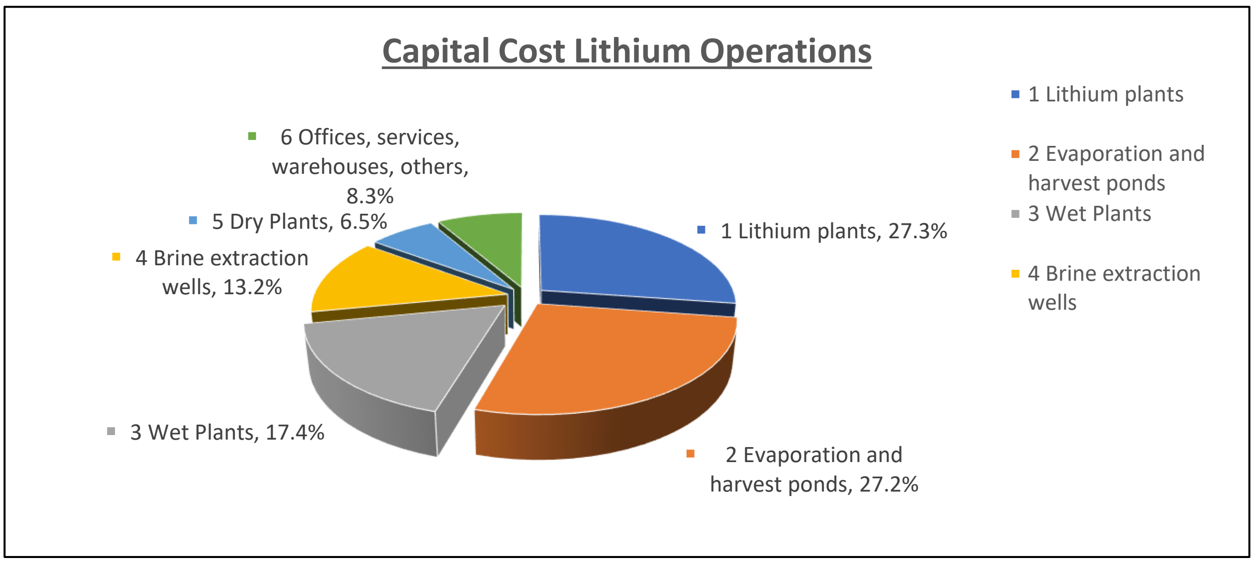
Table 18-1. Capital Costs

Lithium and Potassium Operations		Capital Cost %
1	Lithium plants	28%
2	Evaporation and harvest ponds	27%
3	Wet Plants	17%
4	Brine extraction wells	13%
5	Dry Plants	7%
6	Offices, services, warehouses, others	8%

The highest capital cost is invested in "Lithium Production Plants" and "Evaporation and harvest ponds", together covering about 55% of the capital cost, which added to the "Wet Plants and Brine Extraction Wells", cover close to of 85% of the entire cost of capital of lithium operations.

The main investments are presented in the following graph:

Figure 18-1. Capital Cost of Lithium Operations



As shown, the main investments in lithium and potassium production are the "Lithium Carbonate and Lithium Hydroxide Plants", as well as the "Evaporation and Harvest Ponds", which account for about 55% of the total investment.

This is followed by the area of "Wet Plants" with 17% and the "Brine Extraction Wells" with 13%, which, complemented by the area of "Dry Plants", cover an accumulated close to 85% of capital investment of the entire operating system of the lithium extraction and production.

18.1.1 Lithium Plants

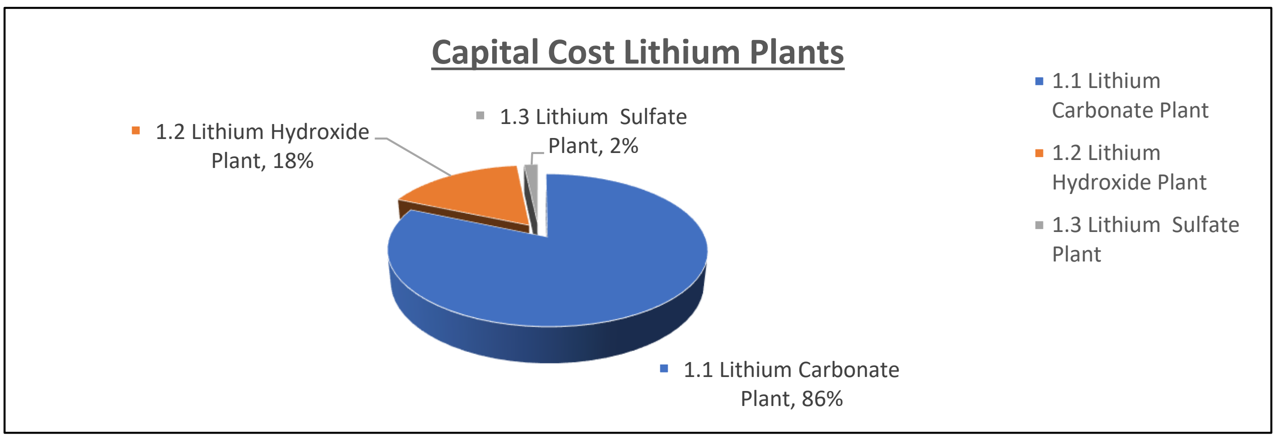
SQM produces lithium carbonate at Salar del Carmen facilities, near Antofagasta, Chile, from highly concentrated lithium chloride produced in the Salar de Atacama. The annual production capacity of the lithium carbonate plant at the Salar del Camen is 120,000 metric tonnes per year which during 2022 is expected to expand to produce 180,000 tonnes of lithium carbonate.

Regarding the Lithium production plants, the main investments are are broken up as shown in Table 18-2. The lithium carbonate plant covers 81% of the total investment in the lithium plants.

Table 18-2. Lithium Plants

1	Lithium Plants	%
1.1	Lithium Carbonate Plant	81%
1.2	Lithium Hydroxide Plant	17%
1.3	Lithium Sulfate Plant	2%

Figure 18-2. Capital cost Lithium plants



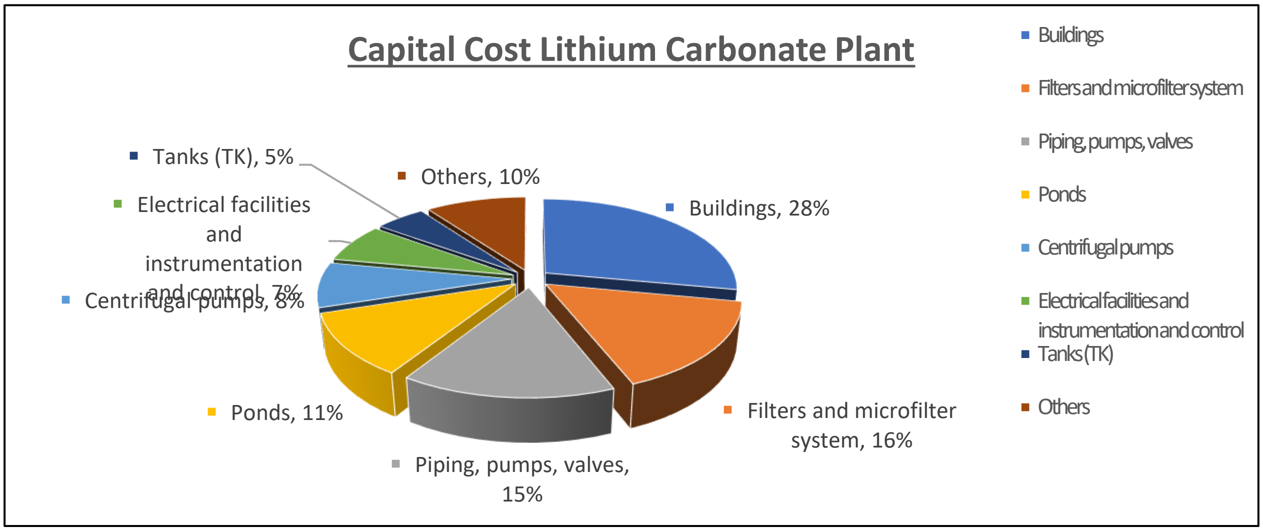
18.1.1.1 Lithium Carbonate Plant

The main investment in the lithium carbonate plant is in buildings, mechanical equipment, such as filters, centrifugal pumps, other pumps, valves, pipes, ponds, drying equipment, electrical installations and instrumentation and control, as well as warehouses.

Table 18-3. Investment in the lithium carbonate plant

1.1	Lithium Carbonate Plant	%
	Buildings	28%
	Filters and microfilter system	16%
	Piping, pumps, valves	15%
	Ponds	11%
	Centrifugal pumps	8%
	Electrical facilities and instrumentation and control	7%
	Tanks (TK)	5%
	Others	10%

Figure 18-3. Capital cost Lithium Carbonate plant



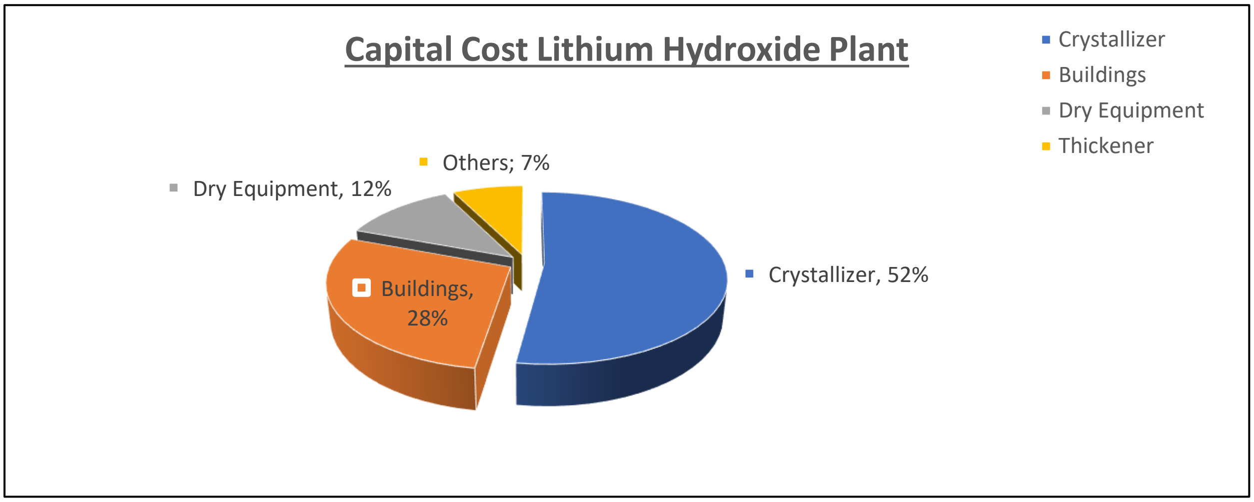
18.1.1.2 The main facilities Lithium Hydroxide Plant

The main investment in the lithium hydroxide plant is in crystallizer, buildings, drying equipment and thickener.

Table 18-4. Investment in the lithium hydroxide plant

1.2	Lithium Hydroxide Plant	%
	Crystallizer	52%
	Buildings	28%
	Dry Equipment	12%
	Thickener	7%

Figure 18-4. Capital cost Lithium Hydroxide plant



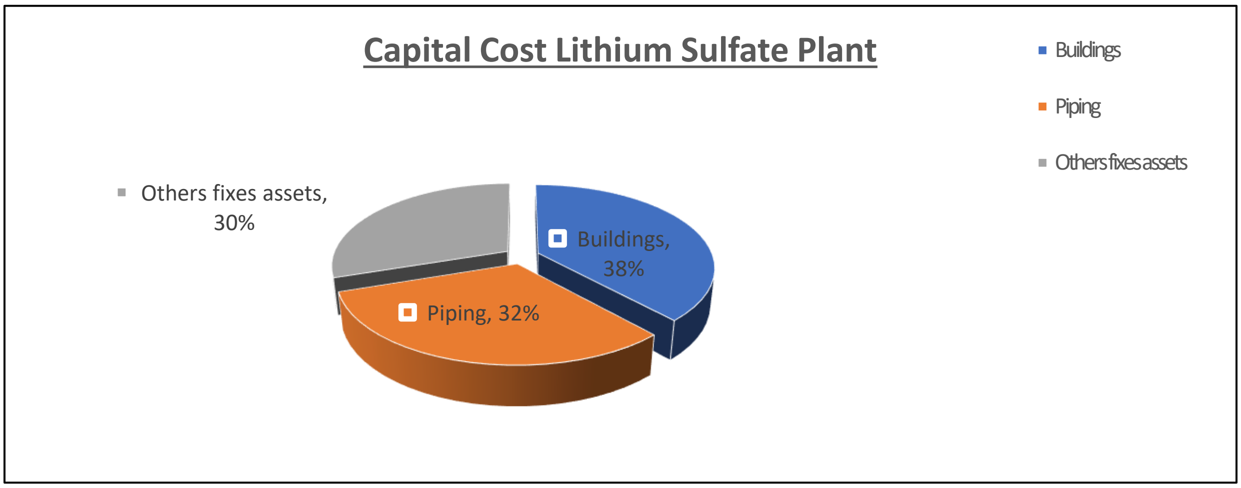
18.1.1.3 The main facilities Lithium Sulfate Plant

The main investment in the lithium sulfate plant is in buildings and piping.

Table 18-5. Investment in the lithium sulfate plant

1.3	Lithium Sulfate Plant	%
	Buildings	38%
	Piping	32%
	Other fixed assets	30%

Figure 18-5. Capital cost Lithium Sulfate plant



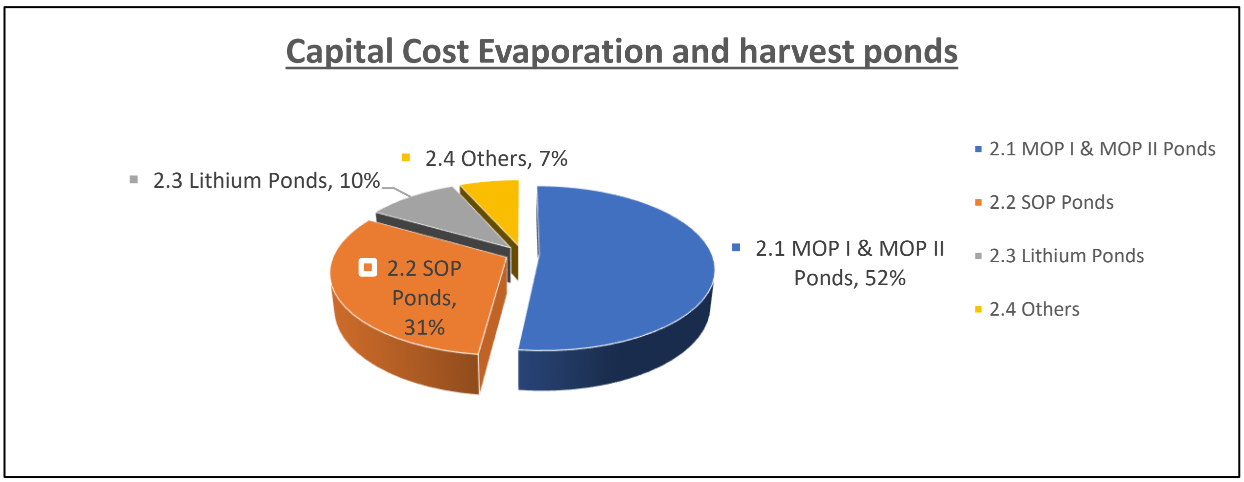
18.1.2 Evaporation and harvest ponds

At the Evaporation and Harvest Ponds, the main investments are in the following subareas, in which the MOP I and II, and SOP ponds cover 83% of the total investment in the ponds:

Table 18-6. Main Investment in evaporation and harvest ponds

2	Evaporation and harvest ponds	%
2.1	MOP I & MOP II Ponds	52%
2.2	SOP Ponds	31%
2.3	Lithium Ponds	10%
2.4	Others	7%

Figure 18-6. Capital cost Evaporation and Harvest ponds



The main investment in the evaporation and harvest ponds is found in the earthworks and operation in the ponds, added to the piping, and in almost no degree related to buildings and electrical facilities.

Table 18-7. Main Investment in MOP I and MOP II Ponds

2.1	MOP I & MOP II Ponds	%
	Pond	74%
	Piping	11%
	Others	15%

Table 18-8. Main Investment in SOP Ponds

2.1	MOP I & MOP II Ponds	%
	Pond	74%
	Piping	11%
	Others	15%

Table 18-9. Main Investment in Lithium Ponds

2.3	Lithium Ponds	%
	Pond	71%
	Others	29%

18.1.3 Wet Plants

Regarding the facilities of the wet plants, the main investments are in the following subareas, in which the Muriate of potash, MOP H I and H II Plants, cover 84% of the total investment of the wet plants:

Table 18-10. Main Investment in Wet Plants

3	Wet Plants	%
3.1	MOP H II Plant	44%
3.2	MOP H I Plant	40%
3.3	SOP H Plant	10%
3.4	PC I	6%

The main investment in the Wet Plants is found in buildings, pumps, comminution equipment, conveyor belts, filters, flotation equipment and electrical facilities.

Table 18-11. Main Investment in in wet Plants detail

3.1	MOP H II Plant / MOP H I Plant / SOP H Plant / PC I	%
1	Buildings	28%
2	Pumps, Piping & Valves	11%
3	Facilities/electrical equipment/Instrumentation/ Engine Control Center/ Electrical Substation	10%
4	Comminution equipment	7%
5	Filter	6%
6	Conveyor Belt	5%
7	Flotation equipment	4%
8	Other fixed assets	29%

18.1.4 Brine Extraction Wells

The primary investments in the Brine Extraction Wells are in the following components with the MOP extraction well area amounting to almost 80% of the total investment.

Table 18-12. Main Investment in Brine Extraction Wells

4	Brine Extraction Wells	%
4.1	MOP Wells	80%
4.2	Lithium Wells	13%
4.3	SOP Wells	7%

The main investment in the Brine Extraction Wells is found in wells, piping, pumps and electrical installations.

Table 18-13. Main Investment in Brine Extraction details

	MOP Wells / Lithium Wells / SOP Wells	%
	Wells	35%
	Piping and pumps	35%
	Facilities/electrical equipment and autonomous equipment / Engine Control Center / Transformer	13%
	Other fixed assets	16%

18.1.5 Dry Plants

The Muriate of Potash, MOP G III Plant, accounts for 75% of the total investment in the dry plants.

The main investment in the Dry Plants is found in compaction equipment, drying equipment, buildings, comminution equipment.

18.1.6 Future Investment

SQM has plans to continue the capacity expansion of its plants, complying with the CORFO quotas agreed. Lithium Carbonate plant will be upgraded and expanded to reach a 180 kTonnes in 2023 and 250 kTonnes in 2026. Investments in the Lithium Hydroxide plant is in course, to increase the production up to 30 kTonnes per annum which is expected in 2024.

For the expansion of lithium carbonate production from 120 kTonnes to 180 kTonnes an addiinal investment of about US$130 million is anticipated. Part of this investment has been made during 2021 and the construction phase will be completed in 2022.

In the case of the investment for the expansion of lithium carbonate production from 180 kTonnes to 250 kTonnes, an additional investment of about US$500 million is anticipated. This projects will be completed between 2022 and 2024.

In the case of expansion from 120 kTon to 180 kTon, a higher return is achieved per dollar invested due to the lifting of existing bottlenecks in the current plant and taking advantage of part of the installed capacity.

The expansion from 180 kTonnes to 250 kTonnes requires additional site, investments in the Salar de Atacama, and the additiona of a new waste evaporation plant.

Projects planned for execution in 2021 through 2024 is presented in the following table. These investments address improving aspects of quality, performance, sustainability and increasing production capacity.

Table 18-14. Projects in execution, and to be executed in the period 2021 to 2022

Projects Grouped by Objective	2021	2022	2023	2024	Category
Well Exploration and Qualification SdA	X	X	X	X	Quality and Performance
Lithium Well Improvements	X	X	X	X	Performance Increase
Research Products and Process Optimization SdA	X	X	X	X	Performance Increase
Lithium Carbonate Plant Quality (70 ktpa)	X	X	-	-	Improves Quality
Lithium Carbonate Plant Expansion and Quality (120 ktpa)	X	X	-	-	Increase Capacity
Quality Lithium Carbonate Plant (180 ktpa)	X	X	X	-	Improves Quality
Evaporation Plant (120-180 ktpa)	X	X	-	-	Sustainability
Site Facilities (120-250 ktpa)	X	X	X	X	Increase Capacity
Line 3 Lithium Hydroxide (+ Extensions)	X	X	X	-	Increase Capacity
Quality and Performance Lithium Hydroxide	X	X	-	-	Performance Increase
Sustainability and Environment	X	X	X	X	Sustainability
Plant Support	X	X	X	X	Lift

The major investments in the 12 months ended in June 2021, and the future investments projected through June 2022 in the Potassium and Lithium operations are as follows:

1. Wells: Future investments in Lithium wells.
2. Ponds and Harvest: in Lithium Ponds and future investments.
3. Wet Plants: investment in MOP H I and MOP H II Plants.
4. Lithium Plants:
    a) Lithium Carbonate Plant: current and future investments.
    b) Lithium Hydroxide Plant: current and future investments.
    c) Lithium Sulfate Plant: current and future investments.

18.2 Operating Costs

Use of up-to-date technology, together with the high concentrations of lithium and the characteristics of the Salar de Atacama, such as high evaporation rate and concentration of other minerals, allows SQM to be one of the lowest cost producers in the world.

SQM also produces lithium hydroxide at the same plant at the Salar del Carmen, next to the lithium carbonate operation. The lithium hydroxide facility has a production capacity of 13,500 metric tonnes per year. Currently SQM is in the process of increasing this production capacity to 30,000 metric tonnes per year. In addition, in February 2021 the Board approved the investment for the 50% share of the development costs in the Mt. Holland lithium project in the joint venture with Wesfarmers, which SQM expects will have a total production capacity of 50,000 metric tonnes.

At the end of 2020, the operating cost that has been spent to produce lithium and potassium chloride and sulfate at the Salar de Atacama and Salar del Carmen plants was close to 500 million dollars. The distribution of the operating cost is presented in the following table:

Table 18-15. Distribution of operating cost

Description of operational cost		share %
1	Raw materials and consumables	25 %
2	Depreciation expense	18 %
3	CORFO rights and other agreements	14 %
4	Contractor works	14 %
5	Employee benefit expenses	12 %
6	Freight / Transportation cost of products & Export Costs	8 %
7	Operation transports	5 %
8	Others	4 %

The highest operating cost is in raw material and consumables. For 2021, the operating cost was close 700 million of dollars, due mainly to greater production of lithium carbonate and hydroxide, increasing the consumption of raw materials and consumables (that have also incremented their prices), as well as contributions to CORFO (due to higher prices and higher volume of sales).

The following provides additional detail on a few key operating cost items:

a) Raw materials and consumables

In the production of the Salar de Atacama, the main inputs in the MOP and SOP are: KCL flotation agents, HCl, vegetable oil, iron oxide, anti-caking / anti-dust.

In the case of the Salar del Carmen, the main inputs for its production are: soda ash, lime, HCl, and water.

The main raw material to produce potassium chloride, lithium carbonate and potassium sulfate are the brine extracted from the operations in the Salar de Atacama.

Other important raw materials and consumables are sodium carbonate (used in the production of lithium carbonate, sulfuric acid, kerosene, anti-caking and anti-dust agents, ammonium nitrate (used in the preparation of explosives in mining operations), bags for the packaging of final products, electricity purchased from electricity generation companies, and gas and oil to generate heat.

b) CORFO Rights and other agreements cost

According to the terms of the Lease Agreement CCHEN established a total accumulated sales limit, as amended by the CORFO Arbitration Agreement in January 2018, of up to 349,553 metric tonnes of metallic lithium (1,860,670 tonnes of lithium carbonate equivalent). This is in addition to the approximately 64,816 metric tonnes of metallic lithium (345,015 tonnes of lithium carbonate equivalent) remaining from the originally authorized amount (from the Arbitration Agreement of 2018) in the aggregate for all periods while the Lease Agreement is in force. The Project Agreement expires on December 31, 2030.

There are payment agreements with CORFO that are related to the sale prices of Lithium Carbonate and Lithium Hydroxide according to the following table.

Table 18-16. Payment agreements with CORFO

Payments [1]

Li_2CO_3		LiOH	
US$/MT	%	US$/MT	%
<4,000	6.80	<5,000	6.80
4,000-5,000	8.00	5,000-6,000	8.00
5,000-6,000	10.00	6,000-7,000	10.00
6,000-7,000	17.00	7,000-10,000	17.00
7,000-10,000	25.00	10,000-12,000	25.00
>10,000	40.00	>12,000	40.00

Source Company

(1) Effective as of April 10, 2018

(2) % of final sale price

(3) % of FOB price

It shows that in the case of Lithium carbonate, for price lower than USD4,000/metric tonne, 6.8% of the final sale price is paid to tCORFO.

In the case of lithium hydroxide for a price lower than USD5,000/metric tonne, 6.8% of the final sale price is paid to CORFO.

The payment to CORFO could be a maximum of 40% of the final sale price, for prices higher than USD10,000/metric tonne for lithium carbonate and USD12,000/metric tonne for lithium hydroxide, respectively.

In addition to the above, there are contribution agreements to development and to the surrounding communities, which are agreed upon in accordance with the following points:

Contribution to the Regional Development and Communities:

- Annual contribution of USD 11 to 19 million for Research and development efforts.
- Annual contribution of USD 10 to 15 million to neighboring communities of the Salar de Atacama.
- Annual contribution of 1.7% of SQM Salar´s sales per year to regional development.

The foregoing accounts for the variation in operational cost depending on the current sales prices for lithium carbonate and lithium hydroxide, as well as the contribution to regional development.

c) Contractor Works:

The majority correspond to costs associated with contractors such as EXCON, “Rent Construction Machinery and ground movements” (close to 45%), which contributes with the rental of machinery for construction and ground movements.

Additionally, there are costs for “Intercompany Corporate Services” that are invoiced between subsidiaries (close to 17%).

The balance refers to many other contractors, that complement the workforce for the facilities operation.

d) Employee benefit expenses

This cost is related to the salaries and benefits of about 1,900 SQM employees for operations, that includes: Salar de Atacama, Lithium Production plants in Salar del Carmen, as well as Environment, Hydrogeology, Supply Chain, Development and Innovation.

e) Freight / Product transportation Cost & Export Costs:

This corresponds to the expenses associated with the sales of finished products from Tocopilla to customers (subsidiaries or third parties) and its export costs.

f) Operation Transports Cost:

This corresponds mainly to costs associated with product transport from the Salar de Atacama Plant to the Port; Transportation of Brine from Salar de Atacama to Salar del Carmen; and in minor proportion to the transportation of personnel at the site.

19 ECONOMIC ANALYSIS

This section contains forward-looking information related to economic analysis for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including estimated capital and operating costs, project schedule and approvals timing, availability of funding, projected commodities markets and prices.

Cashflows related to the production of Li_2CO_3, LiOH and KCl for the period 2022 to 2030 with the investments projected for a 180 ktpy plant and its expansion to 250 ktpy have been considered, assuming the latter as the case base.

Revenue from sales of each of the products has been considered, as well as the current projection of their prices. In the case of the price of Li_2CO_3, a base value of USD/tonne of 11,000 has been considered and a KCl price of USD/ton between 300 and 400 was considered. The price of LiOH was assumed to be 5% higher than the price of Li_2CO_3.

Additionally, it is assumed that everything that is produced annually at the Plant is sold.

The economic analysis considers operational and non-operational costs addressing raw materials and consumables, salaries and benefits to workers, contractors and others, as well as those related to depreciation, CORFO Rights and other regional agreements.

The after-tax discounted cashflow considers a discount rate of 10% with a tax of around 28%.

To calculate the contributions to CORFO, the polynomial in force since April 2018 has been considered (see Table 18-14. Payment agreements with CORFO), which depends on the sale price of Li_2CO_3.

Once the cashflow for the Base Case (250 ktpy) was determined, the sensitivities to sales prices and operating costs were implemented.

19.1 Production and Revenues

The estimated sales production of lithium carbonate, lithium hydroxide and potassium chloride for the LOM until 2030 is presented in Table 19-1.

Table 19-1. Projected Sales of Lithium and KCl

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate	ktpy	95	130	150	220	220	220	220	220	200
Lithium Hydroxide	ktpy	21	25	30	30	30	30	30	30	30
Potassium Chloride	ktpy	1,548	1,483	1,406	1,380	1,305	1,224	1,139	1,050	960

Note: Reserves of Chapter 12 are declared based on brine recovery factors associated with the evaporation ponds (i.e. the point of reference being after passing through the evaporation ponds), while the final sales product is presented here; note that values are rounded if comparing totals.

It is expected that the sale of the first two products is the same as the production while annual sales of potassium chloride at 1,200 ktpy considers build-up and management of inventory in stockpiles.

According to current market studies, it has been conservatively estimated that the prices of lithium carbonate, lithium hydroxide and potassium chloride will be around 11,000 USD/tonne, 11,550 USD/tonne and 400 USD/tonne, respectively. The price of potassium chloride is expected to decrease to USD 300/tonne from 2024.

The estimated revenues for Lithium and for Potassium Chloride are presented in Table 19-2.

Table 19-2. Revenues of Lithium and KCl

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate Sales	ktpy	95	130	150	220	220	220	220	220	200
Lithium Hydroxide Sales	ktpy	21	25	30	30	30	30	30	30	30
Potassium Chloride Sales	ktpy	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Lithium Carbonate Price	USD/Ton	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Lithium Hydroxide Price	USD/Ton	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550
Potassium Chloride Price	USD/Ton	400	400	300	300	300	300	300	300	300
Lithium Revenues	M US$	1,288	1,719	1,997	2,767	2,767	2,767	2,767	2,767	2,547
KCl Revenues	M US$	480	480	360	360	360	360	360	360	360

19.2 Production Costs

The main costs to produce Lithium and KCL involve the following components: raw materials and consumables, salaries and benefits to workers, depreciation, contractors, CORFO Rights and other Agreements, and others (include: Operation transports, Freight & Transportation cost of products, Export cost, Operation lease, Insurance, Depreciation of assets for right of use (IFRS 16 Contract), Investment plan expenses, Expenses related to Variable Financial Leasing (IFRS No. 16 contracts), Mining concessions, Amortization expense, Provision of costs for site closure).

The estimate of total costs per item is obtained from approximate estimates of its unit cost (for the 12 months ending 3Q2021), considering a variable part and a fixed part. These unit costs are shown in Table 19-3.

Table 19-3. Main Costs of Lithium and KCl production

Main Cost	Estimated Unit Cost	Estimated % Variable Cost
Raw Materials and Consumables	2,000 USD/Ton	80% Variable
Employee Benefits	1,000 USD/Ton	60% Variable
Depreciation	1,000 USD/Ton	0% Variable
Contractors	700 USD/Ton	10% Variable
CORFO Rights and other Agreements	Calculated	
Others	1,000 USD/Ton	15% Variable

According to the terms of the Lease Agreement, with respect to lithium production, the CCHEN established a total accumulated sales limit, as amended by the CORFO Arbitration Agreement in January 2018.

There are payment agreements with CORFO that are related to the sale prices of Lithium Carbonate and Lithium Hydroxide according to what is indicated in chapter 18.2 Operating Costs letter c) "CORFO Rights and other agreements cost".

The estimate of total costs for Salar de Atacama and Salar del Carmen for the operations is shown in Table 19-4 for Lithium and KCl.

Table 19-4. Operating Costs

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Costs										
Raw Materials and Consumables	M US$	232	294	334	446	446	446	446	446	414
Employee Benefits	M US$	116	139	154	196	196	196	196	196	184
Depreciation	M US$	116	122	126	136	136	136	136	136	133
Contractors	M US$	81	84	86	91	91	91	91	91	89
CORFO Rights and other Agreements	M US$	267	344	391	529	529	529	529	529	489
Others	M US$	116	122	126	136	136	136	136	136	133
Total Costs M US$		929	1,106	1,217	1,534	1,534	1,534	1,534	1,534	1,444

19.3 Capital Investments

SQM produces lithium carbonate at Salar del Carmen facilities, near Antofagasta, Chile, from highly concentrated lithium chloride produced in the Salar de Atacama. To fully utilize the billing quota agreed with CORFO (~ 2 MTonnes between 2021 - 2030), it is necessary to expand the Lithium Carbonate plant to 180 kTonnes from 2023 and to 250 kTonnes from 2026.

For the expansion of lithium carbonate production from 120 kTonnes to 180 kTonnes about 130 million US Dollars was invested. Part of this investment will be completed in 2022. In the case of the investment for the expansion of lithium carbonate production from 180 kTonnes to 250 kTonnes. It is estimated that the investment will be completed between the years 2022 and 2024. The total investment to achieve this expansion is close to 480 million US Dollars.

In the case of expansion from 120 kTonnes to 180 kTonnes, a higher return is achieved per dollar invested due to the removal of existing bottlenecks in the current plant and taking advantage of the increased installed capacity.

On the other hand, the expansion from 180 kTonnes to 250 kTonnes requires an additional area for new evaporation plant and investments in the Salar de Atacama.

Additionally, there are other projects in execution for improving aspects of quality, performance, sustainability and increasing production capacity.

The estimated investments in the period 2022 to 2030 are presented in Table 19-5.

Table 19-5. Estimated Capital Investments

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Investments	M US$	300	250	350	60	60	60	30	30	30

19.4 Discounted Cashflow Analysis

The key assumptions used in the economic model consider a discount rate of 10% and a tax rate of 28%. The estimated Net Present Value (NPV), before and after financial costs and taxes, for the period is presented in Table 19-6. CORFO payments are included in Costs.

Table 19-6. Estimated Cashflow Analysis

			2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	1,768	2,199	2,357	3,127	3,127	3,127	3,127	3,127	2,907
Costs	M US$	-	-929	-1,106	-1,217	-1,534	-1,534	-1,534	-1,534	-1,534	-1,443
Investments	M US$	-	-300	-250	-350	-60	-60	-60	-30	-30	-30
Depreciation	M US$	-	116	122	126	136	136	136	136	136	133
Cashflow before Financial Costs and Taxes	M US$	-	655	965	915	1,668	1,668	1,668	1,698	1,698	1,566
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28 %	-172	-259	-245	-456	-456	-456	-464	-464	-427
Cashflow after Financial Costs and Taxes	M US$	-	443	666	630	1,172	1,172	1,172	1,194	1,194	1,099

Net Present Value (NPV) before Financial Cost & Taxes. (M US$)	10 %	7,526
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)	10 %	5,253

The summary estimate of the sum of payments to CORFO and other agreements and taxes in the period is as follows:

Table 19-7. Estimated sum of payments to CORFO and other agreements and taxes for the period

CORFO Rights and other Agreements	Sum in M US$	4,135
Taxes	Sum in M US$	3,400
Total CORFO Rights and other Agreements and taxes		7,535

19.5 Sensitivity Analysis

Sensitivity analysis provides insight into the key components that have the biggest impact on the project. Table 19-8 shows the assumptions for the Base Case.

Table 19-8. Assumptions for the Base Case

Base Case		
Assumptions	Unit	Quantity
Production Plant	ktpy	250
Lithium Carbonate Price	US$/tonne	11,000
Lithium Hydroxide Price	US$/tonne	5% over Lithium Carbonate Price
Potassium Chloride Price	US$/tonne	300 to 400
Estimated Cost + CORFO Rights and other Agreements	US$/tonne	5,700 + calculate (16.1% of Revenues)
Taxes	%	28
Discount rate	%	10

19.5.1 Li_2CO_3 Price

Lithium carbonate price sensitivities were analyzed with variations from USD 7,000 / tonne to USD 15,000 / tonne. The remaining assumptions of the base case are maintained, and results shown in Table 19-9.

Table 19-9. Lithium Carbonate Price Sensitivity at 250 ktpy

Price Sensitivities (Production Plant 250 ktpy)		Lithium Carbonate Sensitivity			Net Present Value (NPV) after FC & Taxes (M US$)			NPV Variation (M US$)		
Scenarios	Unit	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
Lithium Carbonate Price	USD/tonne	11,000	7,000	15,000	5,253	2,874	7,241	0	-2,378	1,989

19.5.2 Operational Cost Sensitivities

Increases in costs related to Raw Materials and Consumables, Employee Benefits, Contractors and Others, affect the NPV to be earned.

The following table shows the variations in NPV considering a 20% increase and 20% decrease in the costs indicated above, keeping the rest of the assumptions of the base case.

Table 19-10. Cost Sensitivities

Costs Sensitivities		Sensitivity	Net Present Value (NPV) after FC & Taxes (M US$)	NPV Variation (M US$)
Scenarios	Unit			
Lithium Carbonate to 250 ktpy	USD/ton	11,000	5,253	0
Lithium Carbonate to 250 ktpy & 20% increase costs	USD/ton	11,000	4,623	-630
Lithium Carbonate to 250 ktpy & 20% decrease costs	USD/ton	11,000	5,883	630

19.5.3 KCl Price

Table 19-11 shows the variations in NPV considering a 20% decrease and 20% increase in the KCl sales prices, keeping the rest of the assumptions of the base case. Values are presented in million USD and the NPV is after taxes.

Table 19-11. KCl Price Sensitivities

Price Sensitivities		KCl Sensitivity			Net Present Value (NPV) after FC & Taxes (M US$)			NPV Variation (M US$)		
Scenarios	Unit	Base price KCl	Pessimistic	Optimistic	Base price KCl	Pessimistic -20% price KCl	Optimistic +20% price KCl	Base	Pessimistic	Optimistic
Assuming a Lithium Carbonate at 250 ktpy	USD/tonne	yr 22 & 23: 400 yr 24 to 30: 300	320 240	480 360	5,258	4,930	5,576	0	-323	323

19.5.4 CORFO Rights and other Agreements Sensitivities

Variations in the production of lithium carbonate, as well as in its prices, affect the contributions that must be paid to CORFO and other regional agreements.

The following table shows the variations in the contributions according to the variation in production and the variation in prices. The rest of the assumptions of the base case are maintained.

Table 19-12. CORFO Rights and other Agreements Sensitivities

CORFO Rights and other Agreements Sensitivities		Sensitivity			Payments to CORFO an Agreements (M US$)			Payments Variation (M US$)		
Scenarios	Unit	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	4,135	1,771	7,385	0	-2,364	3,250

19.5.5 Tax Sensitivities

Variations in the price of lithium carbonate affect the contributions that must be paid to the State for taxes.

The following table shows the variations in tax payments according to the variation in price. The rest of the assumptions of the base case are maintained.

Table 19-13. Tax Sensitivities

Tax Sensitivities		Sensitivity			Taxes (MUSD)			Taxes Variation (MUSD)		
Scenarios	Unit	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	3,400	2,387	4,667	0	-1,013	1,267

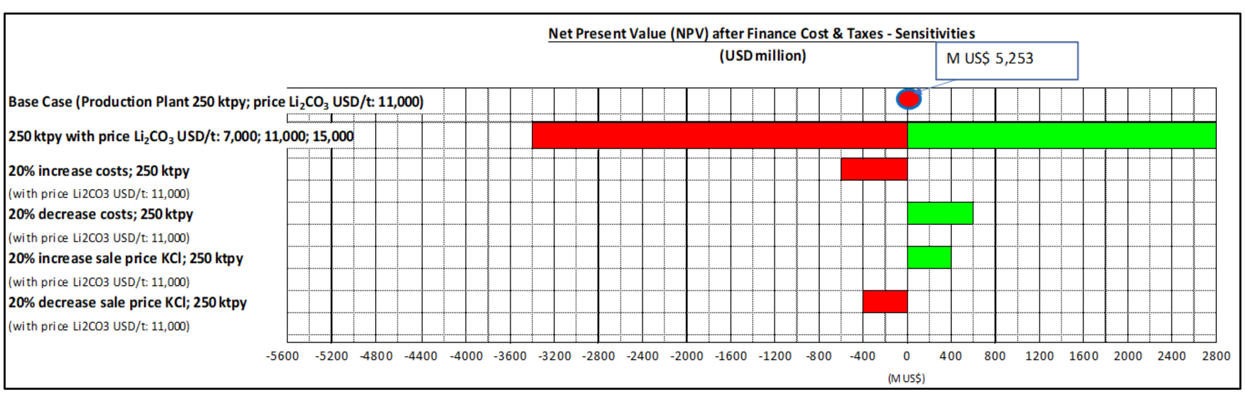
The sum of the contribution to the State of Chile for Taxes and for CORFO Rights and Others is shown in the following table, considering the cases of production of 250 ktpy, with Li2CO3 prices of USD/ ton of 7,000, 11,000 and 15,000.

Table 19-14. Contribution to the State of Chile (Taxes, CORFO Rights and Others)

CORFO Rights and other Agreements Sensitivities + Taxes Sensitivities		Sensitivity			CORFO Rights and other Agreements Sensitivities + Taxes (MUSD)			CORFO Rights and other Agreements Sensitivities +Taxes - Variation (MUSD)		
Scenarios	Unit	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic	Base	Pessimistic	Optimistic
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	7,535	4,159	12,052	0	-3,376	4,517

The following figure shows the sensitivity of NPV upon the key variables discussed above.

Table 19-15. Li_2CO_3 Price, Costs, KCl Price – NPV Sensitivities



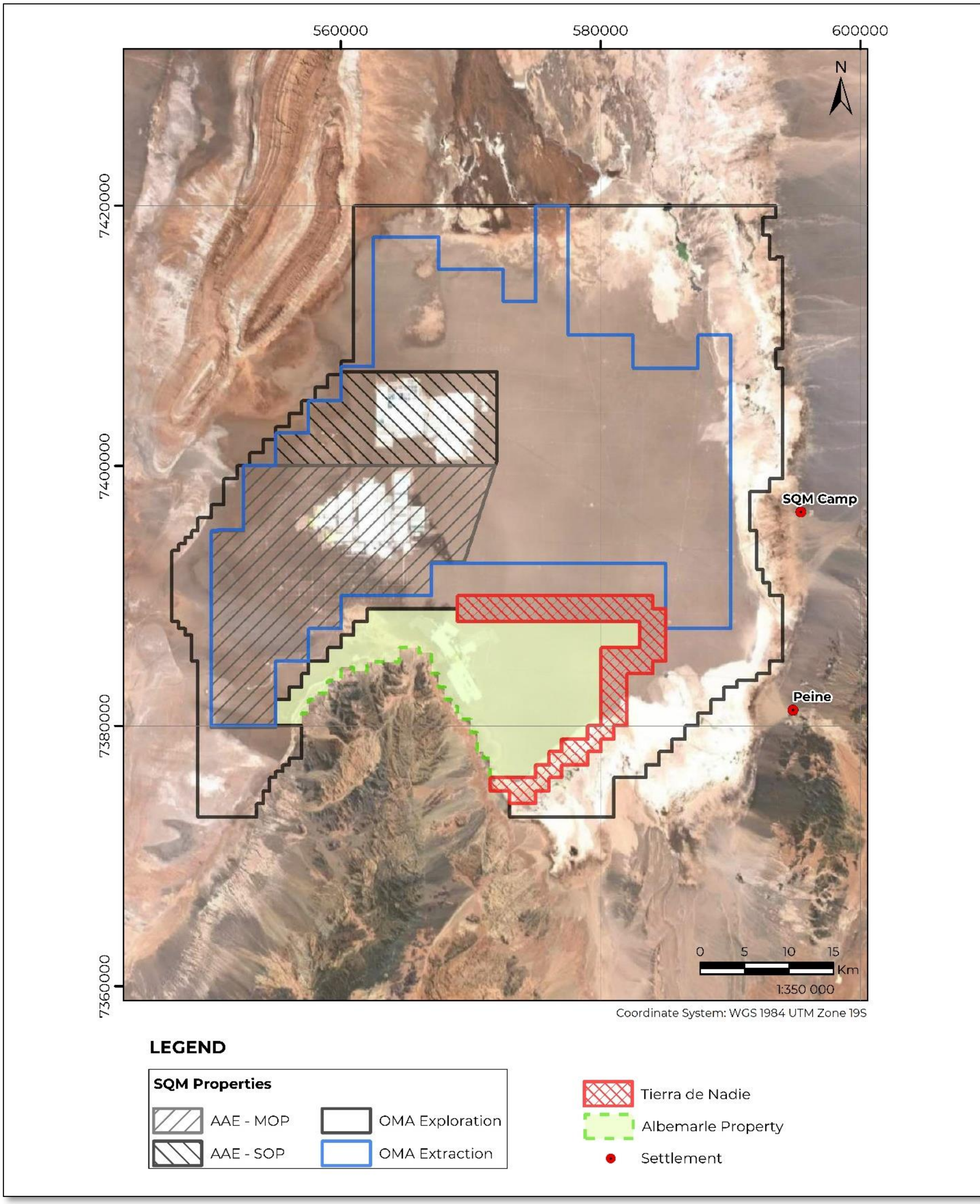
20 ADJACENT PROPERTIES

Outside of SQM's properties of the Salar de Atacama, Albemarle has a lease agreement with CORFO to extract and produce lithium from the brines stored in the salt flat deposit. Albemarle is a North American mining company (former Rockwood and former Sociedad Chilena del Litio, SCL) that rents an area of 137 km^2 and operates in the southeast. Their operation is dedicated to the extraction of lithium at a fixed extraction quota of 200,000 tonnes until 2043, however in 2017, a new agreement was made between Albemarle and CORFO which authorizes a tripling of the production of technical-grade and battery-grade lithium salts. On January 28, 2022, Albemarle in conjunction with SRK Consulting (U.S.), Inc., prepared a SEC Technical Report Summary for a Pre-Feasibility Study; this report contains details of Albemarle's estimated resource and reserve over a projected period of 21 years, as well as relevant processing, environmental, and financial information.

There are additionally 1,370 OMA belongings, called Nobody's Land (*Tierra de Nadie*), which is a protection strip for the extraction area of the Chilean Lithium Society (currently Albermarle), whose patents are protected by Albemarle.

The QP has been unable to verify the information relating to adjacent properties and cautions that the information relating to the adjacent properties is not necessarily indicative of the mineralization on the SQM's Salar de Atacama Project.

Figure 20-1: Properties Adjacent to SQM's Concessions, Salar de Atacama.



21 OTHER RELEVANT DATA AND INFORMATION

The QPs are not aware of any other relevant data or information to disclose in this TRS.

22 INTERPRETATION AND CONCLUSIONS

This section contains forward-looking information related to the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were forth in this sub-section including geology and Mineral Resources, and Mining and Mineral Reserves.

Based on the results of this study, it has been concluded that the Salar de Atacama Project in operation for the treatment of brines to obtain lithium and potassium salts is economically viable according to financial and reserve parameters.

SQM has vast experience in the treatment of brines and salts; their track record includes vast knowledge of the mineral resources and raw materials during the different processing stages, including operational data on reagent consumption and costs.

WSP considers that the exploration data accumulated by the Company is reliable and adequate for the purpose of the declared mineral resource and reserve estimates. All reported categories were prepared in accordance with the resource classification pursuant to the SEC's new mining rules under subpart 1300 and Item 601(96)(B)(iii) of Regulation S-K (the "New Mining Rules").

22.1 Conclusions

Geology and Mineral Resources

- The Salar de Atacama nucleus is mainly constituted by evaporite deposits which include chlorides, sulfates, with occasional organic matter and a minor percentage of clastic sediments and thin tuff layers; local fault systems and related displacement have contributed to deformation of the various geological units.
- The perforation and sampling procedures, as well as the analysis and verification of data comply with industry norms and are adequate for the mineral resource estimation. The described procedures are in accordance with SEC's new mining rules.
- Geophysical information utilized by SQM includes both data obtained from surface survey lines and downhole geophysical instruments deployed in boreholes. It includes data obtained by SQM as well as other organizations and companies.
- The large database of drilled wells with lithologic and brine chemistry information are sufficient to determine Measured, Indicated, and Inferred resources.
- As of December 31, 2021, the Measured + Indicated Mineral Resources (exclusive of Mineral Reserves) of SQM are 8.2 million tonnes of lithium and 79.8 million tonnes of potassium, while the Inferred Mineral Resources are 2.6 million tonnes of lithium and 34.9 million tonnes of potassium. For the Measured + Indicated, the mean grade of lithium and potassium is 0.18% and 1.77%, respectively.

- The average Mineral Resource concentrations are above the cut-off grades of 0.05% lithium and 1% potassium, reflecting that the potential extraction is economically viable.
- In the QP's opinion, the Mineral Resource was estimated in accordance with industry standards for brine projects, and the Mineral Resource categorization conservatively utilizes two separate methods (geostatistical parameters and the hydrogeological understanding of each unit).

Mining and Mineral Reserves

- The geological and hydrogeological interpretations, metallurgical hypotheses, and extensive field data are sufficient to define and declare Proven and Probable Reserves within SQM's concessions of the Salar de Atacama. It is the QP's opinion that the hydrogeological characterization, hydraulic testing, sampling, and laboratory methods meet the standards for a lithium project of this development status. Additionally, the amount of data obtained from exploration and testing is considerable compared to other lithium brine projects. The characterization of the brine deposit is believed to have the level of detail necessary to support the Reserve Estimate declared in this report.
- It is the QP's opinion that the preparation of the samples and the analytical procedures used by SQM in the Salar de Atacama follows general accepted industry standards and practices that supports the analysis and results provided in this TRS.
- The process of brine extraction in the Salar de Atacama by pumping wells is limited by the location of the wellfield, well efficiency, extraction rates, and specific retention of the porous media (among other factors), implying that only a proportion of the Resource can be extracted.
- Predicted pumping weighted concentrations from the extraction wells are above the specified cut-off grades of lithium (0.05%) and potassium (1%), and numerical model results show that a majority of the total extracted mass during the LOM comes from Measured Resources.
- The current mine life ends on December 31, 2030, and the predicted brine production is approximately 290 Mm^3 for the 2022-2030 period, with a decreasing total flow rate from 2022 (1,280 L/s) to 2030 (822 L/s).
- During the first 5 years of the LOM, the Proven Reserves correspond to 1.20 million tonnes of LCE and 7.45 million tonnes of KCl. During the last 4 years of the LOM, the Probable Reserves correspond to 0.75 million tonnes of LCE and 4.04 million tonnes of KCl. These estimates consider process losses of Li and K after extraction from the production wellfield, as the reserves are estimated for processed brine, after passing through the evaporation ponds.

Metallurgy and Mineral Processing

According to Gino Slanzi Guerra, the QP in charge of metallurgy and resource treatment:

- The physical, chemical metallurgical test work performed to date has been adequate to establish appropriate processing routes for the resource.
- Metallurgical test data for the resources planned to be processed in the projected 2030 production plan indicate that the recovery methods are reasonable and optimizable.
- The samples used to generate the metallurgical data are representative and support the estimates of future performance.
- The effluent treatment requirements for impregnated brine and reinjected brine are considered adequate, since there is a brine management plan for optimized recovery of lithium for the former and a plan to reduce total brine extraction for the latter.
- There is a high degree of interaction with process and operations management that has leveraged staff expertise and ideas generated by the research and development team to move quickly from experimental phases to direct plant application.
- The optimization of operations and maintenance activities are carried out under the Lean management methodologies approach (called M1 in SQM), which has successfully penetrated in the different levels. This fact was confirmed during field visits to the different operations of the company.

Infrastructure

- SQM's production processes are carried out in two key facilities: Salar de Atacama and Salar del Carmen. High production facilities are supported by requisite supplies and infrastructure elements such as administration buildings, laboratories, warehouses, roads, power lines, water wells and water lines, reagent storage and other auxiliary facilities.
- The installed infrastructure is operational and provides all necessary support for ongoing operations, as summarized in this report.

Environment/Social Aspects/Closure

- The Project requires different permits for its operations. The company submitted a compliance program (PdC), which is currently being reviewed by the SMA which also receives comments from the indigenous communities.
- An Environmental Impact Study was submitted to assess the eventual impact to the groundwater level because of water and brine extraction. To avoid impacts to the groundwater, an Environmental Monitoring Plan was developed to focus on monitoring groundwater (quality and quantity), flora and vegetation, as well as fauna in natural systems.

- Regarding social aspects related to the Project, it should be noted that the environmental impact studies carried out do not define major social commitments; however, they do include some measures or activities related to the existing communities in the vicinity of the Project. The company has agreements with some of the indigenous and non-indigenous communities close to the Project for different aspects related to the commitments defined in the different environmental authorizations and with programs associated with corporate guidelines on community relations. However, in the context of the PdC process, there has been opposition from the communities and no agreements have been reached.
- There is no social risk matrix at SQM. There are currently initiatives to evaluate these aspects, but SQM does not have a specific program from which a specific commitment or objective is derived.
- During the final stage of the Project, the measures and actions established in the Closure Plan will be implemented including the removal of metal structures, equipment, materials, boards and electrical systems, de-energization of facilities, closure of accesses and installation of signs, as well as other more specific measures which seek to ensure the physical and chemical stability of the mine after ceasing operations.
- The activities related to Project closure will be carried out in full compliance with the legal provisions in effect and they will involve the protection of workers and the environment.

Cost and Economic Analysis

- By the end of 2020, the distributed capital cost in the invested areas related to lithium and potassium chloride and potassium sulfate production is close to US$2.3 billion.
- The largest capital cost is invested in the "Lithium Production Plants" and in the "Evaporation and Collection Ponds", together covering about 55% of the capital cost, which added to the "Wet Plants and Brine Extraction Wells", covers about 85% of the entire capital cost of the lithium operations.
- SQM has plans to continue expanding the capacity of its plants. The lithium carbonate plant will be upgraded and expanded to reach 180 kTon and investments in the lithium hydroxide plant are underway to increase production to 30 kTon per year.
- In the case of the expansion, the projects underway, which will be executed in the period 2021 to 2022, consider improving aspects of quality, performance, sustainability and increasing production capacity.
- The highest operating cost is in raw materials and consumables, employee benefit expenses, depreciation expenses, contractor works, CORFO rights and other agreements, operational transports, freight and transportation costs of products, covering 96% of the operating cost.

- Production sensitivities, sales prices, and operating costs have been calculated for the revenue stream for the Base Case. This allows estimating revenues in situations other than the Base Case, which have a certain probability of occurring during operation between 2022 and 2030.

22.2 Risks

Mineral Resource Estimate

- The use of effective porosity versus specific yield could result in an overestimation of the estimated brine volume, however based on the geological and hydrogeological characterization of the OMA (Chapters 6 and 7), the site does not present significant volumes of material, such as clay, where specific retention can be significant (when compared to specific yield). This implies that effective porosity is believed to be an adequate parameter for the brine volume estimate.
- SQM's brine chemistry and porosity labs are not accredited, however a Round-Robin analysis was performed for brine samples to confirm the QA/QC procedures and overall accuracy and precision. To further mitigate this uncertainty, various QA/QC procedures are in place for measured brine chemistry and effective porosity (Chapters 8 and 9).
- Near the ponds, and reinjection points, potential infiltration could have affected the natural reservoir chemistry, however those areas were conservatively categorized as less certain (e.g., Measured Resource to Indicated Resource).

Mineral Reserve Estimate

- Potential brine dilution can occur over time due to lateral inflows. To address this, representative historical concentrations were assigned for modeled lateral inflows and direct recharge concentrations during the LOM were specified as 0.
- Density driven flow could impact the hydraulic gradient near environmental sensitive areas, however the numerical model limit is set within the salt flat nucleus where brine density does not vary significantly based on measured values, and therefore does not take this into account.
- Potential pond infiltration represents an additional source of uncertainty, and it was intentionally not modeled to avoid introducing an "artificial" source of lithium and potassium in the reserve estimate.
- Hydraulic parameters were calibrated based on available information, however future exploration and testing could improve the assigned model parameters and updated water balance; to alleviate this uncertainty, Probable Reserves were specified for the last 4 years of the LOM.
- A steady-state model calibration was not conducted given the long period of SQM's

historical production; however, a comprehensive flow and transport calibration was conducted for the 2015 to 2020 (inclusive) period.

- Future Albemarle pumping is unknown; however, a maximum rate of 442 L/s was conservatively assumed for the entire LOM based on their recent environmental assessment.

Metallurgy and Mineral Processing

- There is a risk that the process, as currently defined, will not produce the expected quantity and/or quality required due to the mobile nature of the Salar de Atacama brine mineral resource. In this sense, monitoring and studying the variability of key species concentrations and their ratio (Mg/Li, SO4/Ca) is essential and relevant for production and engineering development decisions.
- A relevant aspect is the projection of the SO_4/Ca ratiowhich impacts the overall efficiency levels of the lithium production system. This ratio must be controlled and forecasted for the 2022-2030 production period in order to identify the need to incorporate a liming plant to supply calcium, during the sequential evaporation process in the ponds, in adequate quantity to avoid lithium sulfate precipitation.
- Another risk arises from the new recovery methodologies that underpin the plan to increase the lithium system's performance. It is possible that the expected results, so far estimated, may be lower than the markers for various factors and therefore, the target of stepwise yield increase may be difficult to achieve.

Operating Permits/Environment

- There is a risk of obtaining the final necessary environmental approvals, licenses, and permits from the authorities on time. In certain cases, obtaining permits can cause significant delays in the execution and implementation of projects.
- For the PdC, the risk of disapproval could imply applicable sanctions such as revoking of the RCA, closure of the project, or fines for infraction.
- Risks associated with governmental regulations regarding exploitation could affect the Project activities. Changes in policies involving the exploitation of natural resources, taxes, and other matters related to the industry may adversely affect the business, financial condition and results of operations.

Cost and Economic Analysis

- The technical and economic evaluation presented in this TRS are reasonable. However, it is also recognized that the results are subject to many risks, including, but not limited to the following: raw material and currency assumptions, and unforeseen inflation of capital or operating costs. Production sensitivities, sales prices, and operating costs have been calculated for the revenue stream for the Base Case. This allows for the estimation of revenue in situations other than the Base Case, which have a certain probability of occurring during operation between 2022 and 2030.

23 RECOMMENDATIONS

Mineral Resource Estimate

- Utilize an independent methodology on collected core (e.g., Relative Brine Release Capacity testing) to confirm the estimated porosity values.
- Confirm the accuracy and precision of SQM internal laboratory implementing an external QA/QC check with a representative number of brine samples as a routine procedure.

Mineral Reserve Estimate

- Conduct a sensitivity analysis of key model parameters such as K, Sy, recharge rates and Albemarle Pumping scheme, and evaluate the differences compared to the base case scenario.
- Extend the model calibration period annually and continually to improve the model parameters based on new field data and hydraulic testing.

Metallurgy and Mineral Processing

- During operations, level control and careful monitoring of deleterious elements in the solutions will be required to minimize impacts and maximize recoveries.
- For an optimization of lithium recovery operations, there are several technologies that should be studied to evaluate the capability of each as an alternative to ensure the company's long-term future production. In particular, membrane filtration technology processes, which are driven by pressure gradient, electric or thermal field, as well as new processes under development, such as ionic filtration (LIS), have received considerable attention recently due to multiple advantages shown by available studies, therefore it would be advisable to study the possibility of using them for lithium recovery by evaluating costs, energy efficiency, achieved performance, selectivity and environmental impact.
- In reference to the tests on the use of a calcium source to avoid and/or reduce losses due to lithium sulfate precipitation, it is first necessary to carry out a projection study of the variation of the calcium content in the brines throughout the useful life of the mine.
- In addition to the above, it is recommended to carry out a comparative study of two or more calcium sources, other than $CaCl_2$, to have alternative reagent alternatives to control the eventual precipitation of lithium sulfate.
- Variability impact studies of ionic ratios such as sulfate-magnesium (SO_4/Mg), potassium-magnesium (K/Mg), sulfate-calcium (SO_4/Ca) and lithium-magnesium (Li/Mg) are recommended to evaluate different scenarios and the success of the operations. In addition, a study of this type will inform the decision to carry out engineering works for operational continuity and to optimize the performance of the operations in the future.

- Develop a social risk matrix and a specific program to address the community relationship issues.
- Continue with the execution of the actions committed in the Compliance Program, even though it has not yet been approved.

All the above recommendations are considered within the context of the estimated CAPEX/OPEX in this TRS and do not imply additional costs for their execution.

24 REFERENCES

AMEC. *Guidelines for resource and reserve estimation for brines.* Association of Mining and Exploration Companies. 5 pág., 2020.

Anderson, y Woessner. *Applied Groundwater Modeling: Simulation of Flow and Advective Transport.* Elsevier, 2015.

Becerra, Juan, Susana Henriquez, y Cesar Arriagada. *Geología del área Salar de Atacama, región de Antofagasta.* Servicio Nacional de Geología y Minería, 2014.

Bruggen, J. *Geologı ´a de la Puna de San Pedro de Atacama y sus formaciones de areniscas y arcillas rojas.* Santiago, 1942.

CIM. *Best practice guidelines for reporting lithium brine resources and reserves.* Canadian Institute of Mining, Metallurgy and Petroleum. 10 pág., 2012.

Comisión Minera Chile. «Guía complementaria al código CH 20235 para informar sobre recursos y reservas minerales en salmueras.» 2021.

CRIRSCO. *International Reporting Template for the public reporting of exploration results, mineral resources and mineral reserves.* Committee for mineral reserves international reporting standards. 41 pág., 2013.

CRIRSCO. *International Reporting Template for the public reporting of exploration results, mineral resources and mineral reserves.* Committee for mineral reserves international reporting standars. 79 pág., 2019.

ESI. «Groundwater Vistas Version 8.» 2020.

Houston, John, A.S. Butcher, y Peter Ehren. *The Evaluation of Brine Prospects and the Requirement of Modifications to Filing Standards.* Economic Geology, 2011.

Panday, Sorab. «Block-Centered Transport (BCT) Process for Modflow-USG, v 1.8.0.» 2021.

SQM. *FORM 20-F.* Washington, D.C.: United States Securities and Exchange Commision, 2020.

—. *Informe de Metodología, Procedimientos y Clasificación de Recursos y Reservas.* Santiago, 2021e.

SQM. «Modelo Conceptual Operacional Salar de Atacama.» 2021.

Susana Henriquez, Juan Becerra, Cesar Arriagada. «Geología del Área San Pedro de Atacama, Región de Antofagasta. Servicio Nacional de Geología y Minería, Carta Geológica de Chile.» 2014.

25 RELIANCE ON INFORMATION PROVIDED BY REGISTRANT

The qualified person has relied on information provided by the registrant in preparing its findings and conclusions regarding the following aspects of modifying factors:

1. Macroeconomic trends, data, and assumptions, and interest rates.
2. Projected sales quantities and prices.
3. Marketing information and plans within the control of the registrant.
4. Environmental matter outside the expertise of the qualified person, including permissions and environmental authorizations.

APPENDIX

A Glossary

APPENDIX

Acronym	Name	Description
acQuire	acQuire	Geoscientific Information Management Software
CONAMA	Comisión Nacional del Medio Ambiente	National Environment Commission of Chile. On October 1st, 2010, CONAMA was succeeded by the Ministerio de Medio Ambiente (Environment Ministry) and the Servicio de Evaluación Ambiental (SEA), the Environmental Evaluation Service of Chile.
COREMA	Comisión Regional del Medio Ambiente	Regional office of CONAMA.
CORFO	Corporación de Fomento de la Producción	Agency tasked with the promotion of economic growth in Chile
DICTUC	Dirección de Investigaciones Científicas y Tecnológicas de la UC	Directorate of Scientific and Technological Research of the Universidad Católica. A consulting company, established in 1947, of the Faculty of Engineering of the Pontificia Universidad Católica de Chile.
GHS	Gerencia Hidrogeología Salar	Hydrogeology Department of SQM
IIG	Instituto de Investigaciones Geológicas	A precursor of SERNAGEOMIN
Lab POR	Laboratorio de Porosidad del Salar de Atacama	Porosity Laboratory of SQM
Lab SA	Laboratorio Salar de Atacama	Laboratory of SQM
MINSAL	Sociedad Minera Salar de Atacama Limitada	Joint venture Amax (63.75%), Molymet (11.25%) y Corfo (25%) formed in 1986 to produce potassium chloride, lithium, potassium sulfate and boric acid from the Salar de Atacama. In 1993 SQM acquired 75% of MINSAL. In 1995, SQM acquired the remaining 25% share held by CORFO.
Salar	Salar	Salt flat
SCL	Sociedad Chilena de Litio	Joint venture established in 1981 between Foote Mineral Company & CORFO. In 2012, CORFO sold its participation in SCL which became Rockwood Lithium. In January 2015, Albemarle Corporation acquired Rockwood Lithium.
SERNAGEOMIN	Servicio Nacional de Geología y Minería	National Geology & Mining Service of Chile