UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934
For the month of April 2023.
Commission File Number 33-65728

CHEMICAL AND MINING COMPANY OF CHILE INC.
(Translation of registrant's name into English)

El Trovador 4285, Santiago, Chile (+562) 2425-2000
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.
Form 20-F: ☒ Form 40-F: ☐

Sociedad Química y Minera de Chile S.A. ("SQM" or the "Company") is incorporating by reference the information and exhibits set forth in this Report on Form 6-K into the Company's registration statement on Form F-3 (Registration No. 333-254538) filed on March 19, 2021.

Other Events

On April 24, 2023, the Company issued technical report summaries for each of the Salar de Atacama property, the Pampa Orcoma property and the Nueva Victoria property (the "Technical Report Summaries"). The Technical Report Summaries are filed as Exhibits 96.1, 96.2, and 96.3, respectively, to this Report on Form 6-K and incorporated herein by reference.

Exhibits

23.1	Consent of Andrés Fock, SQM, regarding the Salar de Atacama property Technical Report Summary
23.2	Consent of Rodrigo Riquelme Tapia, GeoInnova regarding the Salar de Atacama property Technical Report Summary
23.3	Consent of Gino Slanzi, Inprotec SpA., regarding the Salar de Atacama property Technical Report Summary
23.4	Consent of Marta Aguilera, regarding the Nueva Victoria property Technical Report Summary
23.5	Consent of Marco Lema, SQM, regarding the Nueva Victoria property Technical Report Summary
23.6	Consent of Gino Slanzi, Inprotec SpA., regarding the Nueva Victoria property Technical Report Summary
23.7	Consent of Marta Aguilera, regarding the Pampa Orcoma property Technical Report Summary
23.8	Consent of Marco Lema, SQM, regarding the Pampa Orcoma property Technical Report Summary
23.9	Consent of Gino Slanzi, Inprotec SpA, regarding the Pampa Orcoma property Technical Report Summary
96.1	Technical Report Summary regarding the Salar de Atacama property, prepared by SQM, dated April 24, 2023
96.2	Technical Report Summary regarding the Nueva Victoria property, prepared by SQM., dated April 24, 2023
96.3	Technical Report Summary regarding the Pampa Orcoma property, prepared by SQM., dated April 24, 2023

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

SOCIEDAD QUÍMICA Y MINERA DE CHILE S.A.
(CHEMICAL AND MINING COMPANY OF CHILE INC.)
(Registrant)

Date: April 24, 2023

By: /s/ Gerardo Illanes

Gerardo Illanes
CFO

Exhibit 23.1

CONSENT OF QUALIFIED PERSON

I, Andrés Fock, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Salar de Atacama with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report Summary by Sociedad Química y Minera de Chile S.A. (the "Company") as an exhibit to Form 6-K of the Company ("Form 6-K").

(b) the document that the Technical Report Summary supports is the Company's Annual Report on Form 20-F for the year ended December 31, 2022, and any existing amendments or supplements and/or exhibits thereto (Form 6-K and Form 20-F, collectively the "Document");

(c) I consent to the use of my name in the Document, to any quotation from or summarization in the Document of the parts of the Technical Report Summary for which I am responsible, and to the incorporation by reference of the Technical Report Summary into Form 20-F and the Company's Registration Statement on Form F-3ASR (Registration No. 333-254538); and

(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Andrés Fock

Andrés Fock

Exploration Manager

SQM

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.2

GEOINNOVA

CONSENT OF QUALIFIED PERSON

I, Rodrigo Riquelme Tapia, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Salar de Atacama" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

Furthermore, I state that:

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(c) I consent to the use of my name in the Document, to any quotation from or summarization in the Document of the parts of the Technical Report Summary for which I am responsible, and to the incorporation by reference of the Technical Report Summary into Form 20-F and the Company's Registration Statement on Form F-3ASR (Registration No. 333-254538); and

(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Rodrigo Riquelme Tapia

Rodrigo Riquelme Tapia

GeoInnova

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.3

CONSENT OF QUALIFIED PERSON

I, Gino Slanzi, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Salar de Atacama" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Gino Slanzi
Gino Slanzi

Inprotec SpA

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.4

CONSENT OF QUALIFIED PERSON

I, Marta Aguilera, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Nueva Victoria" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report Summary by Sociedad Química y Minera de Chile S.A. (the "Company") as an exhibit to Form 6-K of the Company ("Form 6-K").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Marta Aguilera

Marta Aguilera

Independent Geologist

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.5

CONSENT OF QUALIFIED PERSON

I, Marco Lema, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Nueva Victoria" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report Summary by Sociedad Química y Minera de Chile S.A. (the "Company") as an exhibit to Form 6-K of the Company ("Form 6-K").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Marco Lema
Marco Lema

Superintendent of Mining Resources and Planning
SQM

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.6

CONSENT OF QUALIFIED PERSON

I, Gino Slanzi, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Nueva Victoria" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Gino Slanzi

Gino Slanzi

Inprotec SpA

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.7

CONSENT OF QUALIFIED PERSON

I, Marta Aguilera, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Pampa Orcoma" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

Furthermore, I state that:

(a) I consent to the public filing of the Technical Report Summary by Sociedad Química y Minera de Chile S.A. (the "Company") as an exhibit to Form 6-K of the Company ("Form 6-K").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Marta Aguilera

Marta Aguilera

Independent Geologist

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.8

CONSENT OF QUALIFIED PERSON

I, Marco Lema, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Pampa Orcoma" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Marco Lema

Marco Lema

Superintendent of Mining Resources and Planning
SQM

Dated at Santiago, Chile on April 24, 2023

Exhibit 23.9

CONSENT OF QUALIFIED PERSON

I, Gino Slanzi, state that I am responsible for preparing or supervising the preparation of part(s) of the technical report summary titled "Technical Report Summary, Operation Report, Pampa Orcoma" with an effective date of April 24, 2023, as signed, and certified by me (the "Technical Report Summary").

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(d) I confirm that I have read the Document, and that the Document fairly and accurately reflects, in the form and context in which it appears, the information in the parts of the Technical Report Summary for which I am responsible.

By /s/ Gino Slanzi
Gino Slanzi

Inprotec SpA

Dated at Santiago, Chile on April 24, 2023

Exhibit 96.1

Technical Report Summary

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

April 2023

TECHNICAL REPORT SUMMARY

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

April 2023

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TABLES

FIGURES

1 EXECUTIVE SUMMARY

This Technical Report Summary (TRS) was prepared on behalf of the Sociedad Química y Minera de Chile (SQM) for their operations in the Salar de Atacama (the "Project"). Since the previously filed TRS (2022), it is the QPs' opinion that there have been no material changes related to exploration, the Mineral Resource, or the Mineral Reserve.

1.1 Property and Mineral Rights

The Project is located in the Antofagasta Region of Chile which covers the Loa Province and San Pedro de Atacama commune. The Salar de Atacama mine tenements are owned by the Corporación de Fomento de la Producción (CORFO) of Chile which 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, and SQM holds leases for a total area of approximately 1,400 square kilometers (km^2) with 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, the process of evaporation has precipitated salts, and at depth, evaporitic, clastic, and volcanic ash deposits host brine. Several structural blocks and fault systems have been identified, where displacement and deformation of the geological units have occurred.

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 depth of up to 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 arithmetic mean concentrations of Li and K from all brine samples (and all units) correspond to 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, as well as controls, 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 leased 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 was constructed, and the Mineral Resource was estimated 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, 2022)

Resource Classification	Brine Volume (Mm^3)	Mean Grade (wt. %)		Mass (Million tonnes)	
		K	Li	K	Li
Measured	2,254	1.80	0.20	49.8	5.4
Indicated	1,435	1.70	0.16	30.0	2.8
Measured + Indicated	**3,689**	**1.77**	**0.18**	**79.8**	**8.2**
Inferred	1,614	1.77	0.13	34.9	2.6
Total	5,303	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) Compared to the previously filed TRS (2022), mining occurred in 2022 and the end of the LOM (year 2030) has not changed. Given the acceptable reserve model fit to real 2022 production (see Chapter 12), there is no change in the Mineral Resource exclusive of Mineral Reserves since December 31, 2021 (SQM, 2022).

(4) 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.

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

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

(7) 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 $ 15,000 USD/tonnes with the corresponding cost and profit margin are 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).

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 8-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. Extracted mass was subsequently verified for the 2021 to 2022 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 of the production wells), environmental considerations (e.g., pumping schedule), and recovery factors for Li and K. The simulated mass of extracted Li and K after 8 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 4 years given the adequate model calibration during the 2015-2020 period and overall verification of simulated production in 2021 and 2022. 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, 2022)

Classification	Brine Volume (Mm3) Pumped	Average Extracted Lithium Grade (wt.%)	Li (Million tonnes)	Extracted Mass LCE (Million tonnes)	Average Extracted Potassium Grade (wt.%)	K (Million tonnes)	Extracted Mass KCl (Million tonnes)
Proven Reserves	143	0.20	0.18	0.94	2.33	3.03	5.78
Probable Reserves	107	0.20	0.14	0.75	2.16	2.12	4.04
Total	250	0.20	0.32	1.69	2.26	5.15	9.82

(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 52% 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, and it is subsequently weighted by pumping over the indicated period.

(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 $ 15,000 USD/tonnes 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, 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.

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

In the Salar de Atacama, SQM's mining method corresponds to brine extraction. Production is characterized by the construction of pumping wells capable of extracting brine from different reservoirs of interest. Subsequently, the brine extracted from each of the production wells is accumulated in gathering ponds for distribution 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 brine extraction rate from 1,223 L/s (2023) to 822 L/s (2030).

1.6 Metallurgy and Mineral Processing

1.6.1 Metallurgical Testing

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

SQM employees regularly collect brine samples and complement this by considering temporal, geological, spatial, and operational criteria of the wells, with an emphasis on maintaining an updated and accurate dataset of brine chemistry characteristics. The Salar de Atacama laboratory, through its facilities, generates metallurgical assay databases which include the 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, allowing them to improve the recovery process and product quality. Currently, there is a plan to increase yield at the Salar de Atacama which consists of a series of operational improvement initiatives, development and expansion projects, as well as 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 brine pumping 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 Project is to produce potassium salts, such as potassium chloride (KCl) and potassium sulfate (K_2SO_4), as well as lithium salts such as lithium carbonate (Li_2CO_3) and lithium hydroxide (LiOH). There are two production lines, one focused on obtaining potassium products (SQM Salar de Atacama process plants), and another concentrated on the production of lithium carbonate and hydroxide (SQM Carmen Lithium Chemical Plant), both of which are two facilities that make up SQM’s 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), located near Antofagasta, has production facilities that comprise a Lithium Carbonate Plant and a Lithium Hydroxide Plant. The production capacity of the lithium carbonate plant at PQC until the year 2021 was 120,000 tonnes per year (Mtpy), and at that time, it was projected to increase production to 180,000 tonnes per year (Mtpy). Additionally, the lithium hydroxide plant had a production capacity of 21,500 tonnes per year (Mtpy), with plans to increase production capacity to 30,000 (Mtpy). However, the current production is now 150,000 (Mtpy), with plans to increase production to 210,000 Mtpy. Furthermore, the lithium hydroxide plant has a production capacity of 24,500 Mtpy, with plans to increase production capacity to 32,500 Mtpy.

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. These include prevailing economic conditions which continue in a manner that the unit costs are as estimated, projected labor and equipment productivity levels are maintained, 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 generates 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 of 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 common areas, hydrogeological 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 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 Table 1-3. 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", accounting for about 55% of the total investment.

Table 1-3. Capital Costs for Lithium and Potassium Operations

Lithium and Potassium Operations		Capital Cost %
1	Lithium Carbonate and Lithium Hydroxide 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 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. As mentioned in Chapter 1.6.2, the production capacity and projected production increase until the year 2021 of the lithium carbonate plant in PQC were 120,000 tons per year and 180,000 tons per year, respectively. Also, for the same year, the lithium hydroxide plant had a production capacity and a projected production capacity increase of 21,500 tons per year and 30,000 tons per year, respectively.

The highest operating cost is in the CORFO rights and other agreements, representing about 79% during 2022. The other major item in raw material and consumables, employee benefit expenses, depreciation expense, and contractor works, representing 18% of the operating cost.

During the first 9 months of 2022, the operating cost that has been spent to produce lithium and potassium chloride and sulphate at the Salar de Atacama and Salar del Carmen plants was close to 2,900 million dollars.

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 of 2023 to 2030, the investments projected for a 180 ktpy plant and its expansion to 250 ktpy have been considered, where the latter was assumed for the base case. In addition, income from the sale of each of product was considered as well as the current projection prices. In the case of the price of Li_2CO_3, a base value of 15,000 USD/ton was considered. For the price of KCl, a value of USD/ton between 180 and 420 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 Economic Analysis

Assumptions	Base Case Units	Quantity
Production Plant	ktpy	250
Lithium Carbonate Price	US$/tonne	40,000/25,000/15,000 (2023/2024/ (2025/2030)
Lithium Hydroxide Price	US$/tonne	5% over Lithium Carbonate Price
Potassium Chloride Price*	US$/tonne	180 to 420*
Estimated Cost + CORFO Rights and other agreements	US$/tonne	5,700 + calculate (22.5% of Revenues for 15,000)
Taxes	%	28
Discount rate	%	10

(*) Price of K defined according to the application of its products and derivatives.

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 Potassium Products

		2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate	ktpy	150	158	213	150	150	150	150	120
Lithium Hydroxide	ktpy	25	32	37	100	100	100	100	70
Potassium Chloride	ktpy	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

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

			2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	7.890	5.390	4.138	4.185	4.185	4.185	4.185	3.263
Costs	M US$	-	-3.499	-2.557	-2.154	-2.166	-2.166	-2.166	-2.166	-1.762
Investments	M US$	-	-525	-515	-436	-60	-60	-30	-30	-30
Depreciation	M US$	-	139	141	149	149	149	149	149	141
Cashflow before Financial Costs and Taxes	M US$	-	4.005	2.459	1.697	2.109	2.109	2.139	2.139	1.612
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28 %	-1.110	-677	-464	-579	-579	-588	-588	-440
Cashflow after Financial Costs and Taxes	M US$	-	2.855	1.741	1.193	1.489	1.489	1.511	1.511	1.132

Net Present Value (NPV) before Financial Cost & Taxes. (M US$)	10 %	$12.753.342
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)	10 %	$9.028.761

1.8 Conclusions

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. Furthermore, 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.

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 SK-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 (the Project). It also details related brine processing information in the Carmen Lithium Chemical Plant (PQC).

The effective date of this TRS Report is April 8, 2023, while the effective date of the Mineral Resource and Mineral Reserve estimates is December 31, 2022. It is the QP's opinion that there are no known material changes impacting the Mineral Resource and Mineral Reserve estimates between December 31, 2022, and April 8, 2023.

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, 2022.

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 Celsius
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
COREMA	Comisión Regional 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 (processing and recovery methods)
IIG	Instituto de Investigaciones Geológicas
K	potassium
K_2SO_4	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	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
Li_2CO_3	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
mE	meters East (coordinates)
mS	meters South (coordinates)
M	million
m/d	meters per day
m^2	square meter
m^3	cubic meter
Mm^3	million cubic meters
masl	meters above sea level
MINSAL	Sociedad Minera Salar de Atacama Limitada
mL	milliliter
mm	millimeters
mm3	cubic millimeters
MMBTU	million British thermal unit
MOP	muriato de potasio (potassium chloride product)
MT	Magnetotelluric
Mt	Metric ton
Mtpy	Metric ton per year
MW	megawatt
MWh	megawatt hour
Na_2CO_3	Sodium Carbonate

Abbreviation/Acronym	Definition
NCM	Nickel, Cadmium and Manganese
NMR/BMR	Natural Gamma, and Borehole Nuclear Magnetic Resonance
NNW-SSE	north-northwest-south-southeast
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

Abbreviation/Acronym	Definition
SW	southwest
Sy	specific yield
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)	Relation to Registrant and their Role	Company	Date of Site Visit	Detail of Visit	Years of Relevant Experience	Responsible for disclosure of
Andrés Fock	Exploration Manager - SQM Australia. Resource QP	SQM S.A.	Several visits between 2018 - 2020	Operations, extraction wells, evaporation ponds, processing plants	17	Sections 1.1, 1.2, 1.3, 1.8, 2, 3, 4, 5, 6, 7, 8, 9, 11, 17, 20, 21, 22, 23, 24 & 25
Gino Slanzi	Process QP	Empírica Consultores	November 15, 2021	Operations, extraction wells, evaporation ponds, processing plants	+20	Sections 1.6, 1.8, 10, 14, 15, 21, 22, 23, 24 & 25
Rodrigo Riquelme	M.A. Economics Georgetown University. Reserve QP	Geoinnova Consultores Ltda.	February 28, 2023	Operations, extraction wells, evaporation ponds, processing plants	+20	Sections 1.4, 1.5, 1.7, 1.8 12, 13, 16, 18, 19, 21, 22, 23, 24 & 25

During the various site visits, the QPs toured the general areas of mineralization, the historical and current mine, as well as the 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

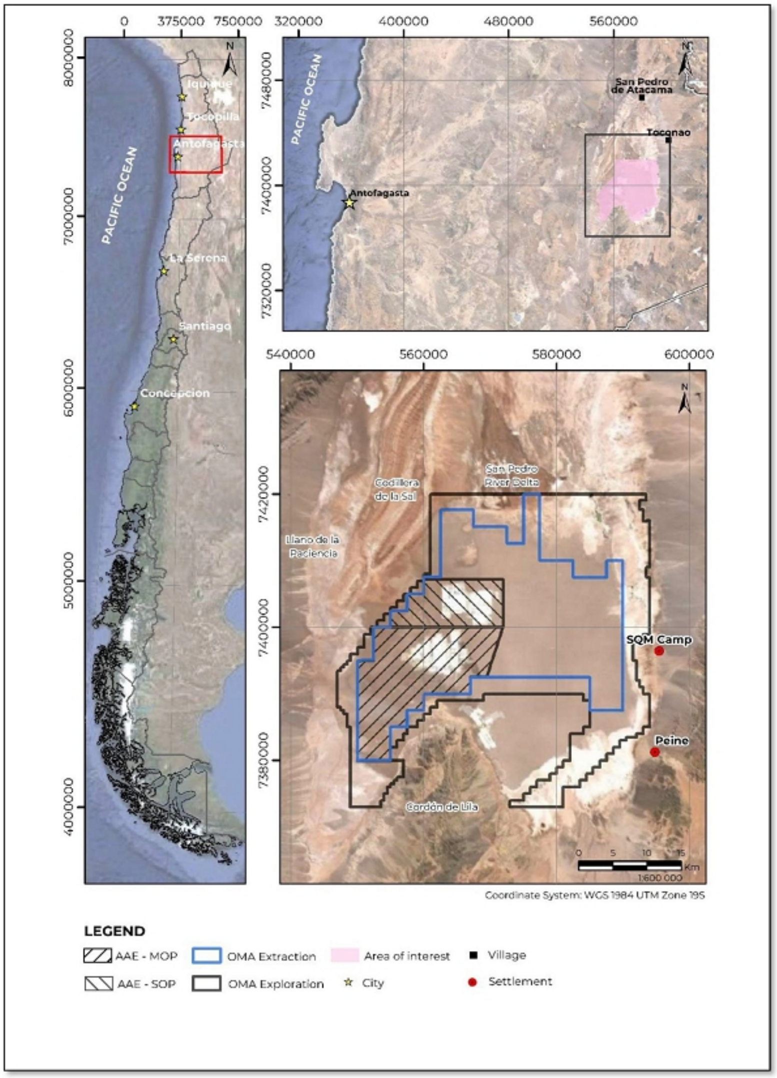
This is the second TRS prepared for SQM's Salar de Atacama brine deposit. This TRS is an update of a previously filed TRS (2022).

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 tonnes of metallic lithium (1,860,670 tonnes of lithium carbonate equivalent) in addition to approximately 64,816 tonnes of metallic lithium (345,015 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 salt flat, for which the company has rights and the corresponding environmental authorization (RCA 226/2006) to use groundwater. 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 and changes in 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 (Table 3-1)

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.

Table 3-1. 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

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 km^2 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).

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

4.2 Accessibility and Transportation to the Property

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

4.3 Climate

Recorded temperatures at the SQM station Campamento Andino vary between -6 degrees Celsius (°C) and 33°C, with an annual average lower than 18°C, which is 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 which 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, 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 et al. (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 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 & Gardeweg (1982): Sernageomin geological map of the Salar de Atacama Basin at 1:250,000 scale with an accompanying 117-page Memorandum (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 Sociedad Minera Salar de Atacama Ltda. (MINSAL S.A.) 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 S.A., 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 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 due to 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 et al. (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 21 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).
- 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.

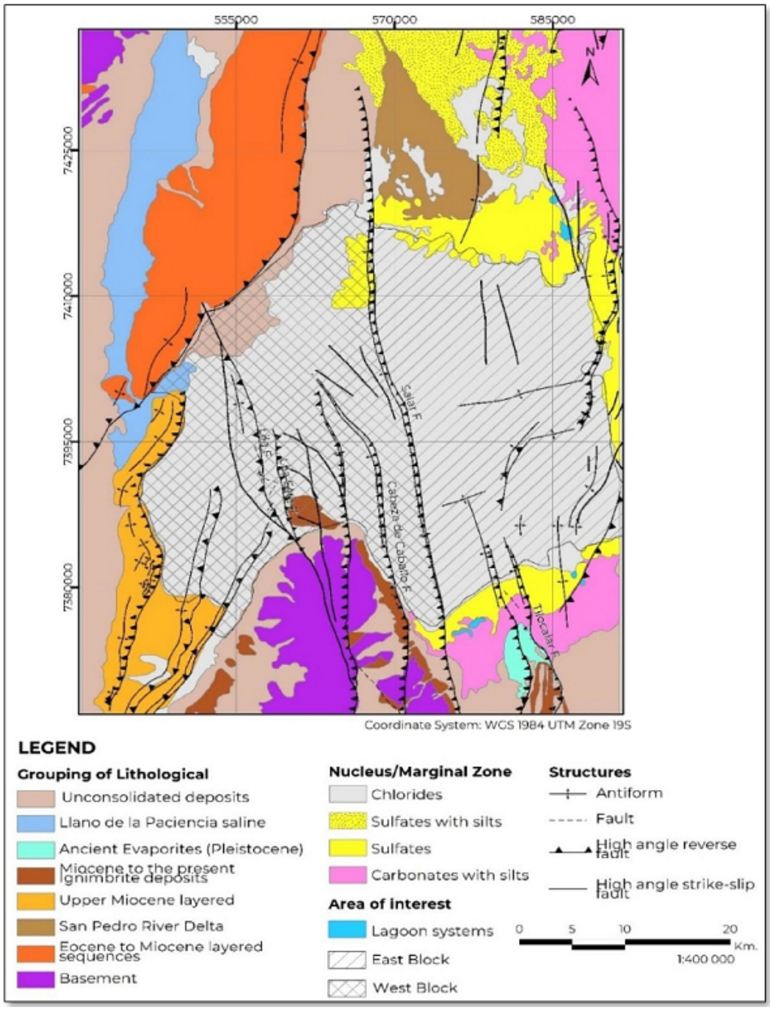
Consolidated ash flows from ignimbrite deposits of the Miocene age to present day unconformably overlie basement rock and cover large areas of the Cordillera Occidental and slopes of the Cordón de Lila. Furthermore, Oligocene to Holocene unconsolidated deposits of alluvial, fluvial, and eolian origin 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 extends 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 clay, 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 et al., 2006).

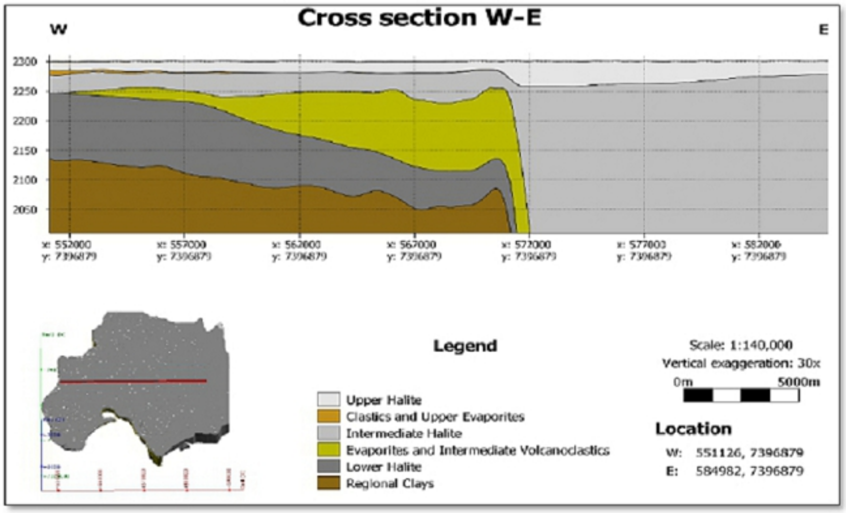
Underlaying the shallower sections of the Regional Clays, a deep tuff layer can be found with a mean thickness of 5 m. It consists of a thin crystalline - pumice tuff with abundant biotite, feldspars, and sparse quartz.

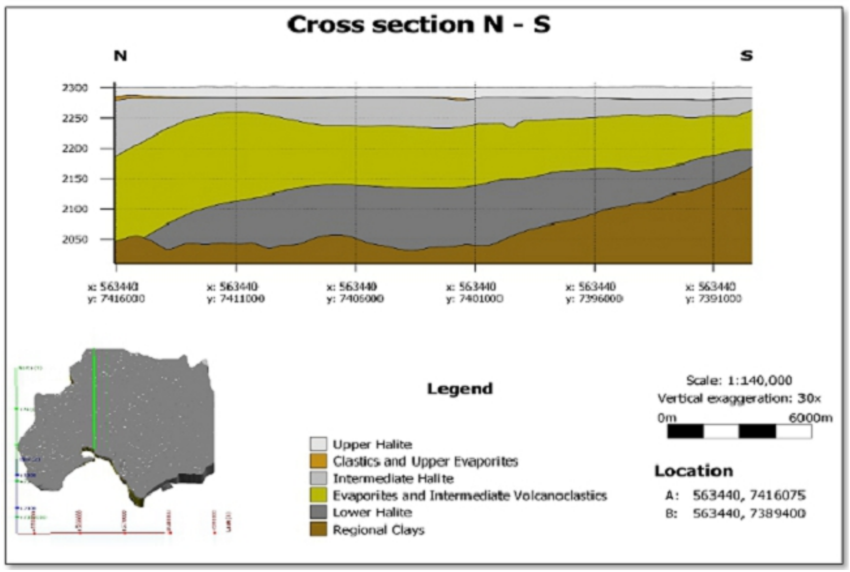
6.3.8 Geological Sections and the Stratigraphic Column

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.

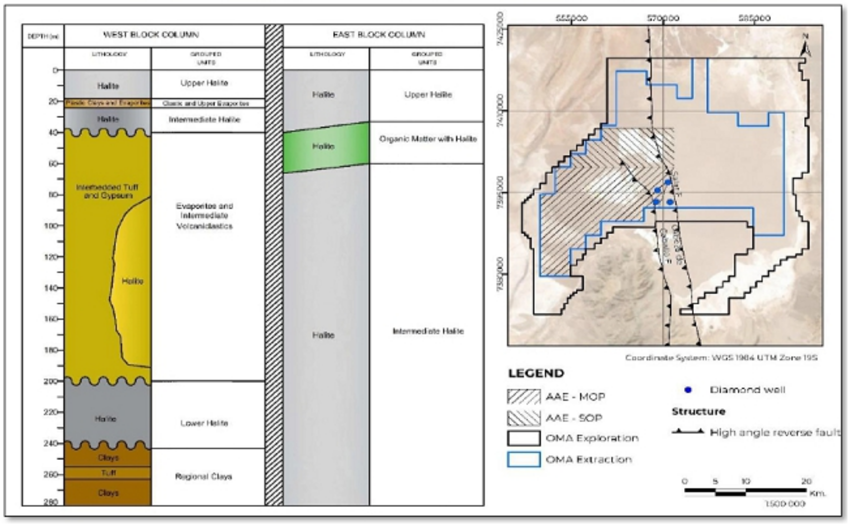
Figure 6-2. Geological Cross Sections





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:

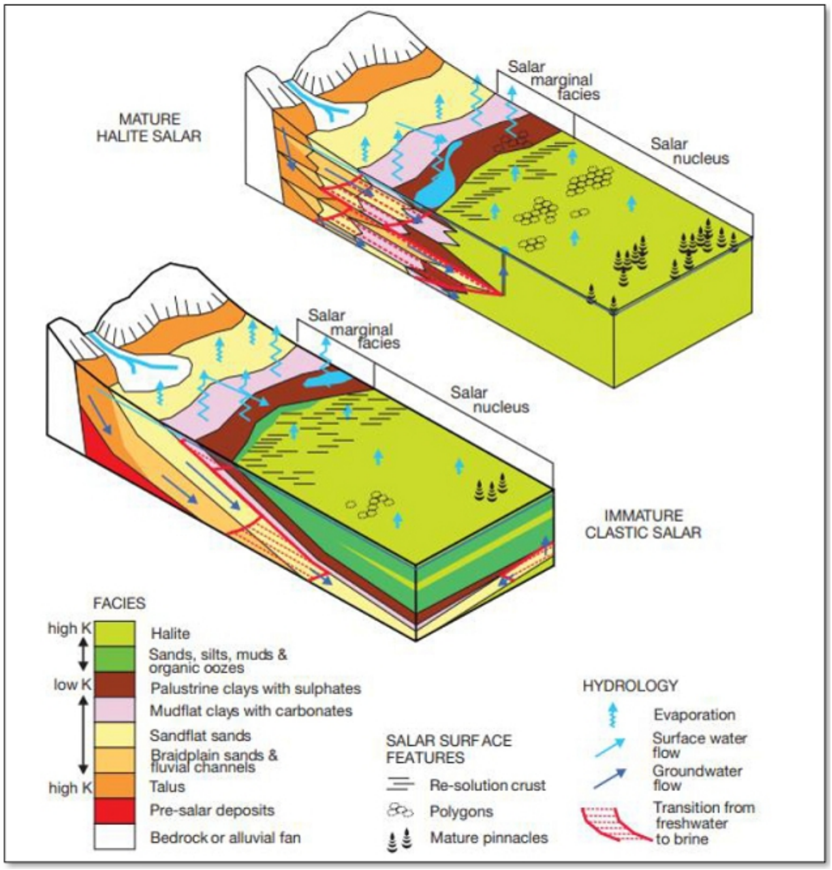
- Mature Salt Flats: "Dry" salt flats have a lower moisture flux and well-defined halite nucleus. They are characterized by the development of a relatively uniform sequence of deposited halite in subaqueous to subaerial conditions. Brines are normally found above the saturation point of halite and solute 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). (Arriagada, 2009)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

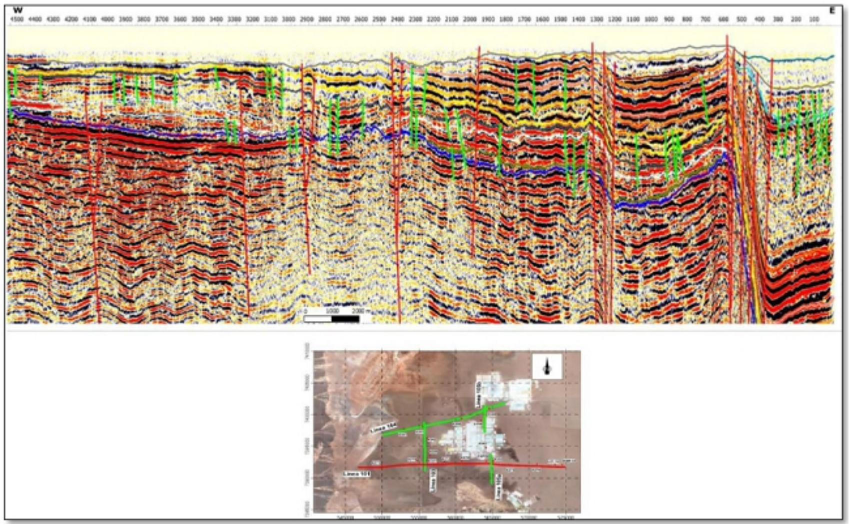
This chapter provides an overview of exploration work that has contributed to the development of the geological and hydrogeological conceptual models of the Project.

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, Vista Clara Inc). 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. Figure 7-1. presents the latest seismic reflection interpretation (AguaEx SPA, 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**

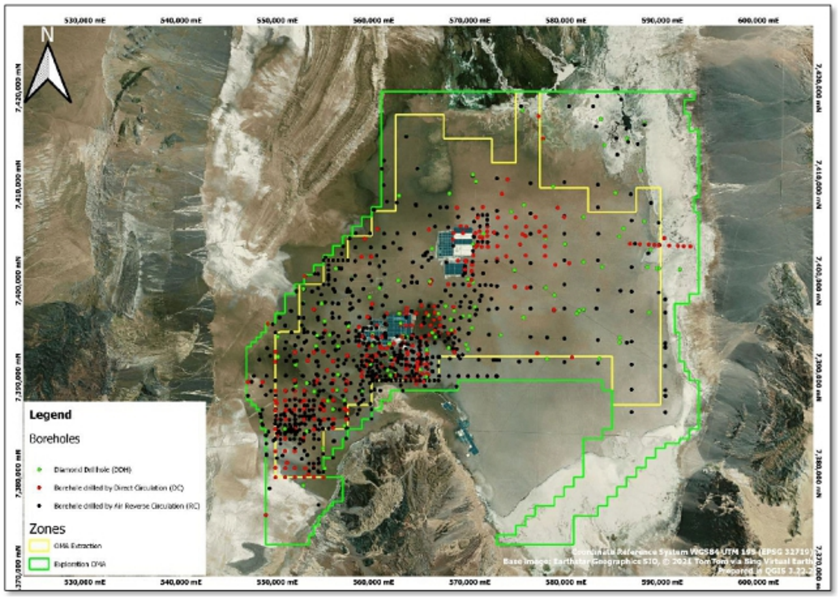
Table 7-2. Summary of the Conducted Borehole Geophysics

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 (more details in Chapter 11, 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 14,500 porosity 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

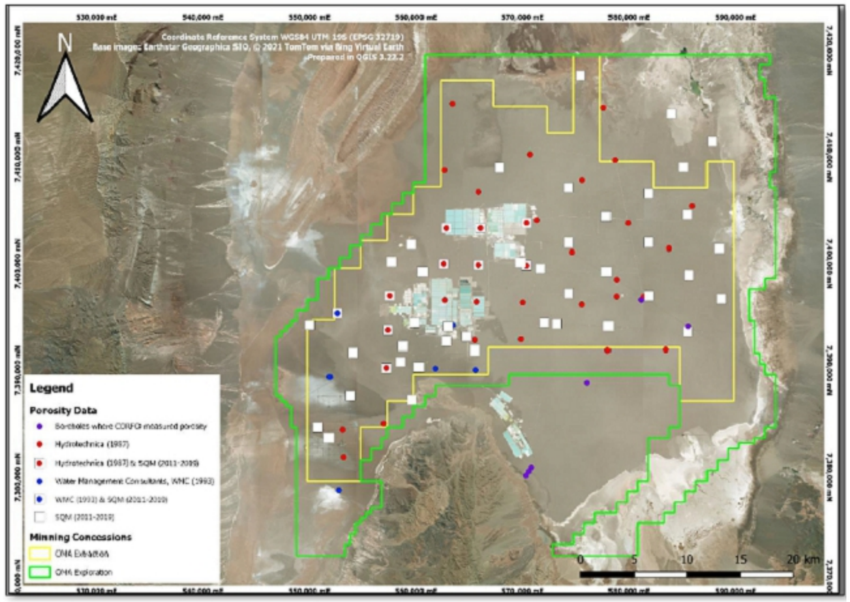
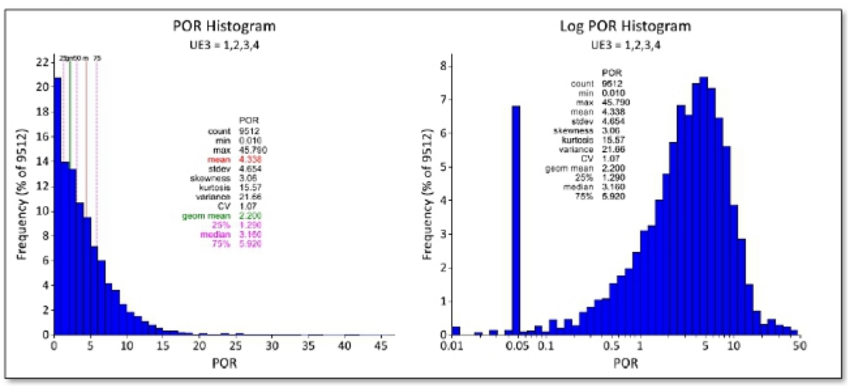


Figure 7-4. Effective Porosity (%) Histogram of the Upper Halite, Intermediate Halite, and Halite with Organic Matter



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 (OMA Exploration). 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

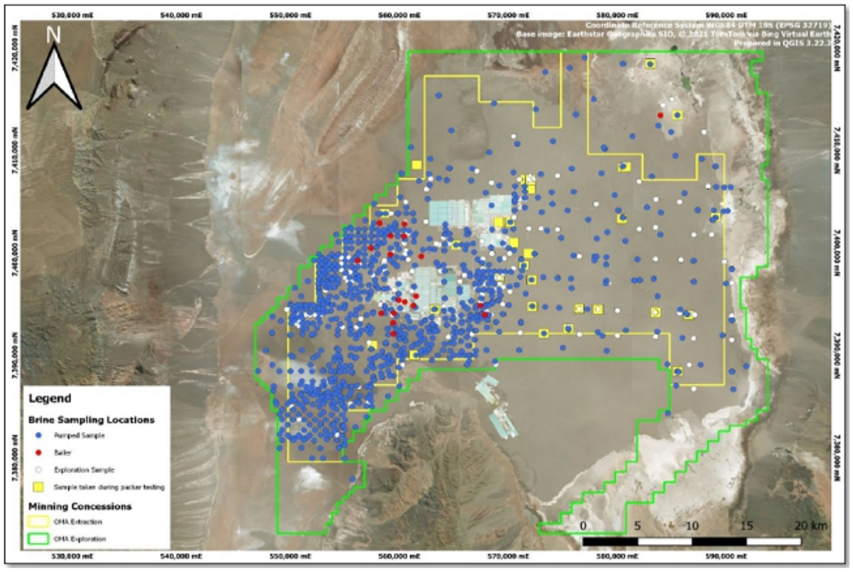
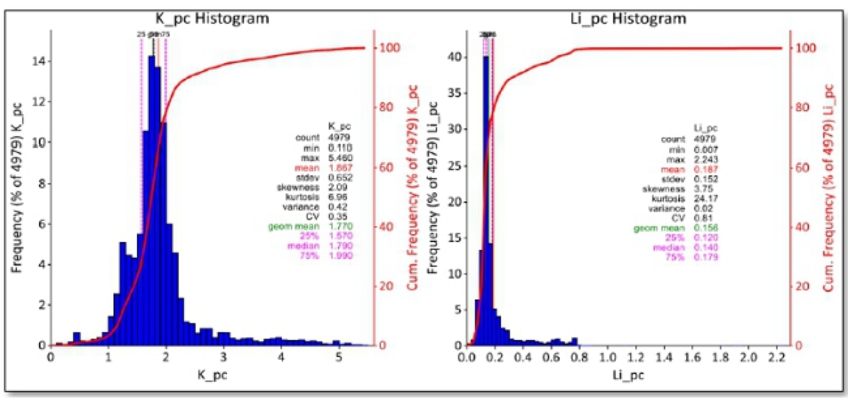


Figure 7-6 shows the histograms of the brine chemistry dataset for Li and K after filtering the data for potential anomalies and errors. Mean, minimum (min), and maximum (max) concentrations for each analyzed solute are also included (Figure 7-6) from the extensive dataset of nearly 5,000 brine samples.

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), is characterized as a confined brine system due to massive halite of generally low porosity. 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 when compared 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.

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[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	Reservoir 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. Hydraulic Testing Locations, OMA Exploration shows the distribution of the hydraulic tests conducted within the OMA Exploration Area.

Figure 7-7. Hydraulic Testing Locations, OMA Exploration

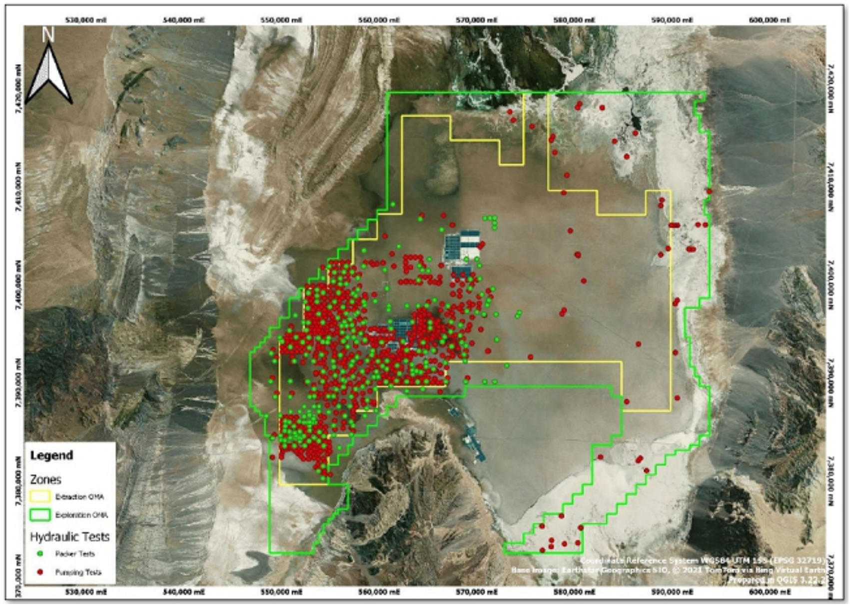


Table 7-5. Hydraulic Conductivity Ranges for each Hydrogeological Unit

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)

(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

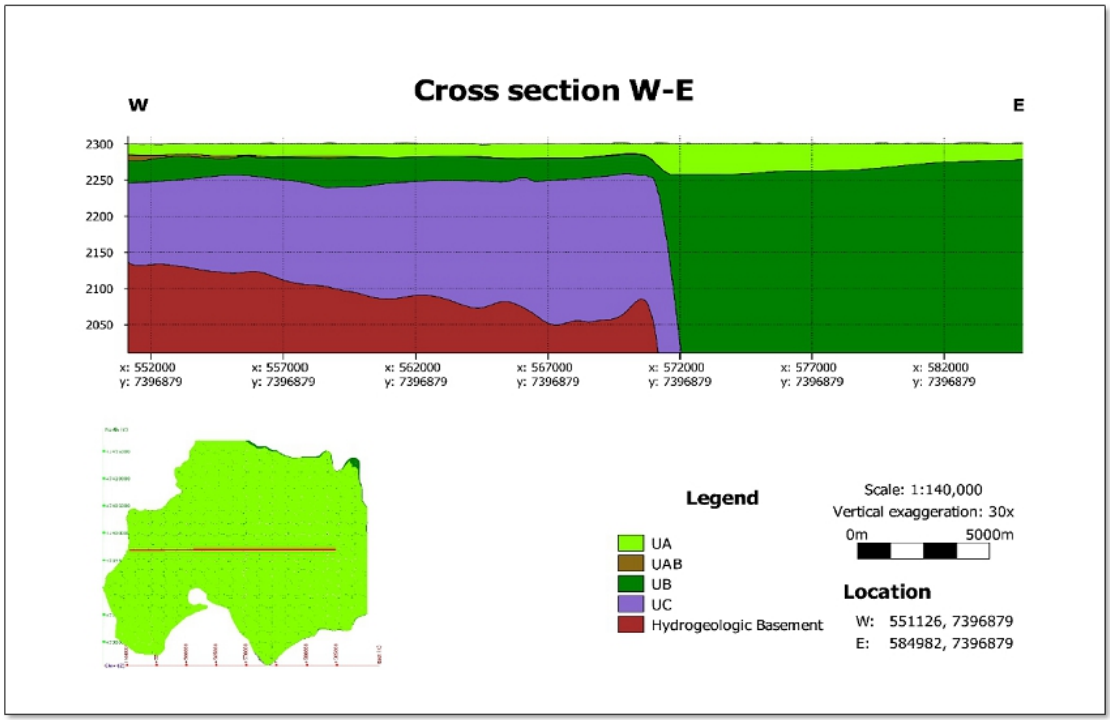
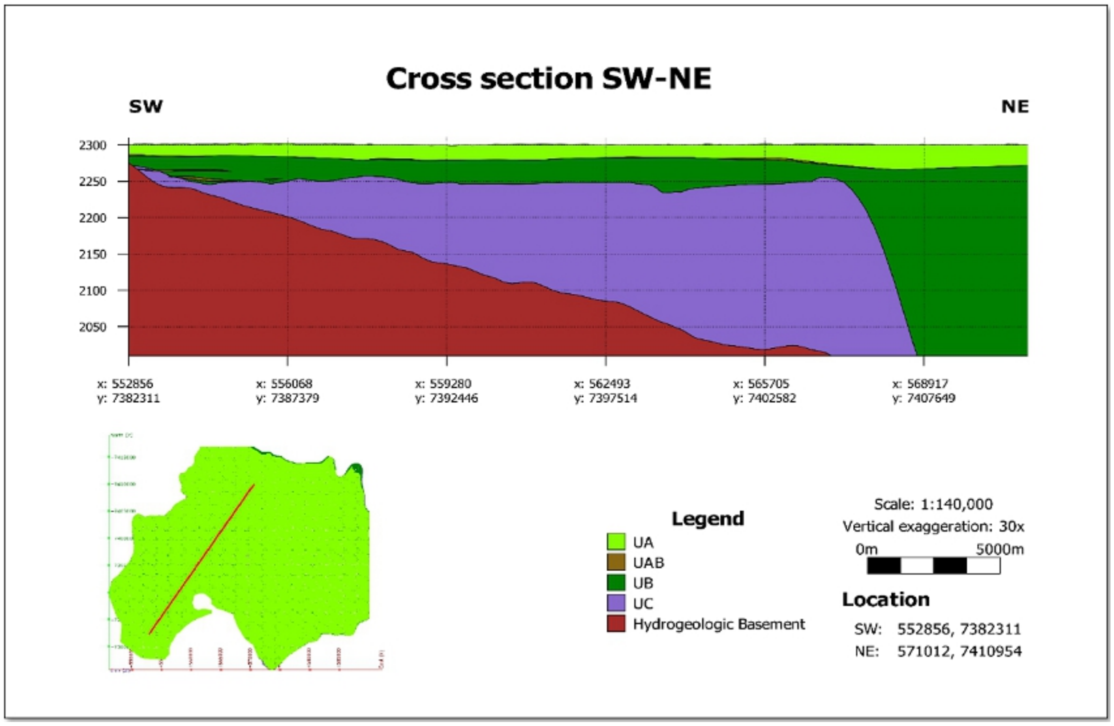


Figure 7-9. SW - NE Hydrogeological Cross Section from the Hydrogeological Model



7.3.2 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). Recently, lateral recharge was updated by WSP (2022), in order to incorporate new information provided by SQM.

The conceptual water balance considers all main input and output components that are summarized below:

<u>Inputs:</u>

- 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.

- 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.

- Surface runoff, which is generated by the liquid precipitation and streams.

<u>Outputs:</u>

- Surface water evaporation, related to natural discharge due to evaporation of the free water surface (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.

- Brine extraction from SQM’s mining operations that occurs in the lower zone, and also Albemarle pumping that represents an additional hydrological discharge in the salt flat.

7.4 Qualified Person’s Opinion

It is the resources 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.

7.5 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, 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

*This table includes analytical, and field duplicates up until the end of 2020

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

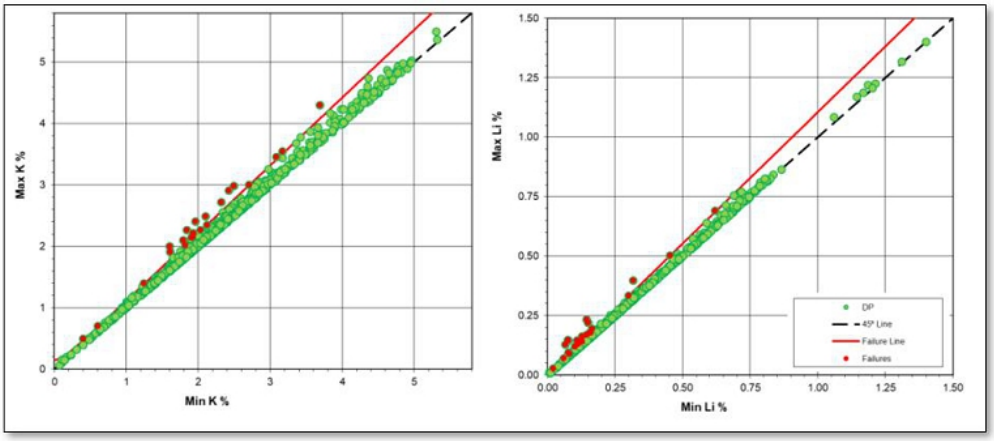
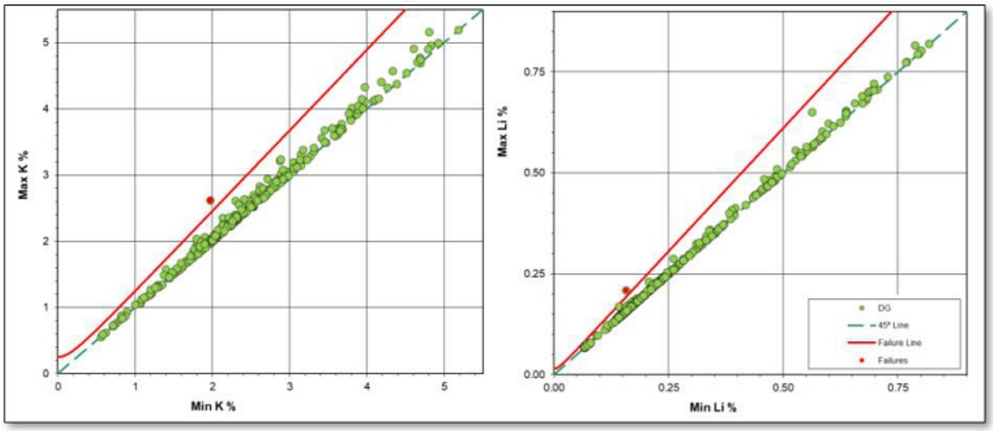


Figure 8-2. Error Ratio Plots, Field Duplicates.



The conventionally accepted maximum ER is 10%. Therefore, it is concluded that the analytical precision and that of the sampling of the elements evaluated until the end of 2020 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

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. Through the software for each instrument, different processes of calibration, and review of their accuracy is undertaken using manufacturer standards.

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.

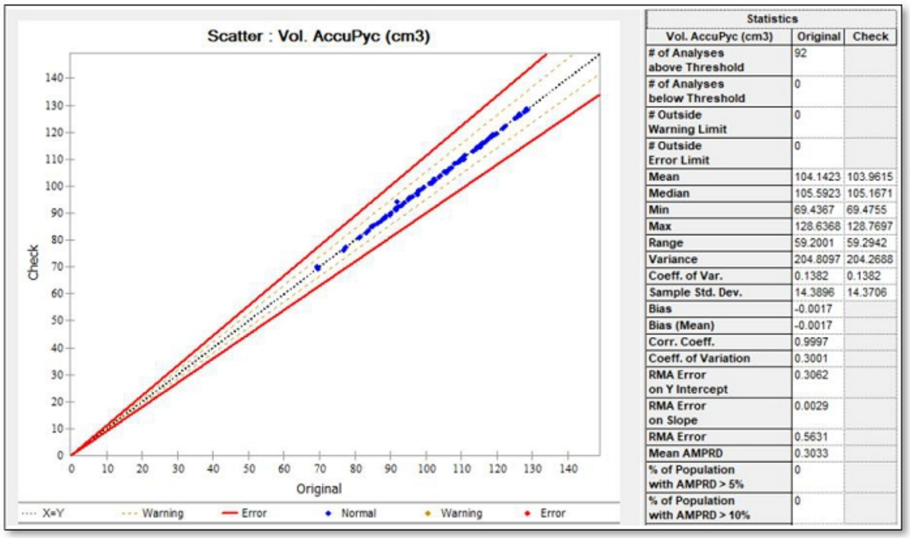
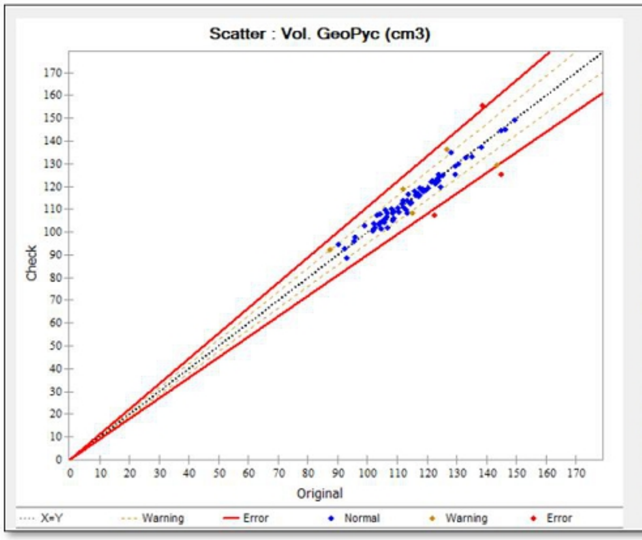


Figure 8-4. Scatter Plot for pairs analyzed with Geopyc



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.

Brine chemistry exploration in the Salar de Atacama was the first step in designing a lithium recovery process, and this was followed by the planning and confirmation of the Project's operational success. The basis of the process methods was tested and supported by laboratory evaporation as well as historical metallurgical response tests. Since 2015, additional research and projects were implemented to improve yield and recovery, and they have also continuously improved the accuracy of lithium and potassium salt recovery modeling for each of the brine extraction well areas.

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

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

10.1 Test Procedures

Testing has been conducted to estimate how 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 the 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 processes 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 which guarantee a certain product quality.

The testing program requires that SQM staff collect brine samples from wells on a regular basis for testing. Sample collection takes place throughout the year with specific campaigns defined in 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. In all, this process generates data that provides accuracy in the estimation of brine chemistry.

It should be noted that SQM's Salar de Atacama brine exploitation system focuses on detecting, differentiating, and segregating brine wells based on their concentration. If the criteria are met, the brine is directed directly into the well system, but if not, it goes into the collector system. This approach helps to prevent dilution of the brine grade by mixing with brines that are lower in potassium and lithium or contain higher levels of magnesium, calcium, boron, and sulfate. The analytical laboratories at Salar de Atacama support this well categorization approach, making the system more efficient in terms of resource utilization and well availability.

The Salar de Atacama laboratories, via its three sub-facilities (Table 10-1), i.e., Laboratory QA/QC, analytical laboratory, and metallurgical laboratory, produce metallurgical test databases which include results for:

- Chemical composition (brines and salts)
- Density
- Evaporation rate based on brine chemical composition.

The metallurgical tests are designed to estimate the distinct responses of brine and salt when exposed to productive treatment and their also evaluate the most appropriate route for treatability. The internal laboratories oversee support for 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 has conducted these tests at the plant and/or pilot scale through its research and development department, allowing for (i) an improved recovery process and product quality, (ii) lithium recovery from lithium carnallite, (iii) increased $LiOH.H_2O$ production capacity, and (iv) increased Li_2CO_3 production capacity.

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

Table 10-1 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 the concentration of an electroactive species in a solution using a reference electrode and working electrode.
			Determination of chlorides by 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.
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 an alternating paddle.
			Moisture is determined by a gravimetric method with constant weight where the sample is reduced by the alternating paddle technique and then is 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 the amount of solids in the sample is determined.

SQM's new initiatives to improve the recovery of lithium from the LiCl production process are supported by internal laboratories in Salar de Atacama, which carry out chemical analysis of brines and salts. Further information on these initiatives can be found in section 10.4.1.

With regards to the production of lithium carbonate and lithium hydroxide, the Salar del Carmen Laboratory (LSC) in PQC conducts quality control tests on liquid and solid samples, as well as finished products (see Table 10-2).

Table 10-2 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, aluminum, manganese, chromium, zinc, silicon, insoluble, lithium carbonate, boron, moisture pH, magnetic particle density	Chemical and physical analysis of finished products. Chemical analysis of solution and solid samples.

The following subsections discuss brine sampling, preparation, and characterization procedures, as well as monitoring activities at the PQC and Salar de Atacama.

10.1.1 Wells Sampling and Sample Preparation

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

Samples for the chemical characterization of brine are taken from the wells involved in the Project's operation, which together with other samples from the database, are used for the evaluation of Mineral Reserves. Brine samples from pumping are collected for chemical and density analysis. These wells are called "Operational", while those wells which 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 10-3.

Table 10-3. Categorization of Brine Samples from Wells

Category/Status	Type	Detail
Operational	Operating well	Sample taken from a production 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-production well, after pumping, which can last from 5 to 30 minutes.
	Pumping test	Brine sample taken during a pumping test to evaluate aquifer parameters. A preliminary pumping test is undertaken to detect anomalous transmissivities that could invalidate a production 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 fine sediments (by measuring both parameters in an Imhoff cone) as well as temperature, pH, and electric 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 brine density (125 mL for chemical analysis and 250 mL for brine 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. Determination of In-situ Brine Parameters at Pumping Wells

a) Sampling

b) Clarity and fine sediment measurement

c) Viscosity measurement.

d) pH, temperature, and conductivity measurement

Brines are not exposed to any preparation, or acid preservation, as a pre-treatment before being submitted for chemical analysis at the destination facilities. Brine sampling operation quality control includes taking 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 the static water level measurement.
- Interruption of brine pumping due to brine depletion in the well, before, or during, sampling

Internal laboratories involved in brine sampling, analysis, and testing are listed in Table 10-8, and they are also detailed in the following subsections.

10.1.2 Sampling in Brine Build-up Pools

This task is carried out by mine operation staff. At the pumping station, samples are regularly taken from the pond outlet to the brine treatment plant, allowing for improved verification, 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 brine feed 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 10-4.

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 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 (blanks, standards and duplicates) 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.

Table 10-4. List of Analyses for the Chemical Characterization.

Analysis	Method	Standard Method
Temperature (°C)	Thermometry	APHA 2550
pH	Potentiometry	APHA 4500 H+ B.
Conductivity(mS/cm)	Electrometric method	APHA 2510 B.
Total suspended solids	Solids Dried at 103-105°C	APHA 2540 D
%Li	ICP-OES or Atomic Absorption Spectrophotometry with direct air-acetyleneflame aspiration	NCh3349:2020 Brines-Determination of alkali metals by flame atomic absorption spectrometry. ASTM D3561-16: Standard test method for lithium, potassium and sodium ions in brackish water, seawater and brines by atomic absorption spectrophotometry.
%K	ICP-OES or Atomic Absorption Spectrophotometry with direct air-acetylene flame aspiration	NCh3349:2020 Brines-Determination of alkali metals by flame atomic absorption spectrometry. ASTM D3561-16: Standard test method for lithium, potassium and sodium ions in brackish water, seawater and brines by atomic absorption spectrophotometry.
%Mg	ICP-OES or Atomic Absorption Spectrophotometry with direct air-acetylene flame aspiration	NCh3349:2020 Brines-Determination of alkali metals by flame atomic absorption spectrometry.
%SO4	Determination of Sulfate with residue drying	SM 45002-C/D (Drying of Residue)
%Ca	Atomic Absorption Spectrophotometry with direct aspiration of nitrous oxide-acetylene flame.	NCh3349:2020 Brines-Determination of alkali metals by flame atomic absorption spectrometry.
%Cl	Argentometric method	SM 4500-Cl-B
%Na	ICP-OES or Atomic Absorption Spectrophotometry with direct air-acetylene flame aspiration	SM 3111 B
%H3BO3	Acid-base volumetry. Determination of boric acid content - Volumetric method.	NCh3358:2020 Brines-Determination of boron by acid-base potentiometric titration.

10.1.4 Brine Density Determination

For the determination of brine density, 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 which registers the density. This measurement is reported through the LIMS laboratory system, which is an integrated data management software, where reports are created.

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

The reference methods followed by the in-house laboratories for the determination of certain analytes ensure a certain degree of reliability of the determination methodology and results. The chemical characterization of the samples takes as reference the methods indicated in:

- American Public Health Association (APHA) Standard Methods for the Examination of Water and Wastewater.
- Chilean Standard (NCh) 3349:2020 for the determination of alkali metals.

Standard Methods (SM) produced by the American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF).For precipitated salts in the ponds, the same chemical analysis parameters (Li, K, Na, Ca, Mg, SO_4, H_3BO_3, Cl) are determined according to the methodology described in the Table 10-4, for their characterization and evaluation of the evaporation-concentration process.

10.1.5 Calculated Evaporation Rate

Evaporation monitoring represents an important factor in well management and production scheduling; however it is complex due to the extreme conditions faced by solutions, producing potential errors. Therefore, to validate evaporation well data, calculations were conducted using supplementary meteorological parameters collected at stations installed in the Salar de Atacama. Solar radiation, humidity, wind speed, and temperature represent the dominant processes controlling evaporation. Salt composition effects are also considered, so that evaporation is modeled empirically, with consideration ofmagnesium and lithium concentration in the free brine, as well as SQM weather station data on-site.

Evaporation estimates are obtained by correlating water evaporation at a weather station (variable by seasonality) with well area/shape and well activity over a given period. To estimate evaporation, the equations (correlations of J.A. Lukes & G.C. Lukes [1993]) are applied to the wells. Lukes equation (1993) is 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 10-5 summarizes the evaporation rate calculated by the production system (with emphasis on lithium and potassium), which are associated by the type of pond in period 2020-2022.

Table 10-5. Mean Annual Evaporation Rates for each Subsystem in the 2020-2022 Period

Brine evaporation rate		Minimum rate (mm/year)	Maximum rate (mm/year)	Average rate (mm/year)
2020				
Productive Lithium	Halite	873	4,296	2,805
	Sylvinite	1,641	7,544	4,068
	Carnallite	775	2,920	1,690
	Bischofite	604	2,181	1,330
	Lithium Carnallite	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
2021				
Productive Lithium	Halite	1,103	5,075	2,735
	Sylvinite	2,153	8,219	5,349
	Carnallite	858	4,007	1,994
	Bischofite	502	2,199	1,231
	Lithium Carnallite	580	1,749	1,203
Productive Potassium	Halite	834	4,721	2,485
	SX	1,919	7,685	4,377
	CX	556	1,892	1,070
2022				
Productive Lithium	Halite	1,198	4,852	2,634
	Sylvinite	2,790	8,591	5,076
	Carnallite	1,230	5,352	2,594
	Bischofite	527	1,961	1,118
	Lithium Carnallite	792	3,009	1,457
Productive Potassium	Halite	751	4,651	2,173
	SX	1,563	6,545	3,429
	CX	252	2,264	856

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 by verifying ion levels that are part of the product (Li, K) as well as the ions which 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 solution 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) precipitation 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, as well as 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.

As such, 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

The Carmen Lithium Chemical Plant aims to refine lithium-rich brines from remaining impurities and also perform lithium carbonate synthesis. A part of the carbonate is then used for the synthesis of lithium hydroxide.

Customer requirements for lithium products require lithium carbonate to be 99.5% pure with a maximum concentration of magnetic particles which is less than 500 ppb, and a maximum concentration of sodium, magnesium, and calcium ≤0.05%. The requirements also specify that lithium hydroxide has 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.

Analytical methodologies identify deleterious elements (boron, magnesium, calcium, and sulphate) in order to establish mechanisms in the operation to keep such elements below acceptable limits and also ensure product quality. Table 10-6 lists the basic set of analyses requested from laboratories as well as the methodologies used in determining solutions and solids.

Table 10-6. List of Requested Analyses for Plant Control

Parameter	Method
Liquid Sample Analysis	
Lithium	Atomic Absorption
Calcium and Magnesium	Atomic Absorption/Volumetry
Carbonate and Boron	Volumetry
Silicon	ICP
pH	pH meter
Sulfate	UV visible
Solid Sample Analysis	
Chloride	UV visible
Sodium, Magnesium, Calcium, Sulfate, Silicon and Boron	ICP
Humidity	Stove

Parameter	Method
D50	Mastersizer

Chemical and physical parameters are evaluated, and the finished product then undergoes strict QC. Methodologies used for determining the chemical and physical parameters are recorded in Table 10-7.

Table 10-7. Analysis of Products (Li_2CO_3/LiOH)

Parameter	Method
Chemical Analysis	
Chloride	UV visible
Sulfate, Sodium, Potassium, Calcium, Magnesium, Iron, Nickel, Copper Lead, Aluminium, Manganese, Chromium, Zinc, 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

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 10-8 details the name, location, and analysis conducted.

Table 10-8. 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.
Analitical 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 the concentration of an electroactive species in a solution using a reference electrode and working electrode.
			Determination of chlorides by 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.
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 an alternating paddle.
			Moisture is determined by a gravimetric method with constant weight where the sample is reduced by the alternating paddle technique and then is 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 the amount of solids in the sample is determined.

The Lab SA is not certified by the International Standards Organization (ISO), but it 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 by 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.

The 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 which 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 is in process through the University of Antofagasta laboratory. During round robin tests, no significant contamination of any of the analytes evaluated for the brines was detected during the analysis, demonstrating that.:

1. The sampling, preparation and analysis procedures of the brine samples are adequate.
2. The quality control and analytical procedures used in the laboratory are of high quality and similar to those used by ISO certified laboratories specialized in brine and inorganic salt analysis.

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 on clearly defined roles in order to comply with the standards defined for each procedure. This includes prior verifications and reporting in case deficiencies are detected, or irregularities in sampling as well as reporting problems with the samples and equipment.

10.3 Sample Representativeness

The characterization approach and sample collection procedures used by the most recent explorations program have demonstrated the sampling methodology and documentation procedures. Metallurgical test development is developed by teams of specialized professionals with extensive experience in mining and metallurgy.

Samples selected for testing and/or assays are taken by qualified laboratory personnel and correspond to areas 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 of 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 the 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 estimates.

SQM applies a protocol that requires the laboratory to receive brine samples from all areas developed in accordance with the campaign, address and arrange the dispatch together with shipment documentation of samples and prepare and insert quality controls to confirm 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 Chapter 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 brine product. The specific objectives include the following:

- Establish a balance between efficiency and the maximum allowable lithium concentration.
- Determine brine purification conditions and recovery of valuable species from impregnated salts.
- Investigate process equipment and operating conditions for the removal of impurities and maximization of production.

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

Currently, the following initiatives are underway:

1. Bischofite platforms: Focused on recovering losses due to impregnation.
2. Improved harvesting: The aim is to reduce impregnation losses by improving the recovery of impregnated brine.

3. Miscellaneous improvements and Repair of the pond floor: reduce infiltration losses.

4. CK platforms: recovery of brine impregnated in salt harvests.

5. Li_2SO_4 project: Processes and purifies lithium sulfate salt for use in refined lithium production processes.

6. Calcium Source: Eliminate losses due to lithium sulfate precipitation.

7. Improved C-Li recovery: Optimization of lithium carnallite leaching process.

All measures/ initiatives are focused on optimizing the Salar de Atacama's operations to capture brine product which could be lost 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 relevant or expected results of the initiatives include:

- 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, as the brine has a higher concentration and generates a significant amount of salt.

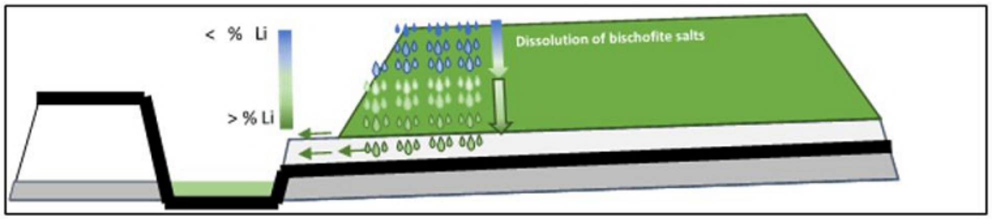
Figure 10-2 shows the displacement of the impregnated brine through the bischofite salts mounted on a squeeze platform.

Different 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 for a lithium yield increase of 3%.

The first phase of the project was evaluated and developed in 2018 based on laboratory and pilot tests. The results of these tests show that it is technically and economically feasible to recover impregnation. Due to this notion and result of the plant, the company decided to realize platforms with a total area of 320,000 m^2 for squeezing of the bischofite salts. Thus, by the end of 2021, five (5) platforms had been implemented and during 2022, two (2) more platforms were implemented. The company plans to build and put into operation two additional platforms to treat bischofite from the MOP-I system by 2023.

Figure 10-2. Improved Treatment Scheme for Bischofite Platforms



According to information provided by the company's Research and Development team, it is estimated that 8,942 tons of LCE will be recovered, which will increase the lithium yield of the production operation by 3.0%.

10.4.1.2 Improvement in Salt Harvesting

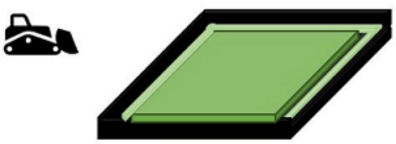
The salt harvesting initiative is focused on reducing loss due to impregnation and improving impregnated brine recovery in the harvesting process of different subsystems.

However, for the time being, the company is focused on reducing the impregnation of the Halite, Sylvinite and Potassium Carnalite subsystems.

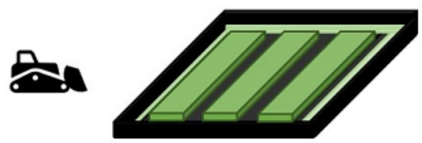
The harvesting process includes four main stages, as highlighted below (Figure 10-3):

- Drying and formation
- Trenching
- Sealing
- Stockpiling

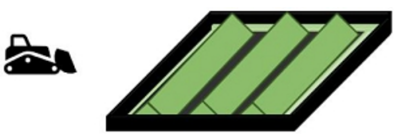
Figure 10-3. Improved Treatment Scheme for Harvested Salts



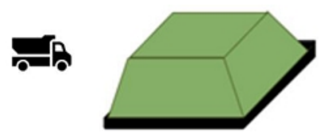
a) Ponds scheme during drying and formation stage.



b) Ponds scheme during trenching and cordoning stage.



c) Ponds scheme during sealeing 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 lithium yield of the productive operation by 0.4%. The improved harvesting initiative is in the process of being implemented in the 3 subsystems mentioned above. Consequently, the estimation and evaluation of partial impacts will be carried out for each subsystem during its operation. These impact values are expected to be reported in the next update of this report.

10.4.1.3 Potassium Carnallite Platforms

Due to the success of 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 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 tonnes of LCE equivalent is estimated to dispatch, increasing the yield of the operation by 2.1 % for the lithium productive system.

During 2021 and 2022, laboratory and pilot scale tests were developed for carnallite squeezing platforms. The tests have been successfully completed and validated the expected performance. Considering this, the company's plans are to conduct industrial scale testing and platform construction upon completion of the bischofite squeezing system. Work is currently underway on the industrial testing program.

10.4.1.4 Calcium Source

During the evaporation process, different salts precipitate sequentially in the ponds, including lithium sulfate (Li_2SO_4). One strategy to increase yield is to avoid lithium losses from lithium sulfate precipitation and to purify the sulfate brine by adding a calcium source.

To avoid and/or reduce lithium losses by precipitation as lithium sulfate in the concentration system (solar evaporation), sulfate in the brines is abated with calcium chloride to form the alternative calcium sulfate precipitate. This will lead to increased lithium availability in the concentrated brine.

Of the salts generated 270,000 [tonnes/year] contain precipitated Li_2SO_4 with a grade of 1.17 %Li. If precipitation of this solid is avoided in the LiCl production line, an estimated 9,100 [tonnes LCE/year] can be recovered. It has been estimated that this strategy can be successfully integrated with a yield of 3.1% for the lithium system.

Using these concepts, a testwork program will be developed using the natural brine and a brine treated with $CaCl_2$. The aim is to obtain a dose of $CaCl_2$ that results in the most efficient and cost-effective removal of sulfate ions. Concentrated brine and precipitated salts in both tests will provide information regarding crystallized salts throughout the different stages of an evaporation process.

The successful results motivated the development of two sulfate abatement lines: 1) Rapid implementation in wells from January 2023 and 2) Development of basic engineering for implementation of the process in plant by 2024.

10.4.2 Carmen Lithium Chemical Plant (PQC) Testing

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

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

As such, tests are being developed to increase Li_2CO_3 and $LiOH.H_2O$ production capacity mainly using the proven design of production trains, which allows a rapid upscaling of production capacity. Industrial scale tests are being conducted in this way for each incorporated train to verify and establish a balance between performance and maximum allowable lithium concentration along the production train. This is achieved by reviewing conditions at each stage. The following is a brief example of the verifications made by 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 doses: in the first stage, Sodium Carbonate (Na_2CO_3) is added to the 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 capabilities of the process equipment.

In the same way, controls are checked for conditioning, dosing, and obtained 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 risk considerations regarding brine processing as well as the factors detrimental to recovery, or quality of the obtained product, are the potentially present deleterious elements. 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, produced Li_2CO_3 can be of 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 regarding conducted tests to process input and output streams, such as salts and brine, as well as 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, 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; these are represented by the Mg/Li, Ca/Li, and SO4/Li ratios. Furthermore, elevated carnallite causes elevated magnesium levels in the brine. Having then elevated magnesium causes lower KCl concentrations in the brine, reducing 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 mixed 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 extracted brine, 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 which incorporates information on brine chemistry at different stages has improved yields from the historical amounts of around 45-50% (due to precipitation, entrainment, and impregnation of lithium solutions in the precipitated crystals) to closer to 60% (see Section 14).

- The 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 concentrated lithium solutions.

- Physical and chemical metallurgical testwork to date has been adequate to establish suitable processing routes for the extracted brine.

- Samples used to generate metallurgical data have been representative and support estimates of future throughput. Metallurgical test data for the extracted brine which is planned to be processed in the projected production plan to 2030 indicates that the recovery methods are adequate.

- The concept of optimizing the lithium production system is directly linked to the concentration and purification of the brine, aiming at the reduction of Mg, Ca, B and SO4 to allow optimal operation of the process plant.

- 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.

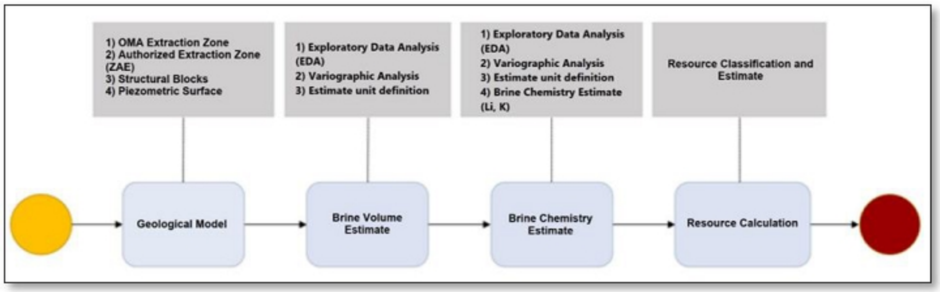
- Three different research units cover topics such as the chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of the finished products.

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 the QP; although SO_4 and B Mineral Resources were previously reported (SQM, 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; see Chapter 7), 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 ton (tonne) of K or Li in cell i.

V_i = Drainable interconnected pore volume 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 drainable interconnected pore volume of the aquifer material (Hains, D. H., 2012). 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 subsurface OMA Zone such as clay[2] (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.

[2] Fine-grained sediments are principally found on the surface of the geological model and present a low thickness (1 m average). Additionally, the regional clay unit is found below the base of the resource block model.

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
	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).

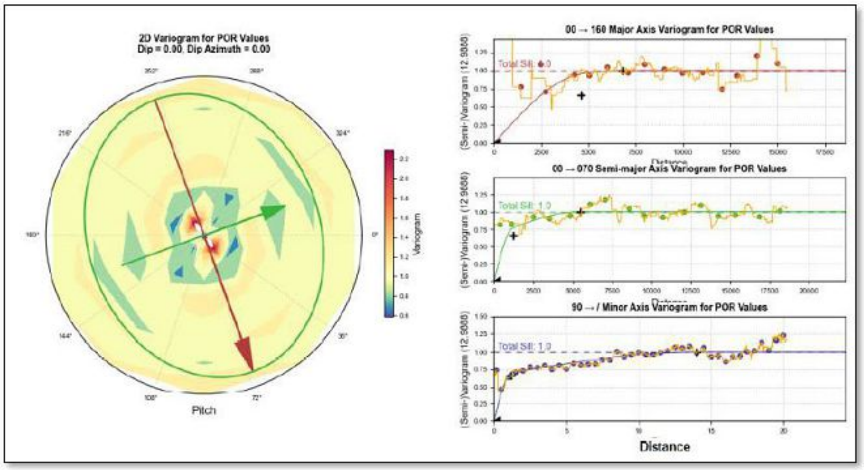


Figure 11-3. Variograms of Effective Porosity Domain 3 (Intermediate Halite).

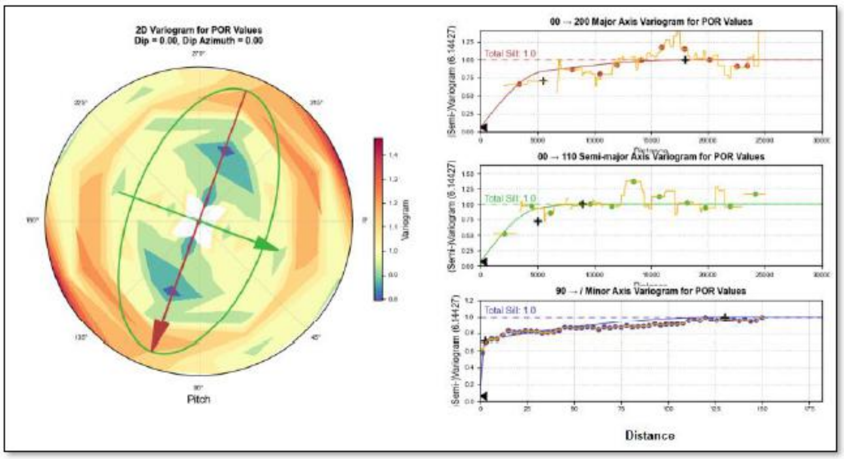


Table 11-8. Search Radius Parameters, Effective Porosity Estimate (SQM, 2021a)

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/Vol3	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, 2021a)

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

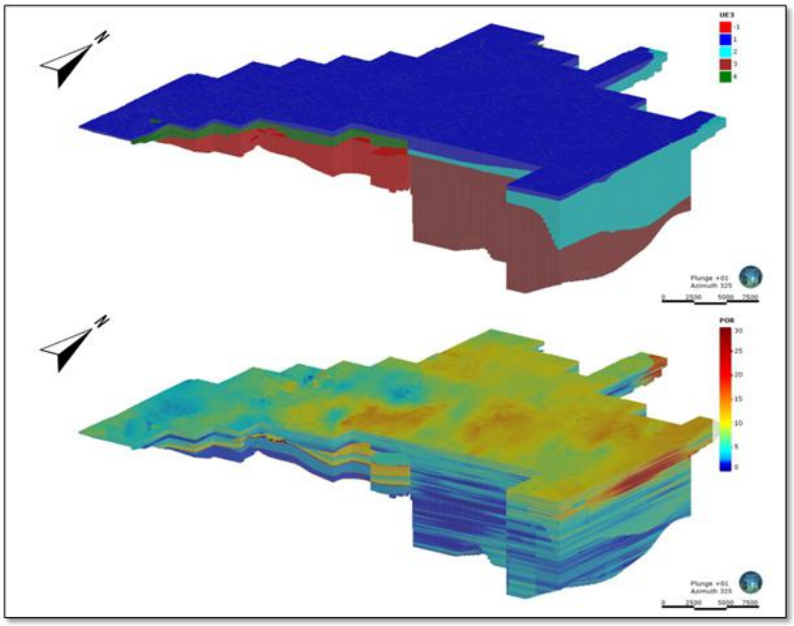
The interpolation results of Pe are summarized in Table 11-10.

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



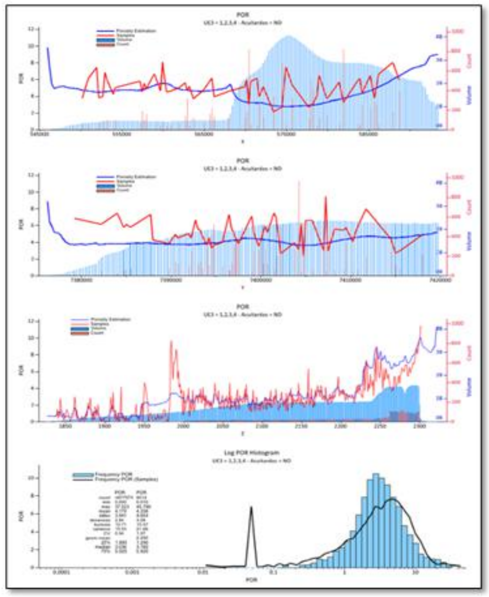
The resulting Pe values are consistent with the response of the reservoir units to pumping and are reasonable based on the QP's experience. It is important to highlight that the values are also conservative considering that normally core samples used for the Pe measurements are recovered in more compact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

Brine Volume Validation

The validation of 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.

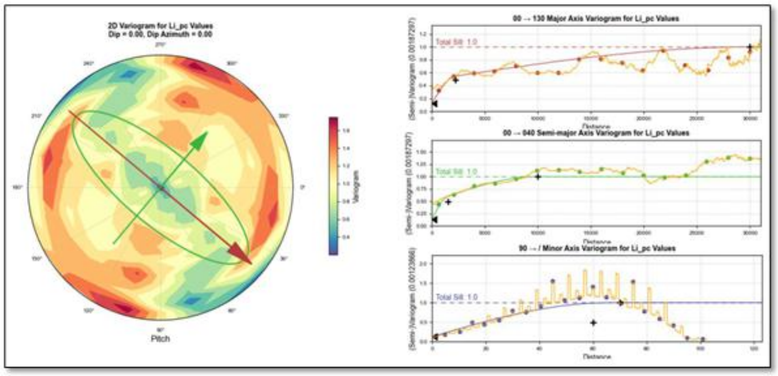


Figure 11-7. Potassium Variograms of Brine Chemistry Domain 1.

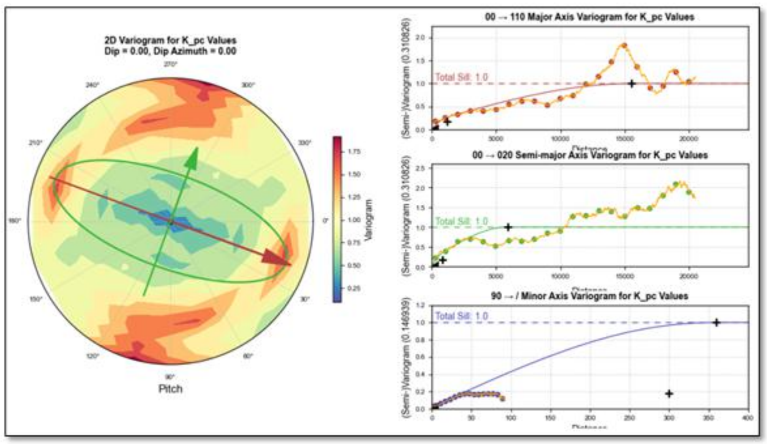


Table 11-12. Search Radius Parameters, Li and K Interpolation (SQM, 2021a).

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 Fact or	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 (SQM, 2021a).

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 (wt %) in the Block Model, Saturated Area of the OMA Zone (Modified from (SQM, 2021a)).

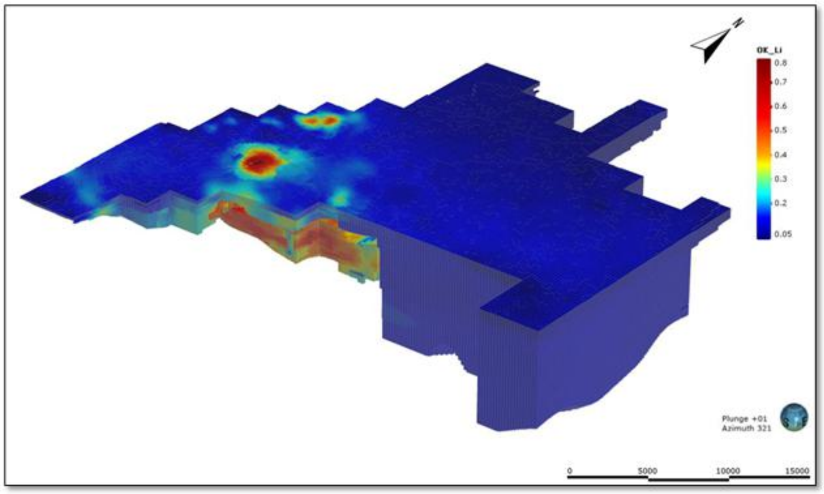


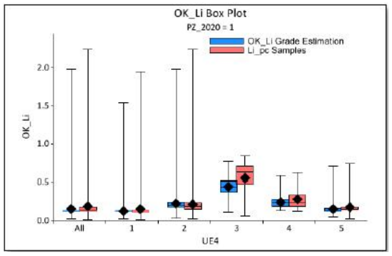
Table 11-14. Average Li and K Concentrations after Interpolation, OMA Extraction Area

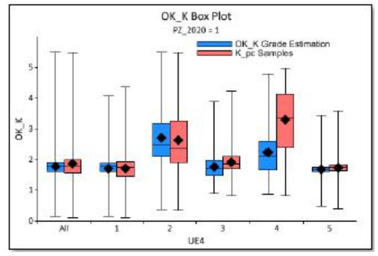
Brine Chemistry Domain	Average Interpolated Li (wt.%)	Average Interpolated K (wt.%)
1	0.127	1.70
2	0.232	2.80
3	0.476	1.79
4	0.261	2.29
5	0.153	1.68

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.





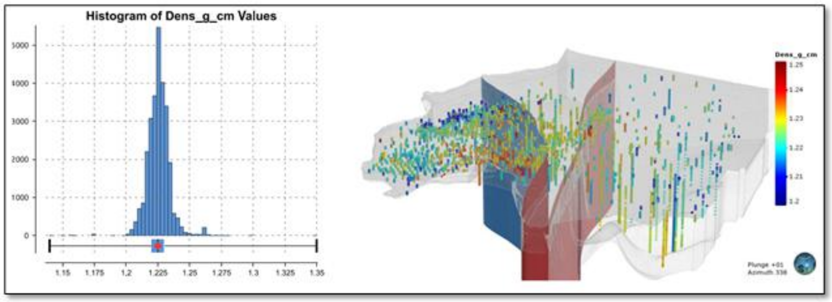
11.1.1.4 Brine Density Interpolation

The density estimate was made using OK over a single domain (Table 11-15) 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



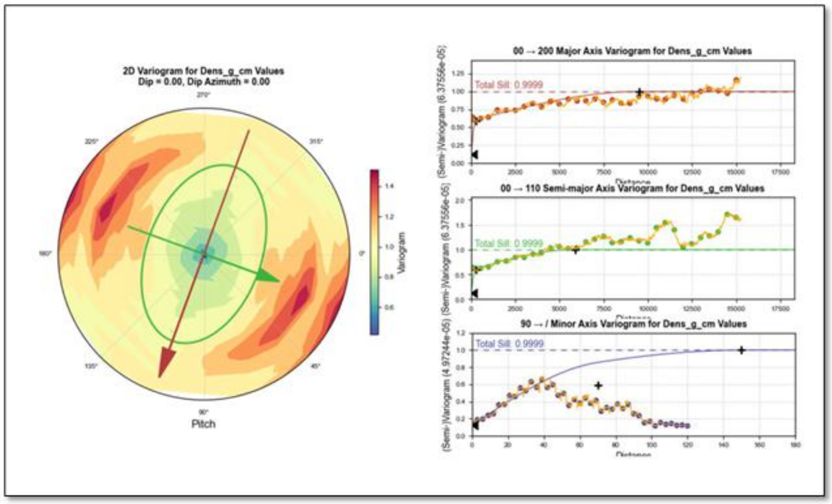
The variography analysis was performed in the horizontal (XY) and vertical (Z) directions. Capping was applied to remove the effect of the extreme values of the distribution on the variogram (Table 11-16). A maximum continuity (NE orientation) was observed with ranges of approximate 10,000, 6,000 and 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 (SQM, 2021a)

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



Furthermore, a validation process of the density estimate was made to confirm the overall validity of the obtained results, and it shows that brine density is adequately represented in the resource block model.

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, 2022), 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 $ 15,000 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 radius 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).

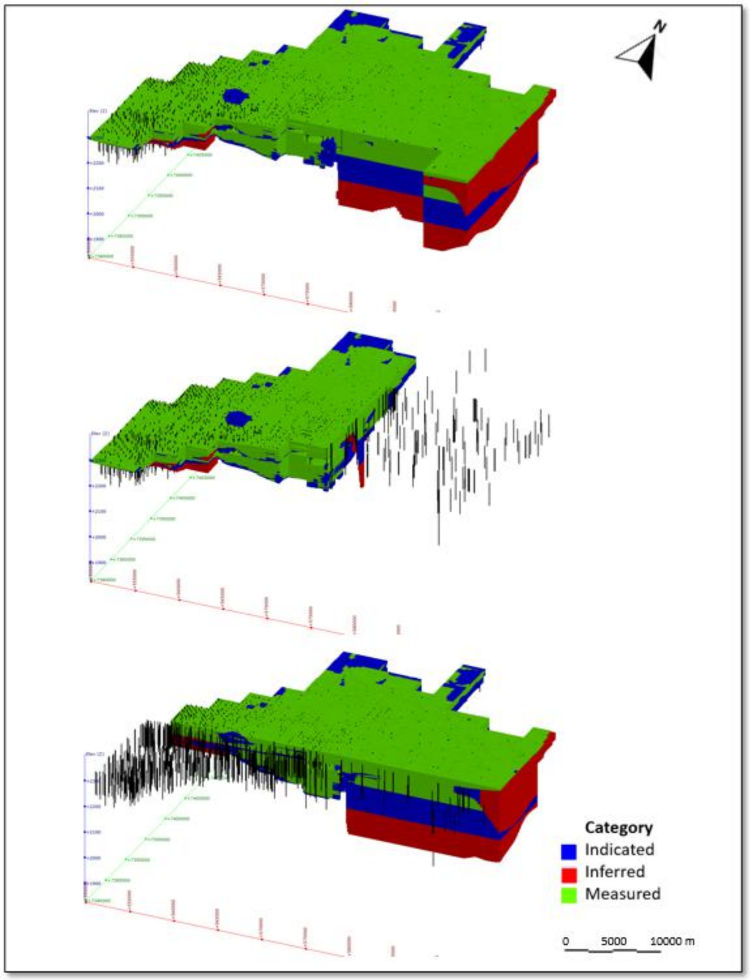
Table 11-18. Categorization of Measured, Indicated, and Inferred Mineral Resources

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, 2022)

Resource Classification	Brine Volume (Mm^3)	Mean Grade (wt. %)		Mass (Million tonnes)	
		K	Li	K	Li
Measured	2,254	1.80	0.20	49.8	5.4
Indicated	1,435	1.70	0.16	30.0	2.8
Measured + Indicated	**3,689**	**1.77**	**0.18**	**79.8**	**8.2**
Inferred	1,614	1.77	0.13	34.9	2.6
Total	5,303	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) Compared to the previously filed TRS (2022), mining occurred in 2022 and the end of the LOM (year 2030) has not changed. Given the acceptable reserve model fit to real 2022 production (see Chapter 12), there is no change in the Mineral Resource exclusive of Mineral Reserves since December 31, 2021 (SQM, 2022).
(4) 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.
(5) The conversion of brine volume to Li and K tonnes considered the estimated brine density in each block model cell.
(6) Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.
(7) 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 updated forecast to 2040, a projected lithium carbonate price of $ 15,000 USD/tonnes 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).

11.5 Uncertainty

The QP 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 if fine-grained sediments are present. However, based on the geological and hydrogeological characterization of the OMA (Chapters 6 and 7), the reservoir does not present significant volumes of fine-grained material, such as clay, where specific retention can be significant (when compared to specific yield). Thus, the effective porosity is considered to be an adequate parameter for the brine volume estimate. It should be noted that the reservoir is also characterized by presence of caverns and karstic areas that were not considered in the brine volume estimation which would probably increase the estimation. This is because current field sampling methods do not allow to take representative samples of this type of geological features for subsequent laboratory analysis.

- 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 resources 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, & 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 the 2021 QP and reviewed by 2022 QP, considering the modifying factors for converting Mineral Resources to Mineral Reserves. The projection of future brine extraction was simulated using a groundwater flow and solute transport model; specifically, the Modflow USG-Tranport 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

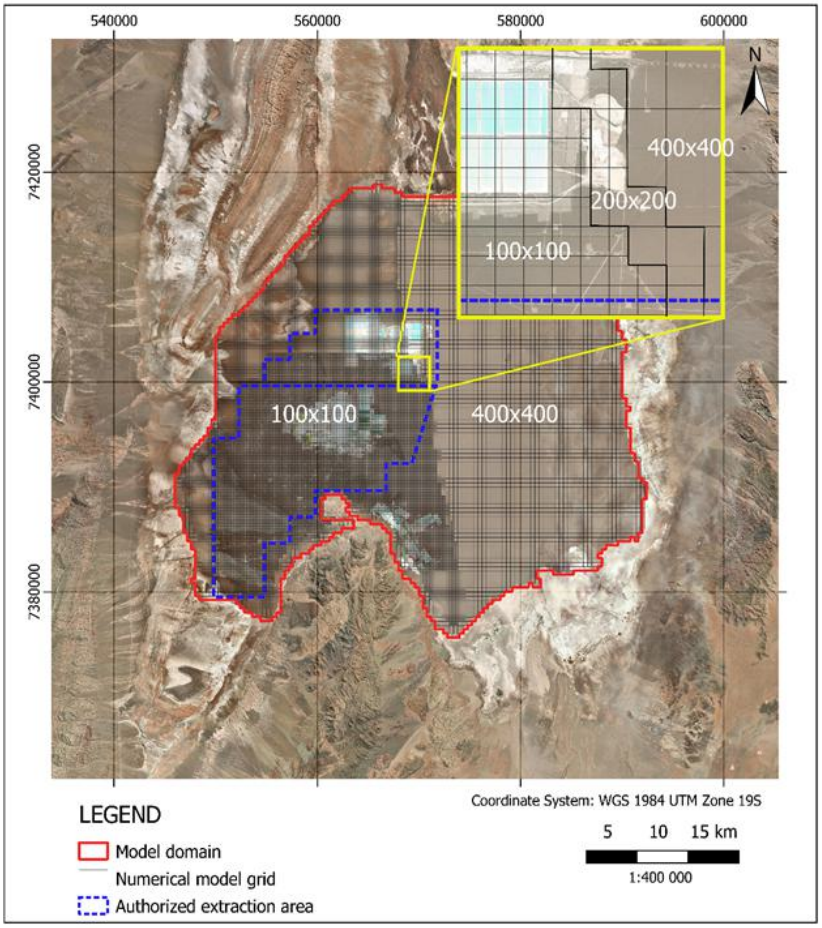
The numerical groundwater model was constructed based on the resource block model (Section 11) and defined hydrogeological units (Section 7). The area of the active numerical model domain corresponds to 1,421.3 square kilometers. A constant brine density was assumed based on the model limit (confined 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 “WELL” 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; no evaporation from the aquifer was assumed where the ponds are located.

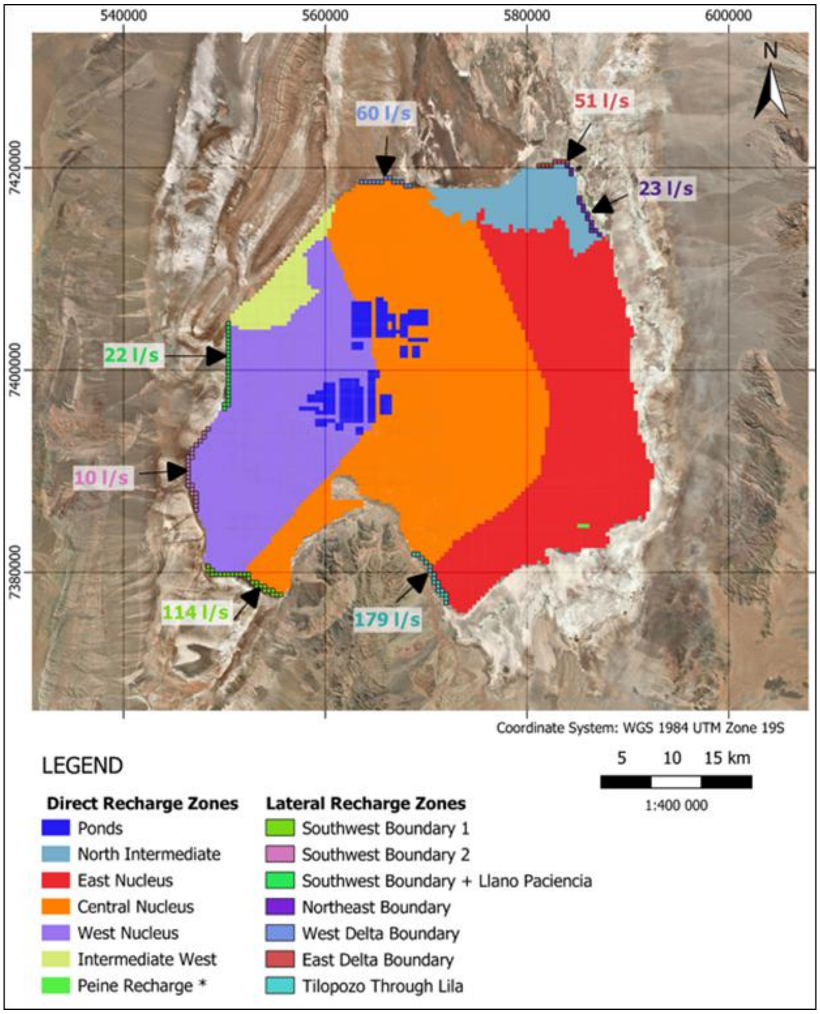
- Production wells: pumping was simulated using the “CLN” package of Modflow-USG, allowing for more precise responses to pumping, skin factors, and flow reduction in the case that the dynamic pumping level reaches the bottom of the screened layer. SQM and Albemarle pumping was simulated during the calibration 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

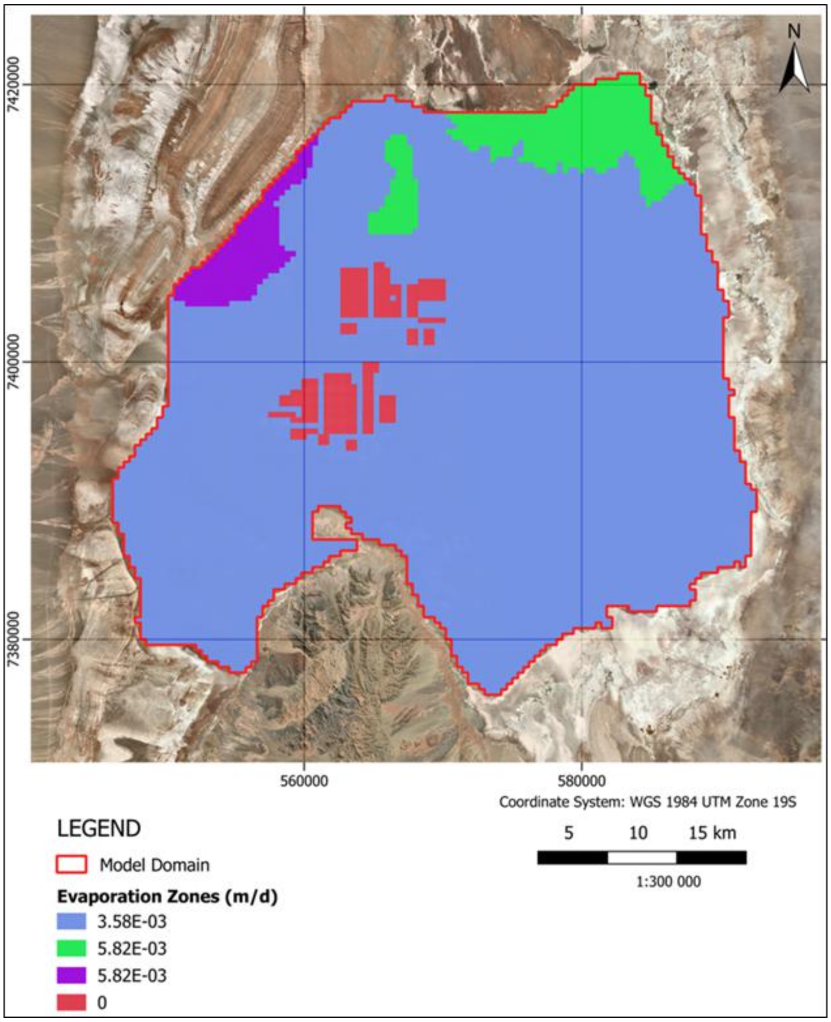
Component	Average Volumetric Flow (L/s)
Total brine extraction in the salt flat nucleus	2,059
Evaporation from the salt flat nucleus	400
Storage outflow	742
TOTAL OUTFLOW	**3,201**
All direct recharge in the salt flat nucleus	707
All brine underflow from adjacent areas	466
Storage inflow	2,024
TOTAL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



*Indicated evaporation rates correspond to the máximum (surface) rates

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 fine grain material (e.g. clay) in the nucleus (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 are assumed to have a lower compressibility.

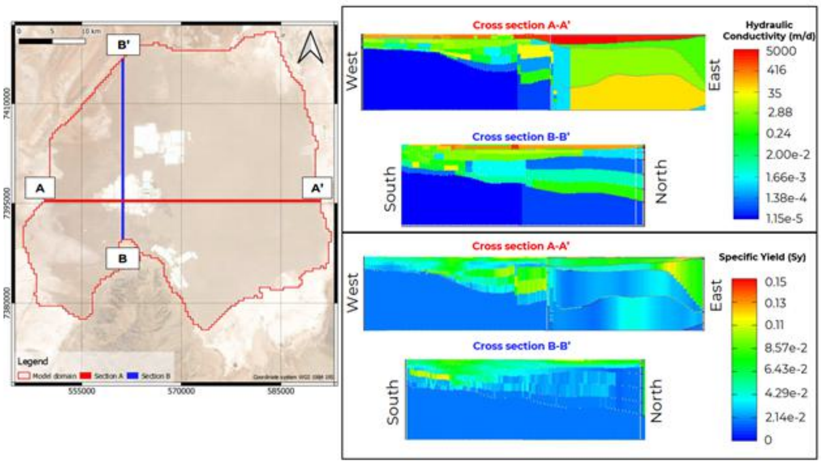
- Dispersion: Dispersion controls the rate of solute spreading and the following values were specified: 10 m for longitudinal dispersion, 1 m for transverse dispersion, and 0.1 m for vertical dispersion. Molecular diffusion was not included in the numerical model, because it is assumed to be negligible 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.

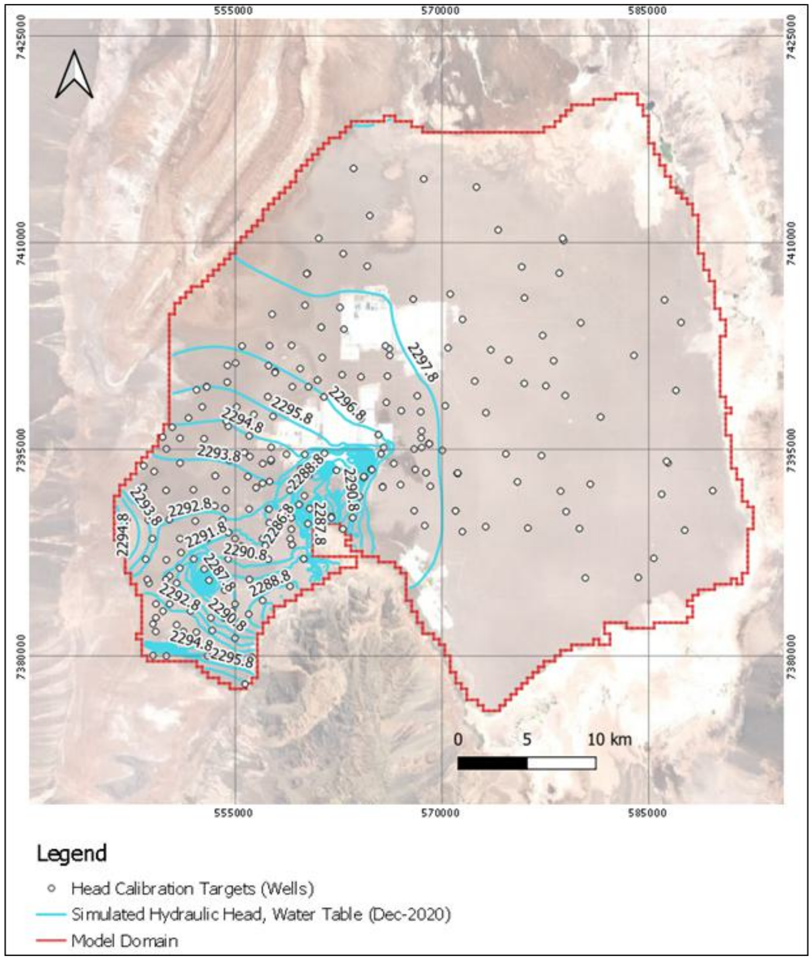
12.2.1 Initial Conditions (Calibration)

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

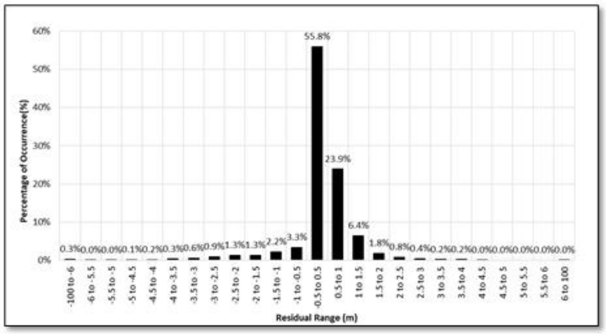
Simulated brine levels were obtained from the numerical model based on composite heads from the screened well layers, and they were compared with registered brine levels from observation wells (Figure 12-5) that span the model domain and various hydrogeological units. A simulated piezometric contour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

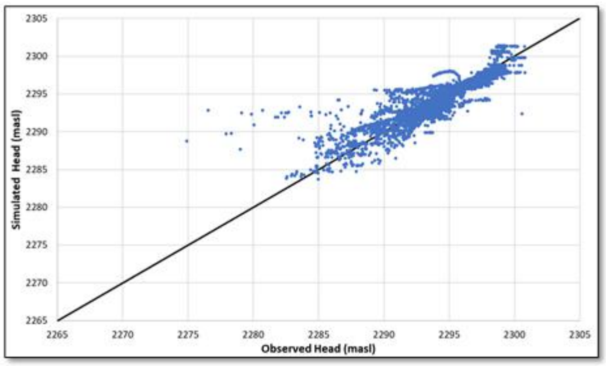


Regarding head calibration statistics, results for the entire model include a mean residual of 0.18 m and RMS of 1.05 m, with most residuals within the range of -0.5 m to 0.5 m (see Figure 12-6). The Scaled Absolute Residual Mean and Scaled Root Mean Square (RMS) error for the transient calibration were 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

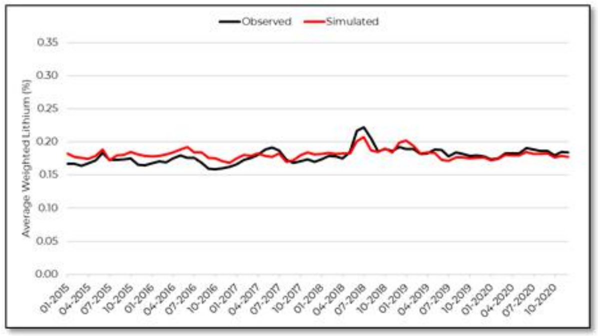


b) Simulated versus observed brine levels

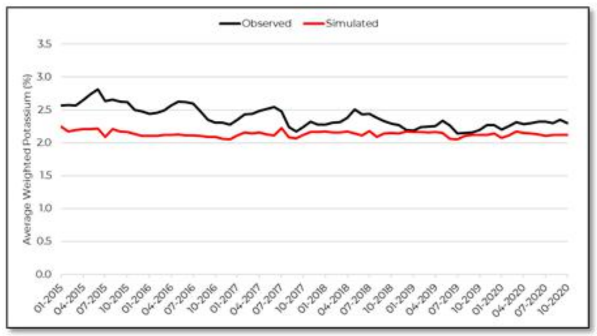
12.2.3 Transport Calibration

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)

12.2.4 Model verification

Following the numerical model calibration (2015 to 2020 period), simulated results in 2021 and 2022 were compared with field production data to further support the model predictions. Table 12-4 shows a comparison of model simulated production and real production. In 2021 and 2022, the QP believes that the differences simulated by the numerical model and real production data are negligible (less than 5%).

Table 12-4. Numerical model verification

Comparison	Average Extracted Lithium Concentration (%)	Extracted Mass Li (Million tonnes)	Extracted Mass LCE (Million tonnes)	Average Extracted Potassium Concentration (%)	Extracted Mass K (Million tonnes)	Extracted Mass KCl (Million tonnes)
		January to December 2021				
Real	0.197	0.103	0.546	2.188	1.139	2.173
Simulated	0.206	0.102	0.543	2.233	1.105	2.106
Difference	0.01	-0.001	-0.003	0.04	-0.03	-0.07
		January to October 2022				
Real	0.206	0.080	0.427	2.233	0.869	1.658
Simulated	0.205	0.077	0.412	2.329	0.879	1.676
Difference	-0.001	-0.003	-0.015	0.095	0.009	0.018
2021 Difference (%)	**4.6%**	**-1.0%**	**-0.5%**	**2.1%**	**-3.0%**	**-3.1%**
2022 Difference (%)	**-0.5%**	**-3.8%**	**-3.5%**	**4.3%**	**1.0%**	**1.1%**

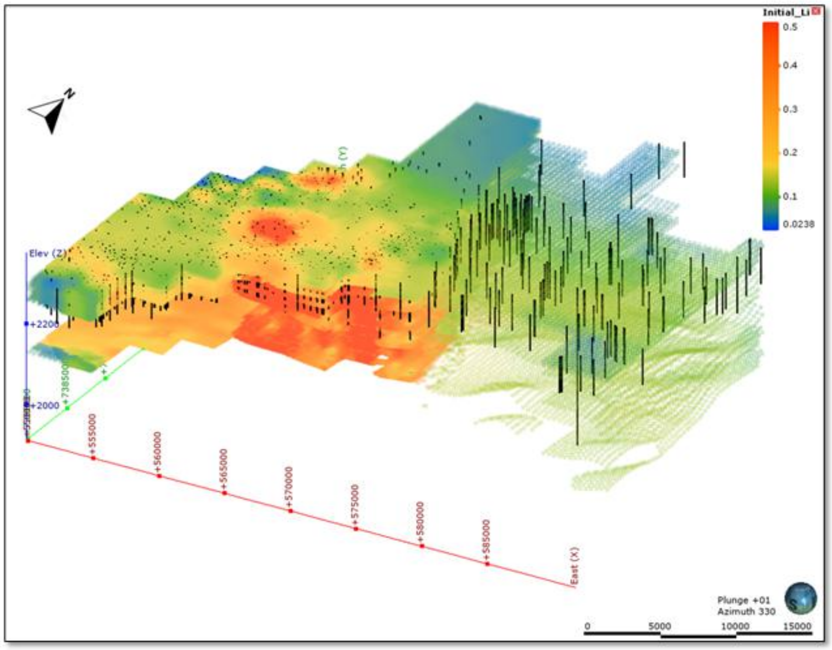
12.3 Projected Model Simulation

Projected brine extraction was simulated during the 8-year LOM (2023 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 simulations, initial conditions for flow correspond to the hydraulic head solution at the end of 2022. 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

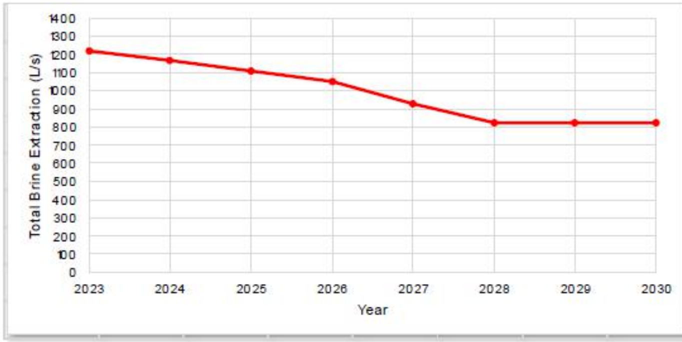


12.3.2 Predictive Model Specifics

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 2023 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



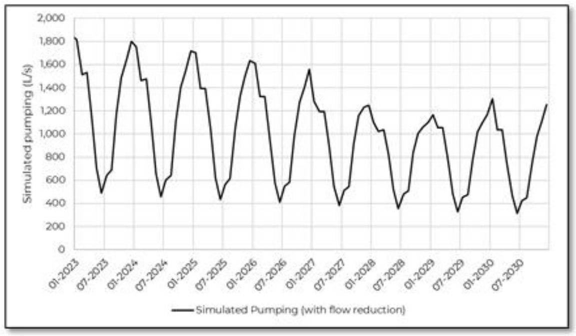
Year	Total brine extraction (L/s)
2023	1223
2024	1166
2025	1108
2026	1051
2027	928
2028	822
2029	822
2030	822

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 schedule implemented 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 2.20%, 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 (2023 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 5.32 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: 60% recovery
- 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

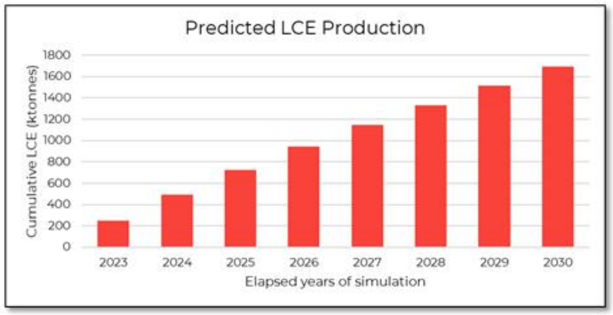
The extracted Li and LCE mass is summarized in Table 12-5 and Figure 12-12 During the 8-year LOM, results indicate that the total produced LCE, considering process recovery factors, corresponds to 1,694 kilotonnes (rounded to 1.69 million tonnes; Table 12-5 and Table 12-7).

Table 12-5. Simulated Li and LCE Extraction by Year

Period (year)	Cumulative Brine Volume (Mm^3) Pumped	Average Extracted Lithium Grade (wt.%)	Cumulative Mass (without process losses)		Cumulative Mass (considering process recoveries)	
			Li (Million tonnes)	LCE (Million tonnes)	Li (Million tonnes)	LCE (Million tonnes)
2023	38.39	0.201	0.09	0.50	0.05	0.25
2024	75.03	0.201	0.18	0.98	0.09	0.49
2025	109.87	0.201	0.27	1.44	0.14	0.72
2026	142.87	0.200	0.35	1.87	0.18	0.94
2027	172.05	0.200	0.42	2.25	0.22	1.15
2028	198.00	0.201	0.49	2.59	0.25	1.33
2029	223.82	0.200	0.55	2.93	0.28	1.52
2030	249.72	0.200	0.61	3.27	0.32	1.69

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 52%.
(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 and is subsequently weighted by the volume pumped from each month.
(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

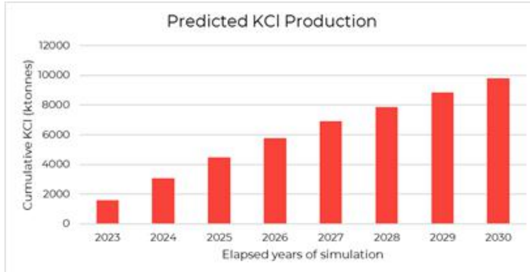
The extracted K and KCl over time are summarized in Table 12-6 and Figure 12-13 The total KCl over the course of the 8-year LOM, considering process recovery factors, sums to 9,820 kilotonnes (rounded to 9.82 million tonnes; Table 12-6 and Table 12-8).

Table 12-6. Simulated K and KCl Extraction by Year

Period (year)	Cumulative Brine Volume (Mm^3) Pumped	Average Extracted Potassium Grade (wt.%)	Cumulative Mass (without process losses)		Cumulative Mass (considering process recoveries)	
			K (Million tonnes)	KCl (Million tonnes)	K (Million tonnes)	KCl (Million tonnes)
2023	38.39	2.37	1.12	2.13	0.83	1.58
2024	75.03	2.34	2.17	4.14	1.61	3.07
2025	109.87	2.31	3.16	6.02	2.35	4.47
2026	142.87	2.27	4.08	7.78	3.03	5.78
2027	172.05	2.20	4.86	9.28	3.62	6.90
2028	198.00	2.16	5.55	10.58	4.13	7.88
2029	223.82	2.14	6.23	11.88	4.64	8.85
2030	249.72	2.15	6.91	13.18	5.15	9.82

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 and is subsequently weighted by the volume pumped from each month.
(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 Reserve 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 12-7 and Table 12-8 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 12-7. SQM's Salar de Atacama Lithium Mineral Reserve Estimate, Considering Process Recoveries (Effective December 31, 2022)

Classification	Brine Volume (Mm^3) Pumped	Average Extracted Lithium Grade (wt.%)	Mass	
			Li (Million tonnes)	LCE (Million tonnes)
Proven Reserves	143	0.20	0.18	0.94
Probable Reserves	107	0.20	0.14	0.75
Total	250	0.20	0.32	1.69

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 52%.
(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 and was subsequently weighted by the volume pumped from each month.
(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 updated forecast to 2040, a projected lithium carbonate price of $ 15,000 USD/tonnes 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, 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.

Table 12-8. SQM's Salar de Atacama Potassium Reserve Estimate Considering Process Recoveries (Effective December 31, 2022)

Classification	Brine Volume (Mm^3) Pumped	Average Extracted Potassium Grade (wt.%)	Mass	
			K (Million tonnes)	KCl (Million tonnes)
Proven Reserves	143	2.33	3.03	5.78
Probable Reserves	107	2.16	2.12	4.04
Total	250	2.26	5.15	9.82

(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 and was subsequently weighted by the volume pumped from each month.
(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, 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.

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 4 years of the LOM given that the model is adequately calibrated to the 2015 to 2020 period** (Section 12.2) with an overall verification of simulated production in 2021 and 2022. In addition, 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 $ 15,000 USD/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

The QP 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 site 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.

- The potential dissolution of lithologies resulting from brine pumping, and its impact on chemical concentrations as well as permeability, have not been studied due to the complexity of this phenomenon.

12.6 Opinion and Recommendations

The opinion of the QP of reserves is 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 extracting 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 8 years, from the start of 2023 to the end of 2030. As of 2021, SQM's evaporation pond area was approximately 3,227 ha, and the OMA Extraction Area covered a total of 81,920 hectares. SQM brine extraction by pumping wells reached an average flow of 1,210 L/s during 2022 (31.7 Mm^3 of brine per year up to October 2022).

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 250 Mm^3 for the 2023 to 2030 period, with decreasing pumping rates from 2023 (1,223 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 simulation; Chapter 12) were approximately 51,83% for Li and 74,49% 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

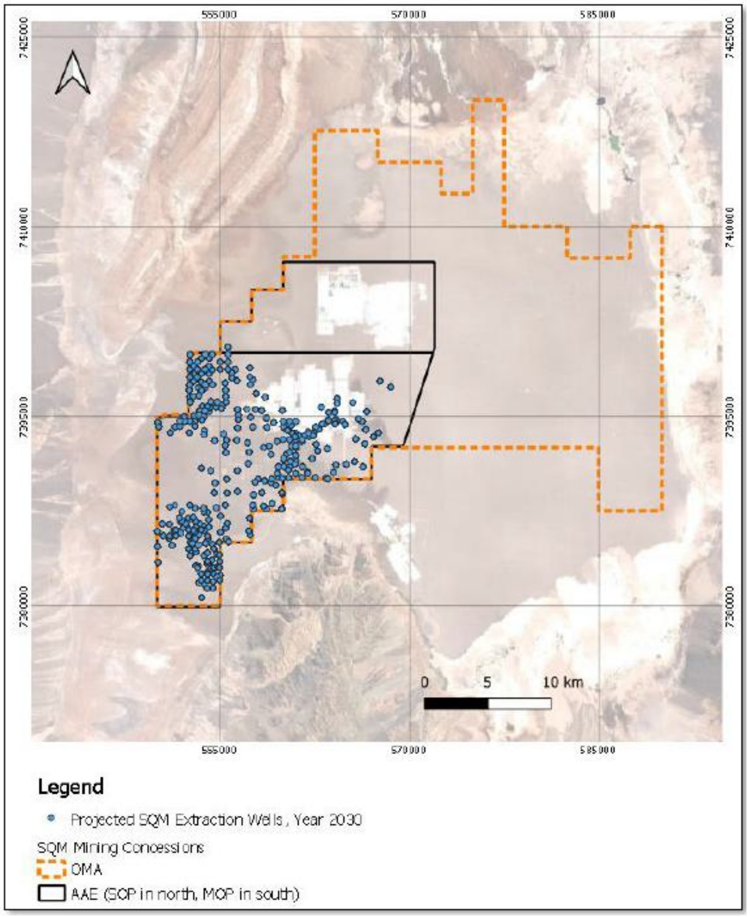
c) General view of a production brine well with an additional system for monitoring and control (telemetry)

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, as well as recovery factors.

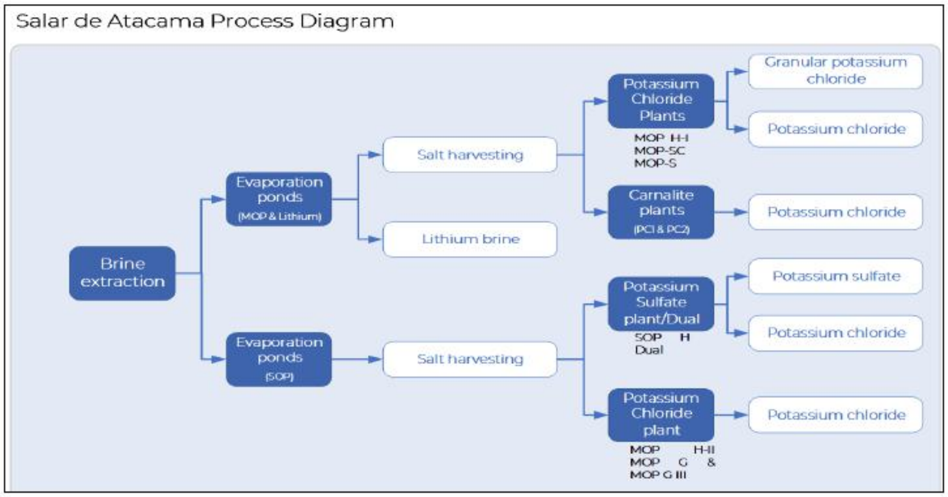
The purpose of the Project is to produce potassium chloride (KCl), potassium sulfate (K_2SO_4), lithium carbonate (Li_2CO_3), and lithium hydroxide (LiOH). The raw material for both processes is brine extracted from available salt properties, containing potassium, lithium, sulfates, boron, and magnesium. Evaporation ponds are fed with brines, where different salts are precipitated. As a result of the evaporation step, brine enriched in Li^+ ions is 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 Project's production are managed at two facilities:

1. SQM's Salar de Atacama facilities: potassium chloride, potassium sulfate, and lithium brine are obtained after a series of processes.
2. SQM's PQC, near Antofagasta, Chile: complementary production occurs through its chemical plants, where lithium carbonate and lithium hydroxide are produced from brines.

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

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



To produce lithium-rich solution that is processed in chemical plants and transformed into lithium salt and potassium salt, the Project has the features and installations indicated in Table 14-1.

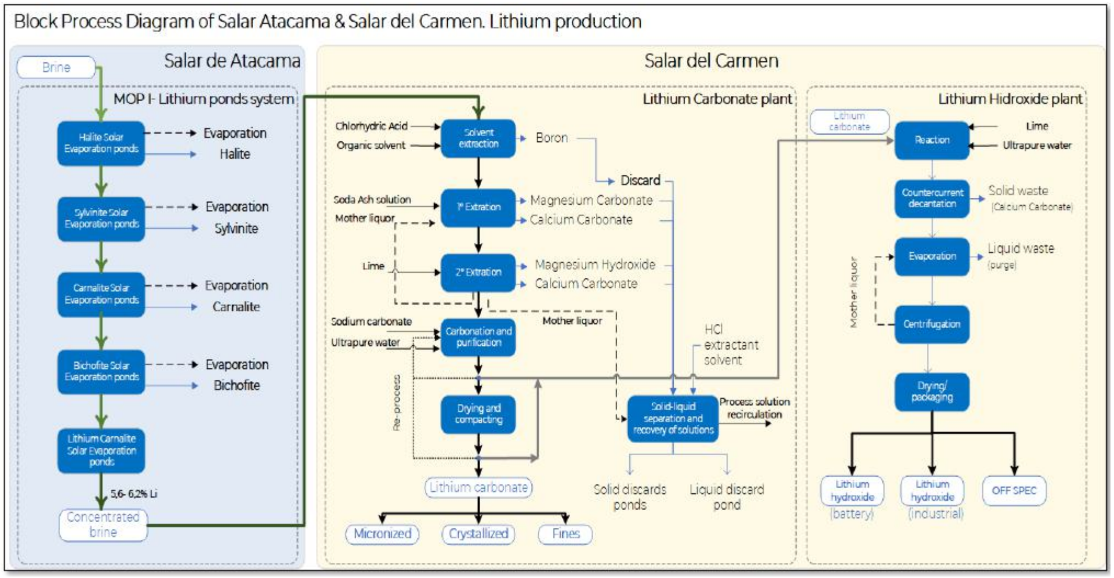
Table 14-1. Facilities Available for Production.

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 centrifuge areas - Evaporation and crystallization area - Centrifuge area - Drying and cooling area

Figure 14-2 details the PQC's production system for lithium products from brine produced at the Salar de Atacama.

A description of the process is also provided in the following sections.

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



14.1 Process Description

SQM has 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 and follows these general steps:

- Pumping of brine from the reservoir
- 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.

In the 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. The production capacity to the year 2021 of the lithium carbonate at PQC plant was 120,000 tonnes per year, and it is planned to increase to 180,000 tonnes per year. Meanwhile, the lithium hydroxide plant has a production capacity of 21,500 tonnes per year, with potential to increase production capacity to 30,000 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 on-site plants 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 the 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 are then 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, some of which is 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 sub-section presents the treatment and production processes performed at the Salar de Atacama and PQC sites.

14.1.1 Salar De Atacama Production Process

The production units of the Salar de Atacama correspond to:

- Mine and water supply
- Solar evaporation ponds:
  - Sulfate of potash (SOP) sector
  - Muriate of potash (MOP) sector
- 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) of both production processes. Sylvinites are reduced in size through a crushing and grinding process, where after the particles of interest are released, they enter into the flotation system. The flotation system is comprised of 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 is 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, that have accumulated in the pond salt. 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

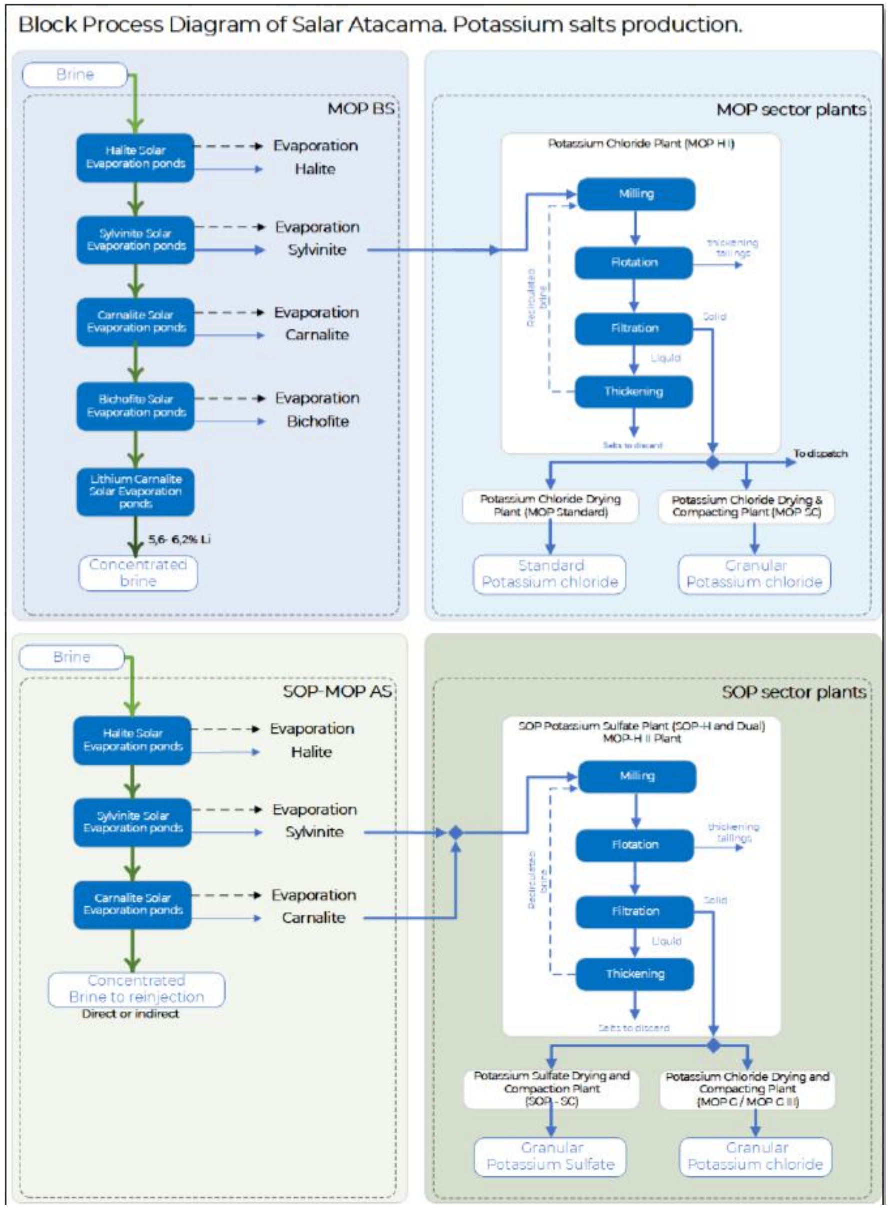
Production Unit	Products	
Solar evaporation ponds	Brines	-Pre-concentrated brine sent to the lithium production system. -Remaining brine sent for re-injection. -Concentrated lithium brine for dispatch to PQC.
	Harvested salts	-SOP sector potassium sulfate, potassium chloride is obtained. -MOP sector 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, it 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 brine dispatched 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 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

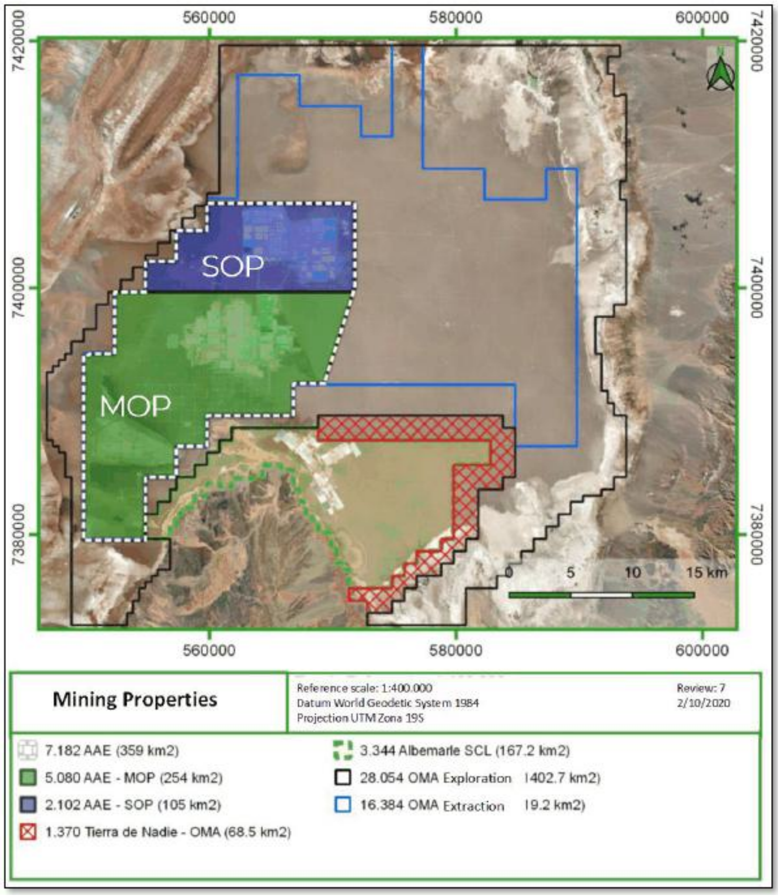


14.1.1.1 Mine and Industrial Water Supply

The first stage of the process considers brine extraction at a rate of up to 1,223 L/s. For brine pumping, two areas are defined to extract 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 farther 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 center 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 QP site visit, the team was able to note that the brine exploitation system, with a lithium productive focus, has a differentiation of low chloride brine wells and 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 significant improvement in terms of well availability in the pumping system, and consequently, for 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 for its distribution to the different facilities where 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 (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) which are 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, it follows a normal process of salt concentration and precipitation to obtain dispatched 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. Discarded salt 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), as well as in others close to the process plants. Each deposit will reach a maximum of 30 meters. 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 that include 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.

The production capacity of potassium sulfate plant is approximately 340,000 tonnes per year. In the dual plant, production alternates, to a certain extent, between potassium chloride and potassium sulfate. As such, 95,000 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 include: (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 the evaporation pond.

Potassium Sulfate Drying and Compacting Plant (SOP - SC)

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

Existing equipment include:

- 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 the drying and compacting of potassium chloride in different stages such as: drying and heating, compacting, grinding and classification, as well as 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 approximately 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 the Port of Tocopilla in its dry or granular form, where it is mainly used as a specialty fertilizer.

Potassium Chloride Drying and Compacting Plant (MOP-SC)

The Potassium Chloride Drying and Compacting Plant is designed to produce granular potassium chloride, which has a series of facilities that allow for 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, among others.

Potassium Chloride Drying Plant (Standard MOP)

The Potassium Chloride Drying Plant is designed to produce granular potassium chloride, which has a series of associated installations that allow for 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, and tanks, among others.

Potassium Carnallite Plants (PC1- PC2)

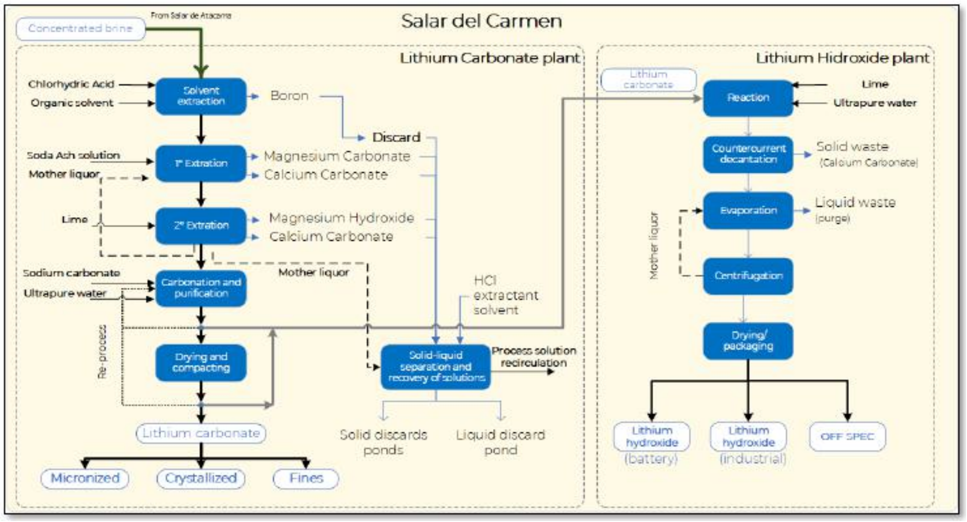
This Potassium Carnallite salt is processed at the Potassium Carnallite Plant (PC1 and PC2), which aims to increase Potassium Chloride (KCl) content in non-saturated brine. This KCl-rich brine is fed to solar evaporation ponds, where sylvinite (KCl and sodium chloride (NaCl) mixture) is precipitated,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

The Potassium Carnallite plant contains several 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, and 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 produce lithium compounds and consist of a lithium carbonate plant and lithium hydroxide plant. The production process at the 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's Operations.



The production plants at this facility include the lithium carbonate plant, with a production capacity of 120,000 tonnes per year, and the lithium hydroxide plant, with a production capacity of 21,500 tonnes per year. During 2023, it is expected that the production capacity will be expanded to 250,000 tonnes and 30,000 tonnes 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 (processed pulp and ash, also with high boron content).

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

As for the RILs that 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 to reduce the water that is finally sent as waste. In terms of technological changes, there is a constant search for continuous improvement that is 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, improving product quality. This continuous improvement has been achieved by integrating operators' knowledge, managers, and the Development and Integration Area, which are responsible for reviewing bottlenecks and new methodologies.

The production units of the PQC correspond to:

- 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 subsequent commercialization. However, prior to the final reaction, it is necessary to purify the brine of contaminants; namely boron, magnesium and calcium content are removed from the brine.

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

Brine reception and storage

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

Boron Removal Plant

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

Brine from the salt flat with high lithium chloride and boron content is subjected to a dilution and acidification process prior to entering the solvent extraction units, whereby the action of an extractant and organic solvent extracts the boron to obtain boron-free solution and 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 the lithium chemical plant (PQC) using powdered solid soda ash in a mixer and quicklime in a stirred reactor as raw materials, with added water.

Carbonation Plant

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

Product from precipitation reactors is sent to a hydrocyclone battery where its underflow is passed to belt filters and 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 to be transformed into product. According to market requirements, lithium carbonate is marketed as granular, micronized, crystallized, or fine.

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 (LiOHxH2O), which is then sent to the centrifugation stage for 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 solid decantation process 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 (also see Figure 14-6).

- Feed and reaction: during this stage, the lithium carbonate is dissolved in water and pumped to a battery of reactor tanks, where it is then 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 solid 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 for the crystallization of lithium hydroxide monohydrate (LiOHxH2O).

- 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 product, and under controlled temperature and humidity conditions.

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

Mine	Production	2021 Nominal Capacity (thousands of tonnes/year)	2022-Nominal Capacity (thousands of tonnes/year)
Salar de Atacama	Potassium chloride (KCl)	2,680	2680
	Potassium sulfate (K_2SO_4)	245	245
	Lithium Sulfate	-	45
PQC	Lithium carbonate	120	160
	Lithium hydroxide	21.5	21,5

The main limiting factors for SQM is the permissible brine extraction rate. The brine extraction permit allows for a maximum of 1,600 L/s. With this flow rate, for a 365-days/year, approximately 72 million tonnes could be extracted from the aquifer. This is equivalent to 669.490 tonnes of LCE, assuming an average lithium concentration of 0.17%.

Lithium yield in the Salar has historically been around 43%, with a global potassium yield of 63%. However, with the implementation of process improvements by SQM's production and research teams, the lithium recovery rate has increased to 56%.

At the PQC lithium chemical plants, current process yields are approximately at a maximum value of 81% and 87% for lithium carbonate and lithium hydroxide production, respectively. Both values are projected to increase to 90% through plant improvements by 2030.

Table 14-4 shows the production data for 2019 through 2022.

Table 14-4. Production Data for 2019 to 2022.

Salar de Atacama	2022	2021	2020	2019
Tonnes of lithium carbonate produced	152.5	108.4	72.2	62.3
Tonnes of potassium chloride and potassium sulfate and potassium salts produced	1,050	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.

14.2.1 General Balance of Solar Evaporation Ponds

The material balance of solar evaporation ponds is carried out taking into consideration the inflow, outflow and remaining streams of the system:

- System inlet brine
- Brine leaving the system.
- Flow of water leaving the subsystem due to solar evaporation
- Brine flow infiltrating into the salt flat.
- Flow of salt leaving the well subsystem
- Remaining brine flowing out of the well subsystem along with harvested salt.
- Brine flow that is reinjected to the Salar, returning this flow to the reservoir.
- Inventory

The following global balance corresponds to all Solar evaporation Ponds operations (MOP I, MOP II, MOP III and SOP) for the year 2022.

14.2.2 Brine Extraction

Brine extraction levels from the brine fields are regulated in the lease agreement. SQM is currently in the fourth step of brine extraction at approximately 1,220 L/s, with a commitment to reduce the required brine extraction from the salt flat gradually by 2030 (see Figure 12-9).

The extraction brine 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 rates. 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)	2022	2021	2020	2019
Gross abstraction	1440	1,523	1,736	1,572
Re-injection	205	271	275	243
Net Extraction	1235	1,252	1,461	1,329

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

The net brine extraction complies with the maximum brine extraction limit of 1700 L/s, as permitted by the RCA for the years 2020-2025.

14.2.3 Plant Throughput and Forecast

14.2.3.1 Salar de Atacama and PQC Production Yields

At the Salar de Atacama, two types of yields are managed, which include global and specific yield. Global 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 is not produced (or is produced in very low quantity), which lowers the yield value. The IGS yield corresponds to the lithium yield, but only for the lithium production system of MOP I BS and MOP III BS.

The values of the overall yield and IGS yields for 2019 through 2021are shown in Table 14-6.

Table 14-6. Global Yield and IGS Yield for 2019 and 2021

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 through the Salar de Atacama enhancement plan only consider IGS yield, and do not consider the global yield. As shown in the plan in Table 14-7, the scale-up strategy focuses on sequential improvements (numbers denote items listed above) by an initiative that allows for staggered growth from 2019 to 2023, and thereafter, a 61.7% IGS yield.

Table 14-7. Projected Yield Increase in the Lithium Production System Based on the Yield Increase Plan

Ramp-Up	2023	2024	2025
IGS yield	61.7%	61.7%	61.7%
Initiative 1	0.7%[5]		
Initiative 2	3.1%[7]		
Initiative 3	0.3%[8]		
Initiative 4			
5. Li2SO4 project 7. Improved C-Li recovery 8. Soil repair			

As shown in Table 14-7, by the year 2023 improvements included: 5. Li2SO4 project, 7. Improved C-Li recovery, 8. Soil repair.

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 tonnes/year and 32,000 tonnes/year, respectively, by means of new facilities, improvements in production processes, and waste management. Increased production of lithium carbonate from lithium concentrate solution is achieved by optimization or technological improvements to production processes that consider the replacement of existing equipment with higher capacity and better technology, such as:

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

By the year 2020, PQC's lithium carbonate and lithium hydroxide production capacity was 70,000 tonnes/year and 13,500 tonnes/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 120,000tonnes 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 tonnes/year, reaching a total capacity of 21,500 tonnes/year in 2022. A third plant, operating at 8,000 tonnes/year, is planned to help achieve a production of 30,000 tonnes/year in 2023.

Staged implemented has been defined and will depend on current market conditions linked to product demand generated by the Project's operations.

14.2.3.2 Production Forecast

In 2020, a sustainable development plan was announced that includes the voluntary expansion of monitoring systems, encouraging conversations with neighboring communities, carbon neutral state, and reduction of water use to 120 L/s and brine extraction by 50% in 2030. The production program evaluated in this Reserve Estimate includes all improvements, strategies, and investments (Table 14-8).

Table 14-8. Industrial Plan for 2023 to 2030 for the Salar de Atacama and PQC Operations

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

For the period between 2023 and 2030, the production plan considers:

- Global potassium yield in the ponds 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, recovery factors for year 2022 corresponded to 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 has increased by 15% over 2022 (483 kTonnes KCl 95% Eq) and by 2030, production will be 79% higher than this value (866 kTonnes KCl 95% Eq).
- Average lithium grade in concentrated brine corresponds to 5.78%.
- Sequential annual increase in the carbonate plant's yield ranges from 87% to 90%, while the lithium hydroxide plant is expected to increase from 88% to 90%.
- By 2022, 24.5 ktonnes of lithium hydroxide was produced (Annual Fresh Production). 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 the 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

The 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 adduction system specifically through existing substations. The 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 authorized refueling trucks. Diesel fuel is also used in generator equipment for power and as a backup in case of 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 14-9.

Table 14-9. Summary of Energy Consumption per Year

Site	Process plant	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), drinking water consumption (treated and available in water drums, dispensed by an external supplier), and that which is required for industrial quality work.

There are 4 groundwater extraction wells considered as sources of industrial water in the Salar de Atacama, namely: Socaire, CA-2015, Allana, and Mullay.

For water extraction, pumping, and transport, there is a line that connects wells to pumping stations, allowing 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 ponds, with a total retention capacity of 23,000 m3.

Water extraction will not exceed the committed rate of sequential reduction to 120 L/s 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 14-10 shows water extraction records for the period of 2019 to 2021 and a reduction to the committed rate.

Table 14-10. Annual Industrial Water Extraction from Wells

Year	2022	2021	2020	2019
Industrial water extraction (L/s)	108.5	111.8	110.0	155.1

In PQC's case, industrial water requirements are supplied by 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 the Salar de Atacama was 31,142m^3. Table 14-11 summarizes the amount of treated water and consumed drinking water at the Salar de Atacama.

Table 14-11. 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 required to operate per month, the total amount of required potable water will be 45.5 m3/day.

Industrial Water

In the 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 the carbonate plant mother liquor and other secondary RIL flows.

14.3.3 Employee Requirements

During operation of the years 2020 and 2021, an average workforce of 1,876 workers was considered between the Salar de Atacama and PQC. A summary of the requirements by operation activity is shown in the Table 14-12.

Table 14-12. Personnel required by area/activity

Personnel per year	2020		2021	
N° of employees per area	**Dic**	**Average**	**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 of Potassium and 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 14-13:

Table 14-13. Process Reagents and Consumption rates per year.

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

14.3.5 Consumption and Waste Projection

According to the industrial plans of the lithium chemical facilities, Table 14-14 shows a projection of raw material consumption, such as concentrated lithium brine, lithium carbonate, and process agents that include 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 2023 to 2030 is also indicated.

Table 14-14. Consumption of Material and Generation of RIL/RIS on Carmen Lithium Chemical Plant (PQC)from 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, the QP in charge of metallurgy and resource treatment, has the following opinions:

- Recently, the company has been intensively searching for new technologies to improve lithium recovery from brines. Focusing on the chemistry of brine processing, sustainability of the process, as well as the environmental commitments, the company has developed a plan to improve the overall lithium production yield as well as new recovery methodologies to minimize impregnation losses.

- A significant methodology that has been implemented successfully is the "Bischofite Platform", where the lithium recovery is realized from impregnated salts. This initiative allows for a 3% increase in 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 recommended to review both alternatives, the "Li_2SO_4 Project" and "calcium sourcing", in terms of performance and cost impact.

- Because the removal of $CaCl_2$ per Tonnes of sulfate can be significantly costly, it is necessary to consider a liming process with an alternative calcium source. Alternatives should be evaluated by laboratory testing to allow for 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 studies confirm the variability of chemical composition of brines with a decrease of a specific species or ratio (e.g. sulfate-calcium), engineering studies should be carried out for early incorporation of the process to prevent any unfavorable, or detrimental, effects.

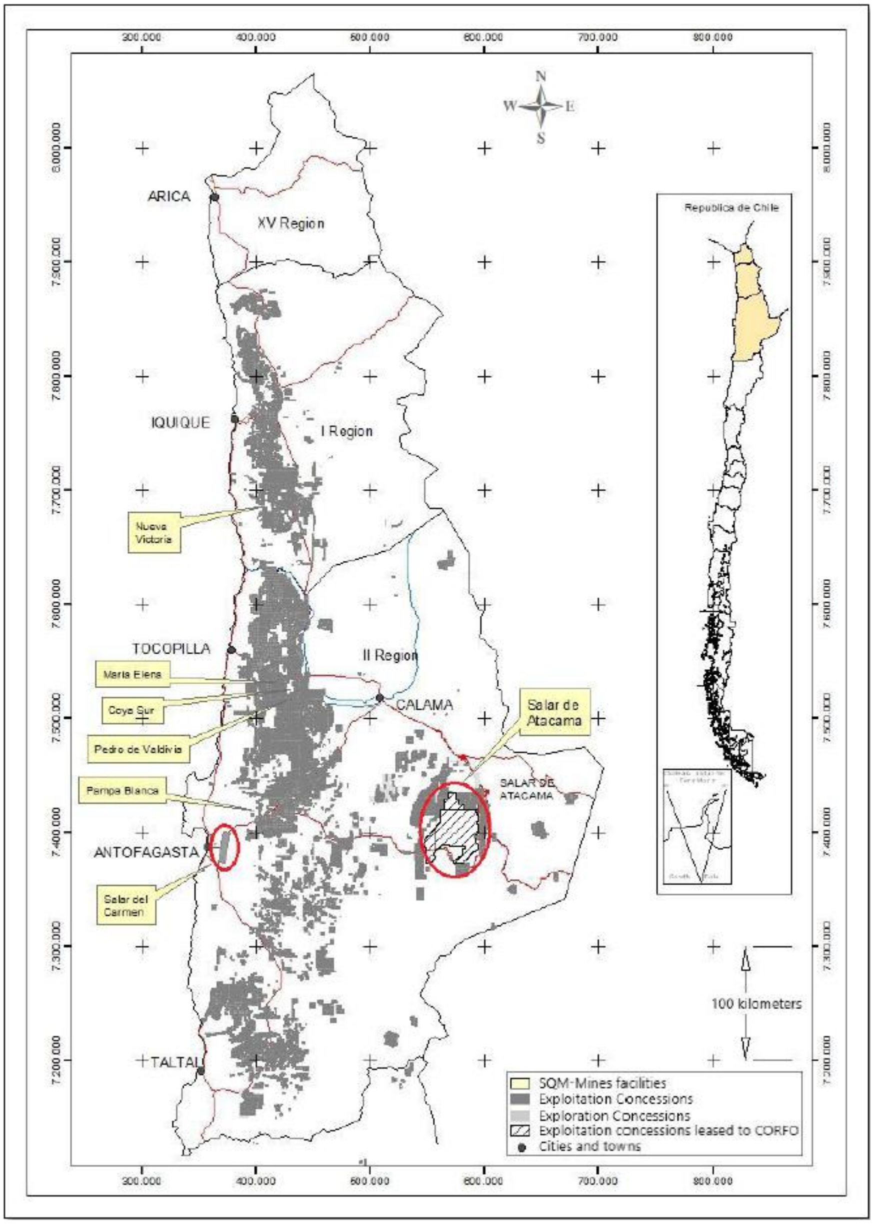
15 INFRASTRUCTURE

This section contains forward-looking information related to the 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,0 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 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 production 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 production area is located within the salt flat, 270 km east of the city of Antofagasta and 190 km southeast of María Elena; it 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 sulfate and boric scid are obtained in the SOP sector. The plant has the installed capacity to produce 2,680,000 tonnes/year of potassium chloride, 245,000 tonnes/year of potassium sulfate, and 15,000 tonnes/year of boric acid.

The Salar del Carmen production area is located approximately 255 km from the Salar de Atacama, and includes the area where the lithium carbonate and lithium hydroxide production plants are located. The concentrated lithium chloride brine comes from the Salar de Atacama which is transported via cistern trucks to the 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 to produce 120,000 tonnes/year as of 2021, and lithium hydroxide plant, with a current capacity to produce 24,500 tonnes/year as of 2022. 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), Mejillones (80 km north of the Salar del Carmen via the Route 1 or Route 5 and B-400 highways), or 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, which are provided in bulk from the Salar de Atacama for export, are transported by trucks to the Port of Tocopilla (owned by SQM) which is 370 km from the Salar de Atacama. Alternatively, the Port of Mejillones is used, which 310 km from the Salar de Atacama to the north of Antofagasta.

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

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 represents the final product for shipment 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 product is made.

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) leads to the Salar del Carmen, Port of Tocopilla, and Coya Sur. In addition, routes B-367, 23, 24, or 25 can be used that 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 machinery in the Salar de Atacama area. The maintenance of Route B-367 is also the responsibility of the local government. 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) is owned by SQM and covers an area of 22 ha. It 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, close to the Route 5 highway, and serves as a route to its main destination (Tocopilla Port). Some of the lithium carbonate feeds 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 which 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 for the loading of bulk products to ships, shipment of packaged products to ships (it has a 40-ton capacity crane) and nitrate mixing unit for finished products.

The storage facilities consist of a system of six silos, with a total storage capacity of 55,000 tonnes, and a mixed shed and open storage area of approximately 250,000 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, sea, or via container from other ports, namely 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 into the corresponding holds.

Bulk cargo ships are typically hired to transfer product from the Port of Tocopilla Terminal to hubs around the world, or to direct customers which 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 correspond to:

- Mine and water supply
- SOP Sector (sulfate of potash, producer of potassium chloride and potassium sulfate) (see Figure 15-2, Figure 15-3 and Figure 15-5):
    - 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) (see Figure 15-2, Figure 15-3 and Figure 15-4):
    - 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

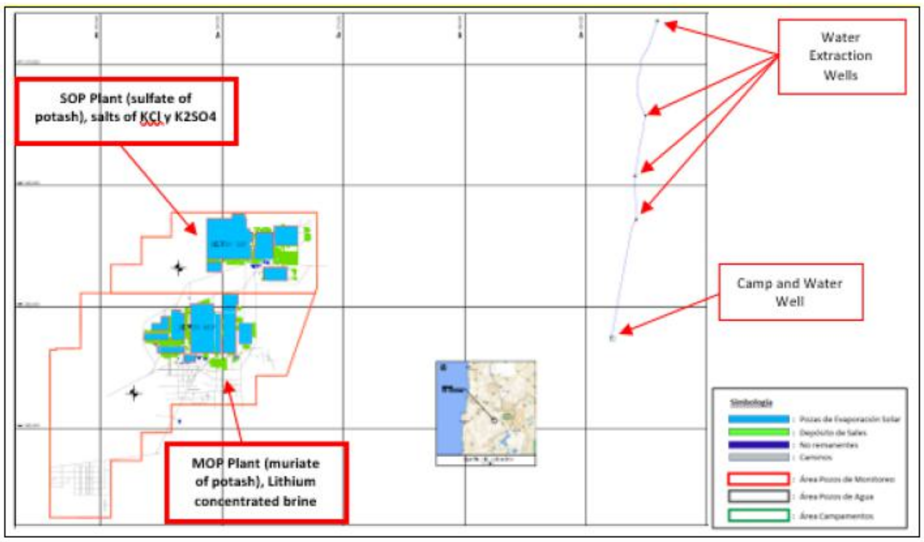


Figure 15-4. Facilities MOP

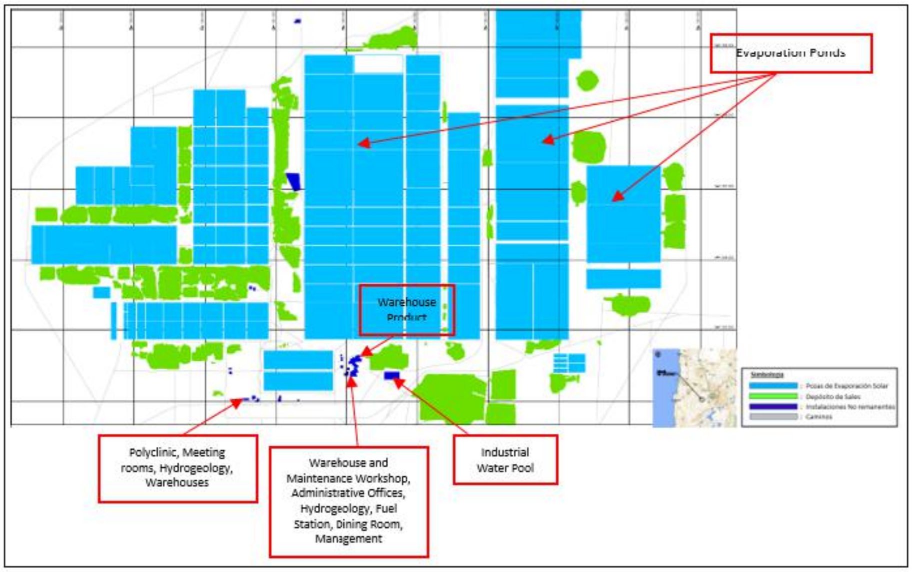
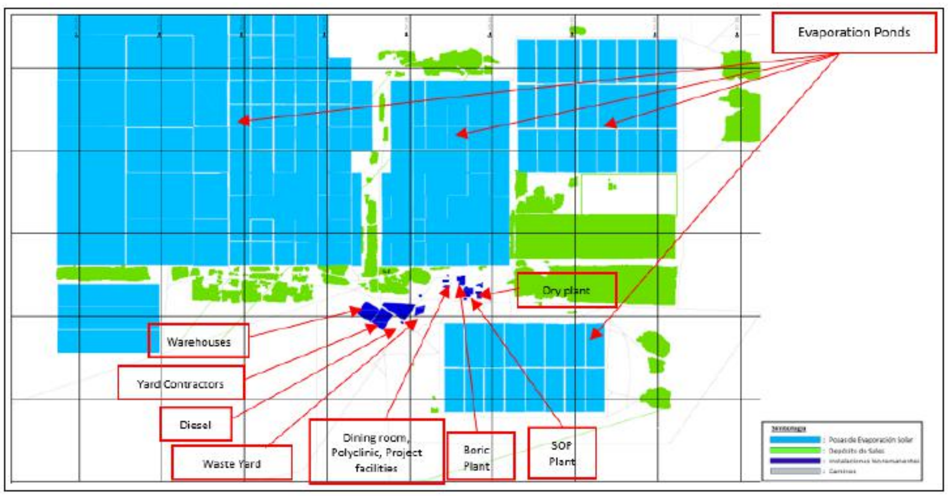


Figure 15-5. Facilities SOP



The Salar de Atacama facilities can be summarized as follows:

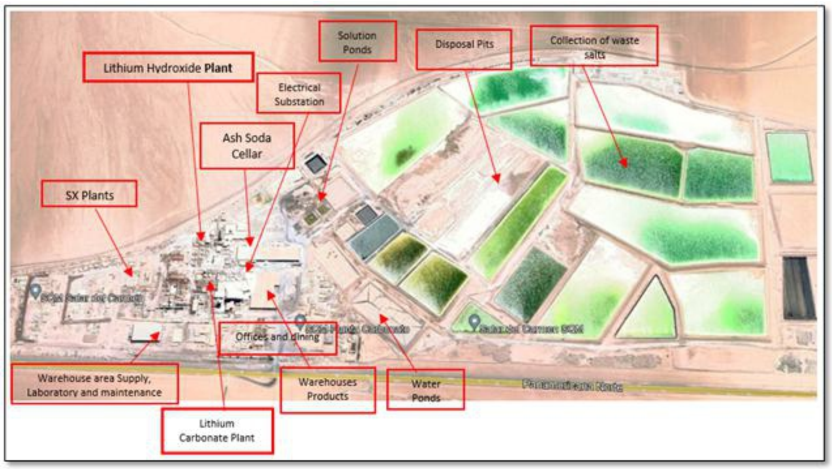
- Extraction Wells:
  - Operating Wells 2022: 396 Operating Wells / Average Depth: 45.7 m each.
  - Wells Out of Offer 2022: 11
  - 45 pumps in SDD, (19 are stand-by pumps)
  - 396 Submersible Well Pumps (Each operating well has 1 pump)
  - HDPE pipe
- Evaporation ponds:
  - 2,555 ha distributed in a 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 (Old 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 correspond to (see </u>Figure 15-6<u>):</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 Salar de Atacama facilities have telephone, internet and television services via satellite link. The Salar del Carmen 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 between the process plants and 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.), which in the Minsal substation lowers the voltage from 110 kV to 23 kV through a transformer. There is currently an electricity supply contract with the company AES Andes (formerly AES Gener S.A., which is 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 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 the generation of electricity, there are solar panels which are 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 2022, the consumption of electrical energy for each site was as follows:

- Salar de Atacama: 170,075MWh
- Salar del Carmen: 74,377MWh

15.5 Supply of Fuels

15.5.1 Salar de Atacama

The facilities require:

- Diesel: During 2022, 484,608 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 2022, 4,923 tonnes/year or 102,970 MBTU/year were consumed. Currently, there is a supply contract with an external supplier.
- Liquefied Natural Gas (LNG): For its lithium carbonate operations. During 2022, 671,414 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 and 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 for the supply of 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 of Chile.

The products are mainly derived from mineral deposits found in northern Chile, including mined and processed caliche ore as well as 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.

In the Salar de Atacama, SQM 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 in its plant near the city of Antofagasta (Salar del Carmen), Chile, from the solutions brought from the Salar de Atacama. It markets all these products through an established worldwide distribution network.

The SQM´s products are divided into six categories that 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. The Salar de Atacama produces mainly lithium and its derivatives as well as potassium chloride and potassium sulfate.

16.1 Material Contracts for Salar de Atacama

SQM subsidiary SQM Salar S.A. ("SQM Salar"), as the 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 2022, SQM revenues from lithium sales amounted to US$8,152.9 million, representing 76.1% of our total revenues. The lithium chemicals' sales volumes accounted for approximately 20% of the global sales volumes.

16.2.1 Lithium: Market

The lithium market can be divided into:

I. lithium minerals for direct use (currently, SQM does not participate directly in this market)

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 SQM does not participate directly).

Lithium carbonate and lithium hydroxide are principally used to produce the cathodes for rechargeable batteries, which take 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 account 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 or 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.

16.2.2 Lithium: Products

The annual production capacity of the Lithium Carbonate Plant at the Salar del Carmen is 150,000 tonnes per year. SQM is in the process of increasing the production capacity to 210000 tonnes per year. Utilized technologies, together with the high concentrations of lithium and the characteristics of the Salar de Atacam (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 24,500 tonnes per year and SQM is in the process of increasing this production capacity to 32,500 tonnes per year.

16.2.3 Lithium: Marketing and Customers

In 2022, SQM sold lithium products in 41 countries to 198 customers, and most of the sales were to customers outside of Chile. SQM made 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. During 2022, 93% of SQM sales of lithium were in Asia. One customer accounted for approximately 19% of our lithium revenue in 2022. Our ten largest customers accounted in the aggregate for approximately 60% of revenues. One supplier accounted for 10% of the cost of sales of this business line, representing approximately 80% of the cost of sales of this business line. SQM 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.

16.2.4 Lithium: Competition

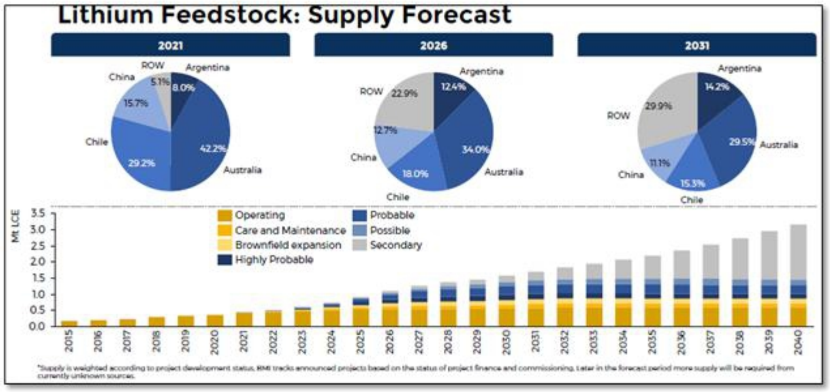
Lithium is produced mainly from two sources: concentrated brines and) minerals. During 2022, the main lithium brines producers were Chile, Argentina and China, while the main lithium mineral producers were Australia and China. With total sales of approximately 156,800 metric tons of lithium carbonate and hydroxide, SQM's market share of lithium chemicals was approximately 20% in 2022. The main competitors in the lithium market with their estimated market share are: Albemarle (16%), Tianqi Lithium Corp. (7%), Jiangxi Ganfeng Lithium Co (6%), Livent Corporation (3%), and Allkem (4%).

Tianqi is also a major shareholder of ours, holding approximately 22.90% of our shares as of December 31, 2022. It is expected that future lithium production will continue to increase in response to an elevated demand. A number of new projects to develop lithium deposits has been announced recently, some of which are already in the advanced stages of development and others which could materialize in the medium term.

16.3 Supply

According to Benchmark Mineral Intelligence "Q3 2021 Forecast", the 2021 mine 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 the rising demand, placing both chemicals in a deficit position and reflecting the strong demand-pull for feedstocks in China (see Figure 16-1).

Figure 16-1. Lithium Feedstock, supply forecast



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

China is expected to produce approximately 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 during 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 that amount to lithium hydroxide. Output is not expected to reach the 130kt LCE capacity until around 2023, with production from a second round of expansions not anticipated 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, however it is not expected to enter the market until 2025 at the earliest.

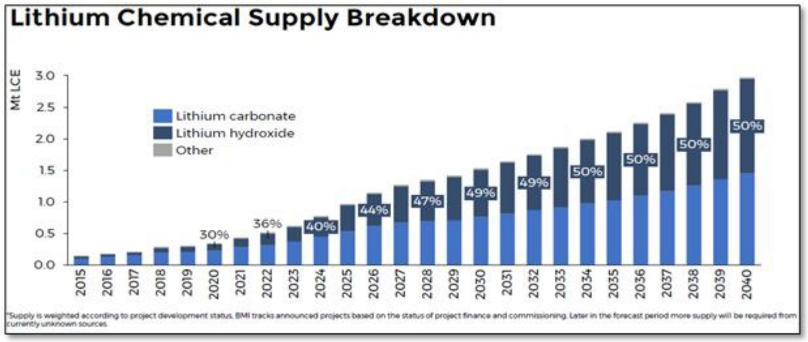
16.4 Demand

Demand estimates for lithium in LFP (Lithium Ferro Phosphate) cathodes is expected to increase in 2023. 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 the cathode demand in 2030, while NCM has been downgraded to 60% of the market

(see Figure 16-2).

Figure 16-2. Lithium Chemical Supply Breakdown



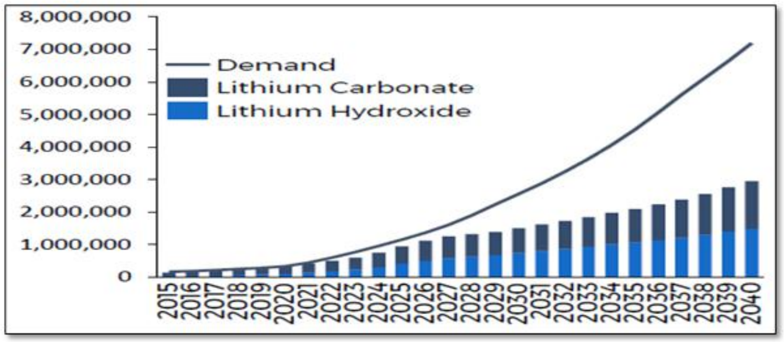
Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.5 Balance

16.5.1 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 in the medium-long term that PEV penetration will be limited by material supply, rather than demand (Figure 16-3

Figure 16-3. Lithium Carbonate and Hydroxide demand

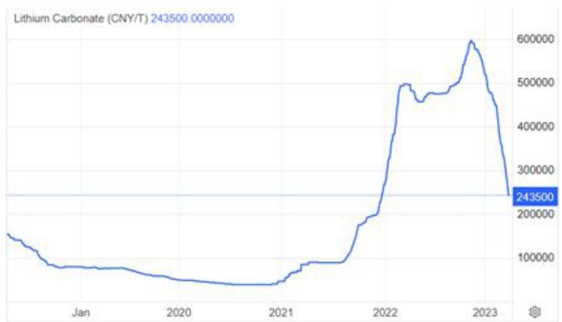


Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.6 Lithium Price

16.6.1 Historical Price Evolution (in Chinese Yuan)

Figure 16-4. Lithium historic Price Evolution



Source: https://tradingeconomics.com/commodity/lithium

Short term

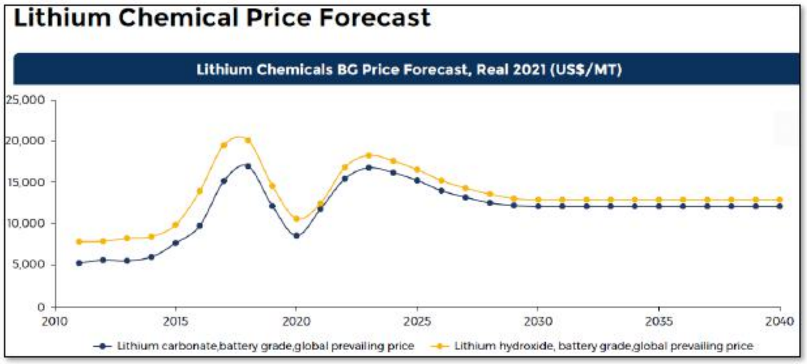
- In the near-term, prices are expected to continue to rise as demand outstrips supply, with no additional tonnage available to ease market tightness in the coming months.

Long term

- Prices are expected to increase but likely to be unsustainable at $16,000-18,000 USD/tonne. 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 provide incentive for 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 that long-term incentive price for lithium carbonate of $12,110 USD/tonne 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 for 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.

In 2022, our potassium chloride and potassium sulfate revenues amounted to US$437.2 million, representing 4.1% of our total revenues and a 4.9% increase compared to 2021, as a result of increased average prices. We estimate that we accounted for less than 1% of global sales of potassium chloride in 2022.

16.7.1 Potassium: Market

During the last decade, the 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 because 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 2 to 3%.

16.7.2 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 sales volume in 2021 wasUS$416.6 million, a 99.0% increase from US$209.3 million in 2020; this is due to significantly higher prices and higher sales volumes during the year. SQM's sales volumes in 2021 were approximately 22.9% higher than the sales volumes reported during 2020.

Potash prices started to decrease during 3Q22 as a result of weaker demand and high inventory across the markets. Potassium chloride and potassium sulfate revenues for the twelve months ended September 30, 2022, totaling US$565 million.

Potassium chloride and potassium sulfate volume and revenues are shown in Table 16-1.

Table 16-1. Potassium Chloride and Potassium Sulfate Volume and Revenues

		9M2022	9M2021	2022/2021	
Potassium Chloride and Potassium Sulfate	Th. MT	382.0	588.6	-206.6	35%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	356.7	208.0	148.7	71%

		3Q2022	3Q2021	2022/2021	
Potassium Chloride and Potassium Sulfate	Th. MT	62.7	201.8	-139.1	-69%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	60.2	88.7	-28.6	-32%

Source: SQM Reports Earnings for third Quarter of 2022

Figure 16-6. Potassium Quarterly Sales Volumes and Average Prices

Source: SQM Third Quarter 2021 Results

16.7.3 Potassium: Marketing and Customers

In 2022, SQM sold potassium chloride and potassium sulfate to approximately 543 customers in 38 countries. One individual customer accounted for more than 10% of the revenues of potassium chloride and potassium sulfate in 2021. SQM sends about 10% of its production to another SQM facility (Coya Sur) as raw material for production of nitrates. SQM makes lease payments to CORFO which are associated with the sale of different products made from the Salar de Atacama, including lithium carbonate, lithium hydroxide, and potassium chloride.

16.7.4 Potassium: Competition

SQM accounted for approximately 1% of global sales of potassium chloride in 2021. Main competitors are Nutrient, Uralkali, Belaruskali and Mosaic. In 2021, Nutrien accounted for approximately 21%, Belaruskali accounted for approximately 15% of global sales, Uralkali accounted for approximately 15% of global sales, Mosaic accounted for approximately 13% of global sales and Belaruskali accounted for approximately 10% 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 environmental permitting requirements, plans and agreements with local individuals or groups as 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 set forth in this sub-section.

17.1 Environmental Studies

SQM Salar operations began before to the establishment of environmental study requirements in Chile (1994), therefore no baseline environmental information was gathered. However, since 1995, environmental assessment studies have been carried out for extensions and modifications to the SQM operations, which have been authorized by the Environmental Assessment Service (SEA) of the Environment Ministry. The current operation (brine extraction and water pumping, environmental monitoring, and early warning plans) is governed by the Environmental Qualification Resolution (RCA) N°226/2006, which approves the project "Changes and Improvements to the Mining Operation in the Salar de Atacama". This project contemplates increases in brine pumping to a maximum rate of 1,600 l/s and the extraction of water from five wells with a maximum flow rate of up to 240 l/s.

SQM’s operations are located in a declared Ramsar area, the National Reserve Los Flamencos, and in Wild Protected Areas, so mostly of their projects and modifications have to be environmentally evaluated regarding the article 10.p of the Environmental Law for projects in national parks, national reserves, national monuments, and any kind of official protected area.

SQM’s Salar operations are located within a rural area (see Figure 17-1). The environmental setting summarized below is mostly based on the environmental permitting baseline studies, included EIA (Environmental Impact Study) of the project “*Plan de Reducción de Extracciones en el Salar de Atacama*” submitted in January 2022 (currently in evaluation) and other previous studies:

17.1.1 Hydrology and Hydrogeology

The Project's interference with surface water resources is limited and only involves crossings of works with the official drainage network according to the Military Geographic Institute (IGM). The channels involved do not have permanent runoff and the Project design contemplates the necessary works to avoid altering the eventual runoff that may occurs in these watercourses in case of events of very intense and infrequent precipitation.

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 17-1 details each zone.

Table 17-1. 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 surface 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 depression of the extraction wells can be seen; however, in the marginal area, the decline is insignificant (see Figure 17-2).

Figure 17-1. Salar de Atacama and SQM Main Areas

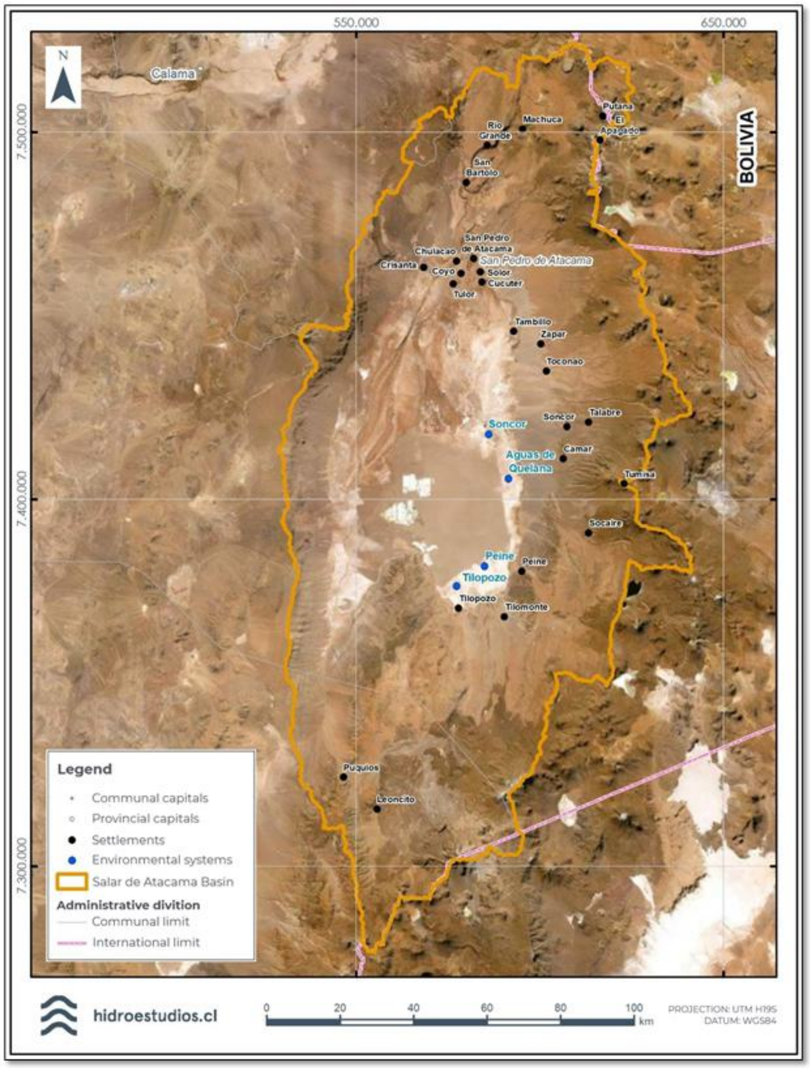
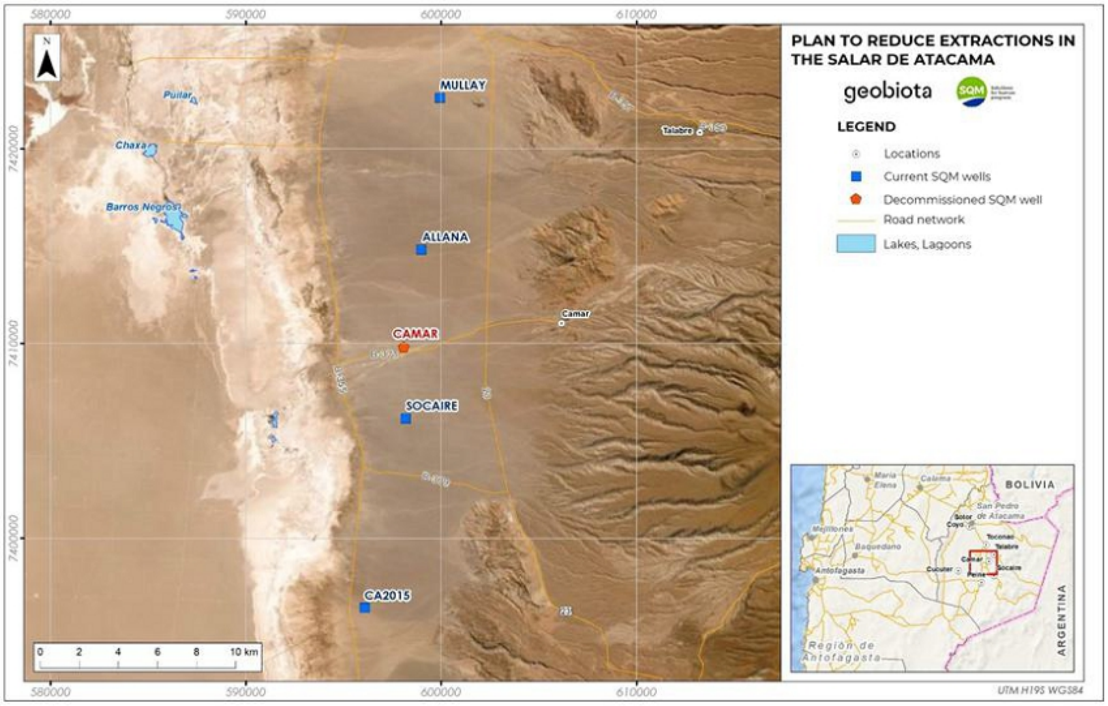


Figure 17-2. Location of Existing Wells in the Salar de Atacama



17.1.2 Soil, Climate and land use

In the area of influence of the project were identified 5 soil units, which are (see Table 17-2):

- 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.

Table 17-2 Land use units observed in the project area (USDA, 2001)

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

The principal land uses are agriculture and livestock pasture. Additionally, two other units were observed, lagoons and intervened areas. The intervened areas are those where the original characteristics were modified as consequence of construction of towns, or mine operations.

The Climate, according to the Köppen- Geiger (1936) classification, ismainly cold desert, and desert cold summer rain, characterized by marked aridity and scarcity of water. Rainfall is concentrated in the summer (December to March), when humid air masses from the Atlantic Ocean arrive in the area. There is scarce vegetation, which defines a natural landscape called the Atacama Desert.

17.1.3 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 13 species are considered singular, and 10 of these are classified within a threat conservation category, 3 are endemic, and 2 have populations with restricted distribution. Within this group, the Fabian's lizard stands out, an endemic and endangered species. There are also 3 types of flamingos, Chilean flamingo, large parina and small parina, which are in a threatened state.

17.1.4 Vegetation

Approximately 72% of the influence area corresponds to sparsely vegetated areas so just 28% is vegetated, where the main vegetation formations present correspond to Brushes (19,1 %), Grasslands (8%), Mixed formations (1%) conformed by herbaceous.

It is important to note that from the 19,1% of brushes, 0,7% correspond to Xerophyte plants, Proposis alba and Proposis tamarugo. wich are protected and need special authorization for its intervention.

Regarding to terrestrial Flora, 35 species are in this area, predominance of native type elements and shrub life forms. 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).

17.1.5 Aquatic Flora and Fauna

Due to the chemical and hydrological conditions of a salt flat, the aquatic flora and fauna found in the area are mainly microalgae and microinvertebrates that exists in the different lagoons of the sector, which serve as food source for the flamingo populations.

In general terms, 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.

In the open water close to the core of the Salar, there are abundant populations of flamingos that are transient; however, they are restricted to saline lagoon systems, where they nest and feed of benthic assemblages of microalgae and planktonic microfauna (Hurlbert and Keith 1979, Parada 1990).

These systems presented shallow silty substrates and sparse vegetation, with fluctuations in dry periods. High electrical conductivity values were recorded, in accordance with the type of aquatic ecosystem immersed in the Salar de Atacama, highlighting the sectors of Soncor and Aguas de Quelana. Regarding the parameters defined for aquatic life, it was possible to conclude that in general, the sectors were within favorable habitat conditions for the development of aquatic biota based on the requirements of the Official Chilean Standard 1,333 Of.78. Some parameters presented values below the thresholds, but this does not present biological implications, which is demonstrated by the presence of aquatic biota communities.

Regarding the aquatic biota, in all the systems the phytobenthos presented the most abundant biotic component. Within the biological indices, the richness of all the components stands out, it was higher in Aguas de Quelana. Finally, the fish and macrophytes were scarce in these sectors, with fish only being found in the Tambillo plain in the Solor sector.

17.1.6 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 and the bibliographic information available about this area, it is not possible to rule out unanticipated findings that maybe found 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, that corresponds to ichnofossils, which were granted as Medium to High paleontological potential and a Fossiliferous paleontological category.

On the other hand, the Saline Deposits of the Salar de Atacama unit (PlHs) and Recent Alluvial and Fluvial Deposits unit (Ha) were assigned to a Medium to High paleontological potential and to a Fossiliferous paleontological category.

17.1.7 Human Environment Socio-economic conditions

The Project is located in San Pedro de Atacama commune which represents 18,6% of the population of the region. Most of the land use is for agricultural activities (87%), being only 13% used for cultivation activities. This is explained by the fact that agriculture and livestock practices continue to be activities recognized as traditional.

It is important to note that 96% of the territory of San Pedro de Atacama corresponds to indigenous people. 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 are located in the area of Toconao, Talabre, Camar, Socaire, Peine and in the Rural entity of Coyo, Solor andCucuter (see Figure 17-3).

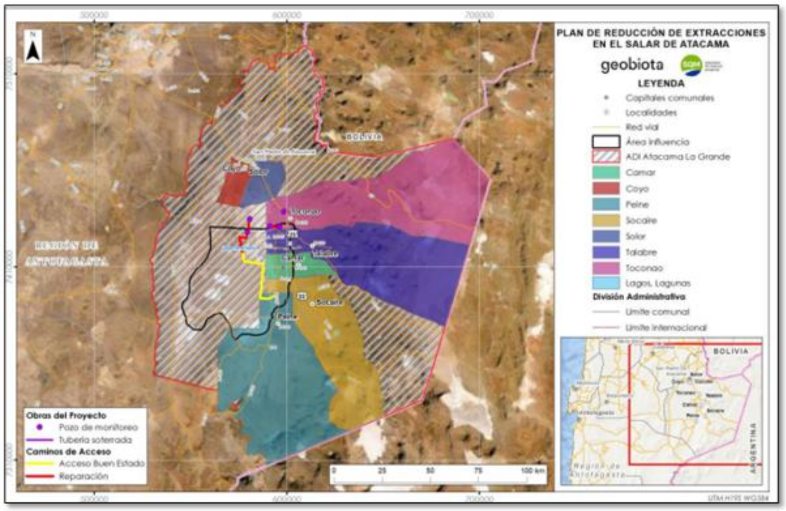
In addition to the traditional activities, these communities practice jobs as exploitation of mines and quarries.

SQM has been exploiting lithium reserves since the 1990s and the indigenous communities described have filed various objections in response to the lack of scientific information on the functioning of the ecosystem and the effects of industrial activities on the habitat of waterfowl, requesting to revoke operating permits. In this context, the Environment Superintendence (SMA) initiated a sanction process against SQM in 2016, with different stages.

In 2019, the communities of Peine and Camar, in addition to the Council of Atacameño Peoples (CPA), presented a claim against the SMA with the Antofagasta Environmental Court for the approval of the Compliance Program (PdC) presented by SQM, resolving its annulment.

However, the communities have signed agreements with SQM that included economic contributions. For some representatives of the communities, the materialization of SQM's contributions - without prior consultation and consent - obeys to strategies to improve their image. Those contributions have divided them, and have not resolved the participation in the ownership of the company As an option they have left the communities to decide if the industrial activities are going to be developed or not, under the logic of the so-called indigenous "territorial autonomy". These aspects configure a scenario of potential conflict, which does not allow ruling out future actions, claims or manifestations, considering, in addition, that lithium future as a development alternative is being discussed currently in the country.

Figure 17-3. Salar de Atacama's Human Environment



17.2 Environmental Management Plan

This sub-section contains forward-looking information related to waste and mineral waste disposal, site monitoring and water management for the Project.

17.2.1 Hazardous, Regulated, and Special Wastes

SQM´operations generate a wide range of wastes, such as waste oil, capacitors, grease, solids containing hydrocarbons, empty containers, spent batteries, and waste solvent. The management of the hazardous waste is highly regulated by law (DS. N°148/2004) so this waste is deposited in special authorized landfill.

The 2021 Sustainable Development Plan of the company has a detailed waste management plan for reuse, recycling, treatment, and disposal inside the Plant, or disposal by special subcontractors. There is a goal of reduction of industrial waste by 2025.

17.2.2 Mineral wastes

The operations generate mining wastes in the form of inert salts or waste salts, which vary according to the type of product. These salts are transported to certain areas for deposit, and laid out on the ground in the form of piles 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. Currently deposit area has a total surface of 17 km^2.

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 collection or management solution.

The waste salt deposits are monitored annually to verify that they are in accordance with the design variables.

17.3 Environmental Monitoring

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 (N°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 and take actions in case of the detection of new impacts. Some monitoring is performed annually and others bi-annually. The update of the results is presented below in consideration of the latest information available, being in some cases from the year 2021 and in another from 2022.

17.3.1 Bioetic Environmental Monitoring Plant (PSAB)[3]

The PSAB contain information about the environmental status of the vegetation, vascular flora, fauna and aquatic biota components of the Salar the Atacama, in order to identify the temporal evolution of the variables studied. In addition to the field visits, satellite vegetation evaluations in April of each year were done in order to detect the extent of change at the end of the vegetative growth period of each season.

Regarding the report presented to the authority in April 2022, it showed, based on the analysis of satellite images of vegetation of the east edge that the vitality of soil samples was: 55.6% normal category, 26.3% weak, 8.1% very weak, 3% vigorous (2020 not reported), 7.1% areas without vegetation. Results are consistent with what has been observed historically. The categories of phenology, vegetative growth and fruiting remained as the predominant ones in the month of April. Surface covered with vegetation in the study area reaches 14,085.45 ha, which represents the sixth largest historical surface of the monitoring and is within the ranges observed in previous periods. Tessaria absinthioides is the predominant plant formation (52.25%), Distichlis spicata (15.85%) and Atriplex atacamensis/imbricata (12.58%), Juncus balticus-Schoenoplectus americanus-Baccharis juncea (9.81%).

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[3] PSAB: Plan de Seguimiento Ambiental Biotico

For the vegetation-aquifer connection area most of the vegetation units remained the same or experience a decrease in their coverage in the month of April compared to the monitoring of January. A higher proportion of specimens in normal vitality is observed over other categories. A greater expression of live crown is also observed in the month of January, which agrees with what has been historically observed, which shows the month of January asthe higher proportion of specimen in flowering stages.In April the fruiting stage predominates.

In the case of carob trees in the well camar-2, of 71 carob trees in the area well, 59 standing specimens were identified; the remaining 12 were identified as detached and registered as missing, a situation caused by runoff from the Camar stream in summer in previous periods. Also, of the 59 standing specimens, 50.8% were dry, while 23.7% were in a weak state. The others presented normal vitality, very weak or exceptionally vigorous. The total vegetation 47.5% registered a stage of vegetative growth and 52.5% a stage of senescence. No specimens with signs of flowering or fruiting were identified. Finally, all living specimens had some type of deterioration, most due to animal action.

Regarding flora this was affected by water deficit, with episodic incidence given by the highland winter. The monitoring identified richness of 16 taxa, 13 within the monitoring points and 3 outside of the monitoring points: 13 native and 3 endemic taxa. Nitrophila atacamensis, a species in the "Endangered" category, was detected, as in previous monitoring. Also it was possible to confirm that dominant species have remained stable over time.

Normalized pH analysis indicates that the current monitoring does not differ from the historical series. Only one (1) sample continued with a downward trend in the 2021 monitoring, (with pH values always alkaline), which is considered normal for a salt flat. Also, the electrical conductivity of the current monitoring does not differ from the historical series, noting that 4% of the samples present a significant trend.

For fauna the results indicate a richness of 22 species; 3 reptiles, 14 birds and 5 mammals. Thes results were lower than in other years of monitoring, but they present an increase compared to the total number of species during the 2020 campaign. The parameter remains within the historical ranges registered for fauna. All transects were carried out, in contrast to 2020 and historical variation in bird abundance has remained within historical fluctuations, we one of the most important species Flamingos have remained stable. Finally, variations in the abundance of small mammals have remained within the variations throughout the monitoring, with explosive increases in the number of individuals, a characteristic case in rodents.

Regarding Aquatic Biota Systems, samples in general presented good water quality, and the presence of aquatic communities is consistent with the physical and chemical characteristics of this type of aquatic ecosystems. Compared with the historical data, all the sampled systems presented in general quite variable temperature conditions and pH values that allow the maintenance and conservation of aquatic life according to current national regulations. Regarding the biotic agents, the Chlorophyll-a was variable during the campaign, noting that the chlorophyll measured in the fraction planktonic, has presented a variability that has been keeped historically. For its part, the interannual historical comparison of all the community parameters of Phytobenthos, Phytoplankton, Zoobenthos and Zooplankton, mostly indicates the existence of significant differences across all sectors studied These large interannual differences could be explained by the variability and dynamism presented by the different systems studied over time, what is reflected by the great heterogeneity in the values of the community parameters that do not follow a specific pattern.

17.3.2 Hydrogeological Environmental Monitoring Plan

SQM also has a Hydrogeological Environmental Monitoring Plan to keep control over the relevant hydrogeological variables in environmentally sensitive areas This is an extensive monitoring network that includes 225 monitoring points, 196 wells for groundwater monitoring; 5 industrial water pumping wells; 18 limnimetric rules for monitoring surface water; 4 surface water gauging stations; and 2 weather stations. This plan it is part of the RCA commitments, but these commitments are extended by the approved PdC. The systems and sectors included by this Plan are the following:

- Soncor system
- Aguas de Quelana system.
- Vegetación Borde Este system
- Peine system.
- Vegas de Tilopozo Sector
- Salar de Atacama core.

It is Important to mention that for 2021, the restrictions due to the SMA resolution 56/2019 and Covid-19, affected the monitoring plans during 2020. During the first semester of 2021 the accesses to the reserves were reopened and work could be resumed. In the same way, relation with the communities have been improving so the access problems have been decreasing, except in Tambillo and Peine, areas where access has not been possible since October 2019..

Regarding this Plan compromised in RCA 226/2006, biannual reports of water monitoring show that Phase I 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 II was activated during 2019 in “Sistema Soncor”; however, this was due to natural causes. In Phase II different measures must be developed, including the reduction of brine extraction.

According to the report for the January-June 2021 period, there was one activation of Phase II for Soncor System(corresponding to L1-5 y L1-G4 Reglilla). For the East Edge Vegetation system - Hydromorphic Vegetation, there were Phase II activations of indicators L1-17 and L2-27. During the first half of 2021, Phase II was deactivated and subsequently was Phase I. In the East Edge Vegetation system - Brea Atriplex Vegetation, the Phases I of the indicators L7-6, L2-7, L1-3 and L2-28 remains active. Regarding the Peine system, on June 29, 2021, the Phase I of the indicator L10-11 was activated. Regarding industrial water, since June 2021 the pumping infrastructure of the Camar-2 well was dismantled. The rest of the monitored variables showed a stable behavior, with no relevant variations.

Concerning the report for July-December 2021 period, the indicators of Soncor system L1-5 y L1-G4 Reglilla have remained in Phase II and L1-4 in Phase I. Regarding the East Edge Vegetation System Hydromorphic Vegetation no activation was produced during the second half of 2021. In the East Edge Vegetation system Brea Atriplex Vegetation, Phases I of indicators L7-6, L2-7, L1-3 and L2-28 have remained active due to activation during the second semester of 2021. No Phase II activation has been reported in these indicators during the second semester of 2021. Regarding the Peine System, for the first time since the implementation of the Contingency Plan (provisional provision contemplated in the compliance program proposed in process F-041-2016), activation of Phase I of the indicator L10-11 was produce during the second half of 2021. The rest of the monitored variables showed a stable behavior, with no relevant variations.

The report for the January-June 2022 period indicates that the monitoring campaigns were carried out at all the points included in the PSAH. However, it was not possible to obtain results in the complete network of control points, and sometimes it was not possible to monitor according to the established frequency, all due to access restrictions. The main causes, which has been repeated in previous semesters, are the access restriction to the Los Flamencos National Reserve for the Soncor and Aguas de Quelana systems, and the non-authorization by communities to access to sectors of the Peine system and the Tambillo sector. Regarding the results in Soncor system Phase II for L1-5 y L1-G4 Reglilla have remained active, and indicator L1-4 was for first time activated to Phase II. For Aguas de Quelana system i L5-10 indicator was temporarily deactivated from phase II, but then was activated again in September 2022. For the Hydromorphic Vegetation East Edge Vegetation system, indicator L2-27 activates Phase I in January (2022) and then, in February (2022) Phase II. This situation occurs because the well registered its seasonal minimum at that time of the year. Subsequently, during the recovery towards the seasonal maximum, it leaves Phase I and Phase II in June, thus closing the semester without any of the phases activated. In the East Edge Vegetation system Brea Atriplex Vegetation, Phases I of indicators L7-6, L2-7, L1-3 and L2-28 kept activated. Regarding Peine system the indicator 1028 and L10-4 were activated. The rest of the monitored variables showed a stable behavior, with no relevant variations.

The 2022 second semester report have not yet been submitted by SQM to SMA.

17.3.3 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. It considers the extraction from five wells in the alluvial area in the eastern border of the Salar de Atacama, which 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, and it is automatically processed every day and reported online at https://www.sqmsenlinea.com/. On this website 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 (see Figure 17-4).

Figure 17-4. Industrial Water Consumption, Total Authorized Limit and Authorized Limit in the Different Wells

The brine (mining resource) 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 2021 Sustainable Development Plan establishes reductions in the pumping of industrial water and brine, which are adopted with a gradual approach until the end of the life of mine 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 2028, 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, SMA) within the sanctioning process, mentioned in section 17.1.2 which it is currently approved by the SMA. The PdC establish the commitment to formalize them in the Environmental Impact Study "Plan de Reducción de Emisiones en el Salar de Atacama", currently 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, which aims 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 case that certain thresholds are exceeded in 4 objects of protection (hydrogeological systems Soncor, Aguas de Quelana and Vegetación Borde Este and Peine).

17.4 Permitting

This sub-section contains forward-looking information related to permitting requirements 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 regulatory framework is unchanged for Study period and no unforeseen environmental, social or community events disrupt timely approvals.

17.4.1 Permitting Requirements in Chile

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. Also, some of SQM installations are in protected areas so new projects and modifications should be environmentally evaluated regarding the article 10.p of the Environmental Law, which encompasses projects in national parks, national reserves, national monuments, and any kind of official protected area.

17.4.2 Environmental Impact Assessment

Since the beginning of the Project operation, the holder has submitted different DIAs/EIAs to the SEIA (see Table 17-3). The environmental authority has issued 21 permits to SQM Salar S.A., but just 13 to authorize the operation of Atacama site and 8 to authorize Lithium Plant in Salar del Carmen. The following table shows the environmental approval for each site.

Table 17-3. Historical EIAs/DIAs, carried out in the Salar de Atacama and the Salar del Carmen Plant, Sent to the Competent Authority (SEIA)

Environmental Impact Assessment	DIA/EIA[4]	Resolution	Date
Salar de Atacama			
Producción de 300.000 ton/año de cloruro de potasio	EIA	0403/1995	25-09-1995
Producción de sulfato de potasio, ácido bórico, con ampliación de capacidad productiva de cloruro de potasio	EIA	015/1997	07-08-1997
Planta de secado y compactado de cloruro de potasio	DIA	110/1998	03-12-1998
Reemplazo parcial de pozas de evaporación solar del proyecto de producción de sulfato de potasio y ácido bórico	DIA	0115/1999	04-10-1999
Producción de cloruro de potasio a partir de sales de carnalita de potasio	DIA	180/2002	16-08-2002
Cambios y mejoras de la operación minera en el Salar de Atacama	EIA	226/2006	19-10-2006
Ampliación producción cloruro de potasio Salar	DIA	252/2009	15-07-2009
Modificación planta sulfato de potasio	DIA	271/2009	03-08-2009
Aumento de capacidad de secado y compactado de cloruro de potasio	DIA	294/2009	24-08-2009
Nueva planta de secado y compactado de cloruro de potasio	DIA	273/2010	15-09-2010
Ampliación planta sulfato de potasio	DIA	030/2010	06-12-2010
Aumento de capacidad de procesamiento de carnalita de potasio	DIA	001/2011	05-01-2011
Ampliación planta de secado y compactado de cloruro de potasio	DIA	154/2013	20-06-2013
Ampliación de la planta de carbonato de litio a 180.000 ton/año	DIA	57/2019	26-03-2019

[4] Preventive evaluation system on the works that are developed in the territory and the impact that these generate on it. DIA: "Declaración de Impacto Ambiental" or Environmental Impact Statement. EIA: "Estudio de Impacto Ambiental" or Environmental impact assessment.

Environmental Impact Assessment	DIA/EIA[4]	Resolution	Date
Salar del Carmen			
Proyecto producción de 17.500 ton/año de carbonato de litio	EIA	381/1996	03-12-1996
Poza auxiliar de descarte planta de carbonato de litio	DIA	024/1999	18-02-1999
Cambio de combustible a gas natural en planta de carbonato de litio	DIA	109/2002	16-05-2002
Ampliación de planta de carbonato de litio a 32.000 ton/año	DIA	083/2001	02-08-2001
Planta de hidróxido de litio	DIA	018/2004	30-01-2004
Ampliación de planta de carbonato de litio a 48.000 ton/año	DIA	164/2007	31-05-2007
Ampliación faena Salar del Carmen	DIA	262/2017	31-07-2017
Aumento de Capacidad y Optimización Producción Planta de Litio Carmen	DIA	202202001223/2022	16-12-2021

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 5natural systems which are “Sistema Lacustre Soncor”, “Sistema Aguas de Quelana”, “Sistema Peine”, “Sistema Vegetación Borde Este” and “Sector Vegas de Tilopozo”.

As part of the compromises of the PdC, 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, and it is still in the evaluation process. At the moment the government agencies with environmental competence have been submitted a document with questions and requirement of information in order to have a better understanding of the project and make a better evaluation, this document it is call ICASARA, by their initials in Spanish. To answer the ICSARA, SQM must develop a document call ADENDA. Regarding the complexity of the ICSARA, SQM has requested two deadline extensions, the first had a deadline of December 2022, and the second and final is February 2023. Therefore, this document has not be accessed for the preparation of this TRS.

The complexity of the ICSARA is related with the observation about flora and vegetation, and water use, since they request various clarifications on the description of the project, survey and definition of the area of influence and baseline, the prediction and evaluation of impacts and the measures. Also, there are observation about possible significant impacts on the community (reviewed in the section 17.4).

It is important to note that a common process of environmental assessment considers two ICSARA /ADENDA, but due to the complexity of the ICSARA 1 it is possible to anticipate the need to address an additional ICSARA / ADENDA 3 or exceptional, and that should be reflected in process time estimated.

Finally, as was presented in the last version of this report, sectorial permits have been presented as part of the EIA which should be sectorial processed as soon the RCA it is obtained. These sectorial permits would be already environmentally approved with the RCA, but the sectorial approval will be necessary. Also, other sectorial permits that are not included in the EIA can appear. Although they do not have an environmental content, they must be approved to carry on with the Project.

17.4.3 Environmental compliance plan (PdC)

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.
- Lack of 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 other systems. That plan 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 PdC was restarted.

SQM submitted a new version of the PdC in September 2021, and was approved by the SMA through the resolution number 38 (ROL F-041-2016) of August 2022, so it is no longer possible to file claims for this resolution (15 days deadline).

The actions of the PdC proposed by SQM and approved by the SMA were 52, which are summarized by the Table 17-4.

Table 17-4. Committed Actions in the PdC.

N°	Actions
1	Reduction of the total net brine extraction flow, compared to the authorized flow by 9.800.922 m3
2	Carry out a diagnosis of the environmental monitoring information available in the Salar de Atacama basin
3	Apply the operational rule of net annual extraction of brine, according to what is indicated in RCA No. 226/2006, without considering the infiltration in the evaporation ponds, in order to finish the extraction of brine below what is authorized
4	For the correct application of the brine extraction limitations, a Transitory Procedure for brine extraction during 2018-2020 was prepared and implemented, training all operators and those responsible for brine extraction and reinjection regarding the indicated Procedure.
5	Increase the monitoring frequency of the status indicators of the Contingency Plans and the Peine sector
6	Implement and operate an online monitoring system for the extraction of brine and industrial water
7	Make available to the community updated information on the extraction of brine and industrial water and biotic and hydrogeological monitoring through a website with free public access
8	Substantial reduction of brine extraction during the validity of the PDC
9	Limits the authorized industrial water pumping flow
10	For the purposes of extending the reduction in brine extraction and industrial water supply approved by RCA No. 226/2006 in SQM's mining operation in the Salar de Atacama beyond the duration of this PDC and until the end of the useful life of the project, it will be evaluated environmentally and a favorable RCA will be obtained regarding the modification to the brine extraction rule and the industrial water supply, which will consider a staggered reduction of the maximum brine extraction limit until reaching 822 L /s from the year 2027, less than 50% of the extraction authorized by RCA No. 226/2006; and a reduction in the total flow of industrial water to 120 L/s, equivalent to a 50% reduction in the flow authorized by RCA 226/2006.
11	Implement a participatory monitoring program for the Hydrogeological Environmental Monitoring Plan (hereinafter, "PSAH")
12	Design and implement a community training program associated with environmental monitoring in the Salar de Atacama.

N°	Actions
13	Install and operate additional hydrometeorological stations in the Salar de Atacama
14	Increase the frequency of monitoring of the vegetation cover of the Salar de Atacama basin through high-resolution satellite images
15	Carry out an integrated analysis of the hydrogeological environmental monitoring information of the Salar de Atacama basin.
16	Related to evaluating and updating the PSAH based on the results of the analysis committed in Action No. 15.
17	Report to the SMA the monitoring variables of RCA No. 226/2006 and additional monitoring committed in the PDC through an online connection via API or electronic report
18	Periodically communicate to the community and/or other actors in the territory the results of environmental monitoring.
19	Strengthen the monitoring of the lagoon surface through high-resolution satellite images of the Soncor, Peine and Aguas de Quelana systems
20	Regarding the implementation of a pilot plan for continuous monitoring and online transmission of the quality of surface waters in the sectors of Barros Negro, Chaxa, Burro Muerto and Saladita
21	Implement air quality monitoring on the eastern edge of the Salar de Atacama.
22	Stop pumping water from the Camar 2 well and close and dismantle the infrastructure associated with pumping water
23	Include in the reports of the Biotic Environmental Monitoring Plan (hereinafter, "PSAB") an analysis of the results of the vital and sanitary state of the carob trees.
24	Implement a flora and vegetation monitoring program for the Camar stream
25	Deliver fodder to the Camar community to temporarily replace the loss of biomass associated with the progressive affectation of the state of vitality of carob trees in the area of the Camar 2 well.
26	Environmentally evaluate the necessary measures to mitigate and compensate for the progressive affectation of the state of vitality of the carob trees present in the Camar well sector
27	Carry out studies aimed to understand in a more complete way the irrigation of carob trees in the sector of the Camar 2 well

N°	Actions
28	Implement an irrigation program for the carob trees that are part of the monitoring committed in RCA No. 226/2006
29	Implement a fodder crop plot in Camar.
30	Incorporate the Camar community in the execution of monitoring activities of relevant environmental variables.
31	Implement a Camar Carob Conservation Plan, which considers the participation of the Camar Community and its implementation in said Community, mainly through a carob production program and the generation of a community seed bank. In addition, genetic studies of the Camar carob tree are established, in order to know its specific characteristics and conditions required to favor its conservation.
32	Evaluate the potential impact of herbivory on the carob population of the Camar ravine.
33	Prepare an ethnobotanical study of the flora and vegetation of Camar
34	Inform the sectoral authority about changes in the presentation of the vegetation cover data of the Biotic Environmental Monitoring Plan from the year 2013 and present a pertinence query regarding said modifications.
35	Deliver tabulated information regarding the net brine extraction with all the historical, updated and accumulated information since 2013.
36	Provide information regarding the explicit values of freshwater extraction (industrial water) from the Mullay, Allana, Camar 2, Socaire and P2 wells since the 2013 period
37	Include in the Hydrogeological Monitoring Report the results of the measurement of the level values of wells L4-10, L2-27, in addition to the level values of well L2-28, since 2013
38	Deliver the information of the percentage variable of the coverage of the plant formations associated with the environmental monitoring of RCA No. 226/2006
39	Submit to the SMA the missing information regarding that requested in the inspection of March 27, 2014, specifically the correlation between the levels of groundwater, soil moisture content and vegetation; and georeferenced photographs of the soil moisture monitoring plots.
40	Define the wells of the Peine System Monitoring Plan that will be considered as System status indicators and assign them thresholds that will allow the adoption of measures

N°	Actions
41	Define control measures to be implemented in case the activation condition is verified phase I and phase II in the Peine System, as defined in Action No. 40. In this regard, it should be noted that the company will fully apply the measures considered in recital 10.18 of the RCA No. 21/2016, including the same percentage reductions included for the Albemarle project, until the new RCA is obtained, that is, the average annual net extraction of brine considered by the project will be reduced by 20%.
42	Apply the phase I and/or II activation thresholds defined for the Peine System, both in the follow-up of the project qualified by RCA No. 226/2006, and in wells PN-05B and PN-08A of the Alert Nucleus sector of the Plan of Early Warning of recital 10.18 of RCA No. 21/2016, and the corresponding control measures, when applicable.
43	Environmentally evaluate an updated Contingency Plan for the Peine System, which has been underway since July 2021 and will be implemented until December 2023.
44	Carry out a correlation study of the hydrological, hydrogeological and meteorological variables with the pH and salinity of the soil, which was carried out in July 2019. Through this action, the company carried out the pending analyzes that should have been carried out based on the results of the results of pH and salinity in soil obtained.
45	Carry out a correlation study of historical meteorological events with microenvironmental variables, which was carried out in April 201932. This action complements the study identified in the conclusions of the pH and Salinity Variable Correlations Report (Action No. 44), on the influence of events meteorological conditions before different scenarios that glimpse possible specific relationships between the variables, to the extent that it contributes to a better understanding of their correlation.
46	Implement a protocol for the trend analysis of the environmental variables of vegetation and/or microenvironmental variables, which has been in execution since April 2019 and will be implemented throughout the validity of the PDC, thereby ensuring that it will be observed in the future the provisions of recital 10.3.2 of RCA No. 226/2006.
47	Adjust the application of the Contingency Plans so that it is strictly adapted to the status indicators (wells and rulers) defined in recitals 11.2.1 (for the Soncor system), 11.3.1 (for the Aguas de Quelana lake system) and 11.4.1 (for the East Edge Vegetation system) of RCA No. 226/2006, which has been underway since December 2016 and will be implemented throughout the validity of the PDC.
48	Apply the activation thresholds included in recital 11.2.1 "Status indicators and activation values" (Soncor System) of RCA No. 226/2006, which has been underway since December 2016 and will be implemented throughout the term of the PDC.
49	Update and implement the monitoring procedure of the Hydrogeological Environmental Monitoring Plan, in accordance with what is indicated in Actions No. 47 and 48, which has been in execution since February 2019 and will be implemented throughout the validity of the PDC.

N°	Actions
50	Environmentally evaluate the implementation of adjustments to the Contingency Plans of the project "Changes and Improvements in the Mining Operation of the Salar de Atacama", favorably qualified by RCA No. 226/2006, which has been in execution since July 2021 and is It will be implemented until December 2023.
51	Inform the Superintendency of the Environment, the reports and means of verification that accredit the execution of the actions committed in the PoC through the digital systems that the SMA has for this purpose to implement the SPDC
52	Delivery of reports and means of verification through the report's office of the Superintendence of the Environment

Reference: Approved PdC Resolution N°38/2022.

Additionally, in November 2021 (Res. 2389/2021) the SMA ordered provisional procedural measures, for a period of 30 days, against SQM, because 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. All these requirements are included in the approved PdC, as it can be seen in the Table 17-5and some of those are already made, other are currently in process of compliance and other should be started in some months regarding the times compromised in the PdC. About these compromises that should be carry inmediatly, for number 33 was not possible to identify the evidence of compliance in the SMA web page[5], but SQM has informed that this study will be delivered in the final report, regarding the resolution N°38/f-041-2016, because this study has a duration of 16 months.

It should be added that, 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

[5] https://snifa.sma.gob.cl/ProgramaCumplimiento/Ficha/107

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, so this is part of the actions compromised in the PdC, as can be seen in the Table 17-4, action number 10. Currently the SEIA has submitted the ICSARA 1, which it is a document where all the governmental organizations, who apply, can make questions and requirements of additional information. Regarding this SQM has required extra time to respond, because the deadline correspond to December 2022. However, SQM has submitted a new request requiring extra time to respond until 15 of February 2023 (more details about this process can be found in Chapter 17.4.2).

17.5 Social and Community Aspect

This subsection contains forward-looking information related to plans, negotiations or agreements with local individuals or groups for the Project. Material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information are described in this section. The section considers that the regulatory framework has not changed for the Project, and that eventual environmental, social or community events could affect ongoing procedures.

17.5.1 Social Commitments Defined in the Environmental Instruments

The Environmental Impact Study (EIA) of the project "Plan de Reducción de Extracciones en el Salar de Atacama[6]" is currently undergoing environmental processing in the Environmental Impact Assessment System (SEIA).

In this context, the following measures[7] have been undertaken with regarding the Camar Indigenous Community:

- Burial of the Camar Sector Pipe, to mitigate the affectation of carob trees in the Camar Creek.
- Reforestation of carob trees, with the planting of 112 carob trees in the Quebrada de Camar.
- Technical Support Program for Fodder Cultivation, through periodic visits (quarterly).
- Agricultural Development Fund, for initiatives such as: water supply/use; soil, among others.
- Delivery of Fodder, intended for livestock within the territory of the Camar Community.

[6] The project is in the first round of consultations by the environmental authority. SQM has requested suspension of the term to address the observations until February 15, 2023.

[7] Previous environmental procedures associated with the operation of the project do not define specific social commitments, as reported in a previous report.

Additionally, the EIA considers two voluntary environmental commitments, namely:

- Participatory Monitoring Program, regarding the communities of Toconao, Talabre, Camar, Socaire, Peine, who want to participate in the Salar Water (PSAH) and Biotic (PSAB) Monitoring Plan.
- Regular communication of the results of the environmental monitoring to the community and/or other actors in the territory.

Regarding the first environmental commitment, the authority requests to identify the number of partners to be trained, as well as incorporate all the indigenous human groups present in the sector where the project is located.

In relation to the Citizen Environmental Participation procedure, a total number of six hundred sixty-two (662) observations were entered into the e-SEIA platform, made mainly by people or organizations belonging to Native People, specifically:

- Atacameño Indigenous Community of Talabre.
- Atacameño Community of Socaire.
- Indigenous Association Council of Atacameño Peoples.
- Atacameño Community of Peine.
- Atacameño Community of Toconao.
- Atacameño Community of Camar

It is relevant to clarify that the importance of the observations is the responsibility of the environmental authority. However, it implies an eventual risk of prosecution of the Environmental Qualification Resolution (RCA), if those who formulated them consider that they were not adequately considered. A possible claim is made via appeal before the Committee of Ministers, or before the Environmental Court, as a second instance. Both situations can delay the start-up of the project.

Regarding the observations made by the state bodies responsible for the Environmental Impact Assessment (EIA), the following stand out regarding the social aspects:

a. ORD N°64 National Corporation for Indigenous Development (CONADI): requests to delimit the area of influence of the human environment; present background information on Indigenous Associations and the eventual effects on activities that they could carry out; identify the territorial uses that indigenous human groups have, as well as eventual ones on sites or natural resources in which socio-cultural practices could be configured.

b. ORD No. 1392 National Monuments Council (CMN): indicates lack of precedents to rule out literal f) of article 11 of Law No. 19,300, that is: "Alteration of monuments, sites with anthropological, archaeological, historical value or belonging to the cultural heritage".

c. ORD N°431 Illustrious Municipality of San Pedro de Atacama: requests to incorporate measures on possible effects related to vehicular displacement, vegetation formations, birds and reptiles, soil and landscape, among others. Additionally, it requests expanding technical support and promotion programs, incorporating other towns (Toconao, Talabre, Socaire and Peine) into the measures, and favoring the hiring of local labor.

On the other hand, within the framework of the environmental processing of the project, on June 22, 2022, SQM presented a Reversal Appeal to the regional environmental authority, requesting to increase the number of indigenous organizations subject to the Indigenous Consultation process decreed by it, regarding the Atacameña de Camar Indigenous Community. Considering SQM's history in the territory, the strategy of requesting to expand the consultation to other communities is considered appropriate, since it would allow for a more robust evaluation and would reduce possible risks of prosecution and future complaints.

Notwithstanding the foregoing, on August 19, the Antofagasta Region Environmental Assessment Service did not accept the appeal and referred the file to the Executive Directorate of the Environmental Assessment Service.

Regarding the Consultation Process with Indigenous Peoples, this is still open and considering the prior participation of Native Peoples and the territorial context of the project, additional measures and commitments may be derived from those currently being discussed, which may lead to an RCA with higher demands.

About the review of the latest version of the Compliance Program (PdC) presented by SQM, it was approved by the Superintendence of the Environment, on August 30, 2022. The cost of the program is more than $55,000 million dollars and contemplates 52 specific measures.

The Compliance Program includes measures or activities related to the communities surrounding the project. In this context, SQM has the obligation to report to the Superintendence of the Environment (SMA) on a regular basis, regardless of the reviews indicated in the previous paragraph. Table 17-5 shows accounts for compliance for the period[8], according to the information available on the SMA portal:

[8] Some of the actions must be carried out 18 months after the resolution approving the PdC was issued (eg: Action No. 33, Elaboration of the Ethnobotanical Study of the Flora and Vegetation of Camar).

Table 17-5. Compliance with PdC Social Commitments, According to the SMA Portal.

Action	Description	Reportability	Observation
Action #5	Increase the frequency of monitoring of status indicators of Contingency Plans and the Peine sector.	Daily monitoring of the Soncor, Aguas de Quelana, Eastern Edge Vegetation, and Peine sector systems were carried out, except for those located within the Los Flamencos National Reserve.	Address permissions to enter restricted monitoring sites and inform the community.
Action No. 7	Enabling a web system with information on water and brine extraction and monitoring of biotic and hydrogeological components available to the community.	System available from June 2019	No observations
Action No. 11	Design and implement a participatory monitoring program for the Hydrogeological Environmental Monitoring Plan (PSAH)	The communities of Toconao, Talabre, Socaire and Peine were invited to participate in the Participatory Monitoring Program, implementing training days with the communities of Talabre and Socaire.	Inform the invitation to the Atacameños Community Indigenous Association.
Action No. 12	Design and implement a community training program associated with environmental monitoring in the Salar de Atacama.	The Community Training Program regarding water, flora, fauna, recycling, environmental monitoring and regulations, to be carried out by SQM and an academic entity, is reported.	No observations
Action No. 18	Periodically communicate to the community and/or other actors in the territory the results of environmental monitoring (PSAH and PSAB monitoring).	Reports have been reported to the SNIFA (SMA) platform, to the communities, and other actors in the territory. In addition, the activation of Phase II Well L5-10 (Aguas de Quelana System) was reported, as well as the sending of reports No. 16 of the PSAB and No. 31 of the PSAH to the community	Inform the realization of a dissemination activity in San Pedro de Atacama and Toconao.
Action #25	Delivery of fodder to the Camar Community.	The delivery of bales corresponding to the second half of 2022 (1,200 bales) is reported.	No observations

Action	Description	Reportability	Observation
Action No. 29	Enabling a fodder plot (Camar community).	Conversations were held with the Camar community to evaluate alternative locations and water sources that would allow the cultivation plot to materialize.	No observations
Action No. 30	Incorporation of the Camar community in the execution of monitoring activities of relevant environmental variables.	The Camar community has been integrated into the participatory monitoring program, carrying out 3 days of training and delivery of equipment for the execution of monitoring.	No observations
Action No. 31	Implementation of a Camar Carob Conservation Plan (inclusion of the Camar community in the development and implementation of the Plan).	Progress has been made in the implementation of the 2 programs of the Plan. The Carob Production Program is in the training stage with 2 induction days. Regarding the Phytosanitary Control Program, the Work Plan was developed by INIA (field prospecting for pest recognition).	No observations

The instances of participation show that the communities are alert, therefore, it is not possible to rule out that complaints are filed with the SMA, which may lead to the opening of eventual sanctioning procedures. Indeed, the complainants and those who have been recognized as persons interested in the procedure, can make use of the right established in article 56 of the Organic Law of the SMA with respect to claiming the resolutions of the authority.

17.5.2 Plans, Negotiations, or Agreements with Individuals or Local Groups

As indicated in a previous report, on August 2020 the Camar Indigenous Community entered into an out-of-court agreement called “Mutual benefit due diligence, cooperation and sustainability agreement for a new stage of community relations” with SQM, based on a document with format standard[9]. According to the background review in secondary sources, there are no observations on its implementation during the period.

[9] Basic contents: general background of the agreement; history of the community relationship; Long-term relationship; validation of agreements; contributions; provision of funds; external audit; work group and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; conflict resolution; agreement review mechanisms; Assignment of rights; anti-corruption clause; other commitments; term of the agreement; address.

On the other hand, SQM has established agreements with indigenous and non-indigenous communities in different aspects that are derived both from previous commitments in the framework of its operations and from programs associated with corporate guidelines for community relations[10]. Based on the background check, it is understood that the programs are under development, with means of verification related to the 2021 Sustainability Report, highlighting the implementation and start-up of a Community Portal in SQM (questions, complaints, requests, among others online through the page https://portaldecomunidades.sqm.com), and the implementation and start-up of an information portal called Online Monitoring (https://www.sqmsenlinea.com.com), which allows communication of the environmental information of the operation in the Salar de Atacama with the communities and parties interested, among other aspects.

Regarding the reportability of the Sales Force claims platform, SQM indicates that to date they have received four cases, which have been resolved. The main problems indicated on this platform are non-payment by contractor companies to local suppliers (companies that provide services to SQM), access of a consultant hired by SQM to sectors not authorized by the Community of Talabre, and access of a consultant to the territory of Drill without authorization from the Community. According to SQM, steps were taken to resolve these issues (conversation with communities, coordination with contractors to pay suppliers and new inductions to contractors).

Notwithstanding the foregoing, information was found from secondary sources regarding the implementation of a Multi-stakeholder Roundtable[11] in the Salar de Atacama basin, as a space for dialogue between representatives of organizations, communities, and institutions that carry out productive, social, and/or cultural activities. in the Salar de Atacama basin, which aims to resolve information gaps on the basin and generate agreements on priority issues for the participants related to the sustainability of the territory in a collaborative manner.

The table agreed to define water as a priority issue, based on the protection of the ecosystem, agreeing among other aspects: to create a Cadastre of Owners of Water Rights in rivers (north of the basin), both underground and surface; carry out a geological and hydric characterization of the Vilama river ravines, to generate base information; carry out open training on technical water issues for inhabitants of the basin; generate a prioritization of projects to be implemented in the short term.

SQM indicated that it has been possible to agree on the procedures for defining studies and resolving disputes, the technical report on water technical units 2, 3, 4 and 5, and guidelines for training and dissemination. However, there are no records on the progress reports of these agreements.

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[10] Commitments such as: CORFO Program; Independent Environmental Audit Reports (indigenous communities of: Camar , Peine, Talabre , Toconao , Socaire); Work Groups (communities such as Talabre , Toconao , San Pedro, Camar and others); Grievance Mechanism; Participatory Monitoring (Toconao , Laguna Chayas, with the participation of CONAF).

[11] La iniciativa nace desde algunas empresas involucradas en la cadena de valor de baterías (Volkswagen Group, Mercedes Benz AG, Daimler Trucks AG, BMW Group, BASF AG y Fairphone. La entidad responsable de acompañar y coordinar el proceso es la GIZ (Sociedad Alemana para la Cooperación Internacional). Link: "https://www.mch.cl/2022/09/08/sqm-explica-los-alcances-de-la-mesa-multiactor-en-la-cuenca-del-salar-de-atacama/"

17.5.3 Local Hiring Commitments

As indicated, the Environmental Impact Study (EIA) of the project "Plan for the Reduction of Extractions in the Salar de Atacama" is currently undergoing environmental processing.

Regarding local employment, no specific commitments are identified. However, in the process of commenting on the documentation presented by SQM, the technician to be hired is consulted, as are the monitors that will participate in the participatory monitoring process, they will be trusted by the community and will have a salary.

On the other hand, and as was indicated in a previous report, the voluntary commitment established in RCA No. 226/2006 of the " Proyecto Cambios y Mejoras de la Operación Minera en el Salar de Atacama", regarding annual reporting of local labor contracted for the operation of the project, indicates an average of 2,931 workers per month, with February 2020 being the month with the highest number of registered workers with 2,975. There is no subsequent information about said commitment.

Notwithstanding the foregoing, and as part of the community relations policy, SQM has programs aimed at hiring local labor, such as: Employability workshops aimed at improving the situation of the resume and the job interview or Puerto Cowork, among others.

According to information reported by SQM, they are in the planning process of preparing local labor reports which, to date, are behind schedule, according to what they indicate

17.5.4 Social Risk Matrix

SQM has a Human Rights Risk Matrix, focused on communities and indigenous peoples in the communes of Huara, Pozo Almonte, María Elena, and San Pedro de Atacama, located in the vicinity of the company's operations. In addition, it identifies SQM suppliers and workers.

It also has an Ethical Sustainability and Human Rights Policy. In addition, according to the 2021 Sustainability Report, the company is developing an evaluation of social aspects, through the SROI (Social Return on Investment) Methodology.

In addition, as reported by SQM, during 2022 a participatory human rights due diligence was carried out, including workers, contractors, and communities close to the operation. From this work, in which the risks perceived by these groups were collected, the risks were characterized and included in SQM's corporate risk matrix in order to work on the gaps, action plans and those responsible.

Notwithstanding the foregoing, this matrix was not taken as a precedent, so it is not possible to detail whether there is a social risk matrix itself in the company. As reported in the previous report, there have been initiatives that lack a specific program or commitment.

17.6 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.

17.6.1 Closure, remediation, and reclamation plans

During the abandonment stage of the Project, the measures established in the Closure Plan Update "Faena Salar de Atacama" approved by the National Geology and Mining Service, through Resolution N°. 1381 of August 09, 2022, 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.

The Closure Plan Update was approved 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°1381/2022 approving the Salar de Atacama Mine Closure Plan Update. These actions and measures seek to ensure the physical and chemical stability of the mine after operational cessation.

17.6.1.1 Risk Assessment

The risk assessment carried out is based on what is indicated in the "Risk Assessment Methodological Guide for the Closure of Mining Works" of March 2014 issued by Sernageomin. The results of the risk assessment of the remaining facilities indicated that both the evaporation ponds and the waste salt deposits are remaining facilities and will maintain physical and chemical stability. Therefore, the level of risk is low and not significant, so they do not present a risk to people and the environment.

17.6.1.2 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 km^2) and waste salt deposits (currently 17 km^2).

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 (see Table 17-6).

Table 17-6 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	Update Closure Plan (Res. Exe. N°1381/2022)	Personal safety	Photographic report
		Road Closure	Update Closure Plan (Res. Exe. N°1381/2022)	Personal safety	Photographic report
		Signage	Update Closure Plan (Res. Exe. N°1381/2022)	Personal safety	Photographic report
Salt Deposit	Principal	Slope stabilization and profiling	Risk assessment Closure Plan in process	Personal safety	Photographic report
		Signage	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 17-7).

Table 17-7. 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	Perpetuity

17.6.2 Closing Costs

The total amount of the closure of the Salar de Atacama mine site, considering closure and post-closure activities, adds up to 485,807 UF (319,504 UF for closure and 166,303 UF for post-closure). Below is a summary of the costs reported to the authority in the Salar de Atacama Mine Closure Plan Update (see Table 17-8 and Table 17-9).

Table 17-8. Salar De Atacama Mine Site Closure Costs

Item	Total (UF)
Total direct closing cost	153,941
Indirect cost and engineering	69,801
Contingencies (20% CD + CI)	44,749
Subtotal	268,491
IVA (19%)	51,013
Closing Plan Amount (UF)	319,504

Source: R.E 1381/2022 Closure Plan Update "Faena Salar de Atacama"

Table 17-9. Salar De Atacama Mining Site Post-Closure Costs

Item	Total (UF)
Total direct post-closing cost	101,268
Indirect cost and engineering	15,190
Contingencies (20% CD+CI)	23,292
Subtotal	139,750
IVA (19%)	26,553
Post-Closure Plan Amount (UF)	166,303

Source: R.E 1381/2022 Closure Plan Update "Faena Salar de Atacama"

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[12]. However, the constitution of the guarantees was carried out considering the total cost of the Closure Plan, and a useful life of 8 years, as stated in the Closure Plan. The development of the constitution of guarantees is shown below.

[12] As of January 2020, the years of remaining useful life begin to be counted.

Table 17-10. Guarantee Update of the Salar de Atacama Plant Closure Plan (referential table)

Period (year)	Amount (UF)
1	82,579
2	116,871
3	151,901
4	187,680
5	224,221
6	261,537
7	299,639
8	338,541
9	378,256
10	418,796
11	460,175
12	465,190
13	470,261
14	475,387
15	480,569
16	485,807
17	485,807
18	485,807

Source: R.E 1381/2022 Closure Plan Update "Faena Salar de Atacama"

17.7 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.

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 was 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.

As mentioned in previous chapters, 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 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 of each of these areas allows for the aggregate capital cost to be known in all the facilities related to lithium and potassium production.

18.1 Capital Costs

The facilities for lithium and potassium production operations mainly include 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 the following: common areas, hydrogeology assets, water resources, supply areas, powerhouse, laboratories, and research, among others.

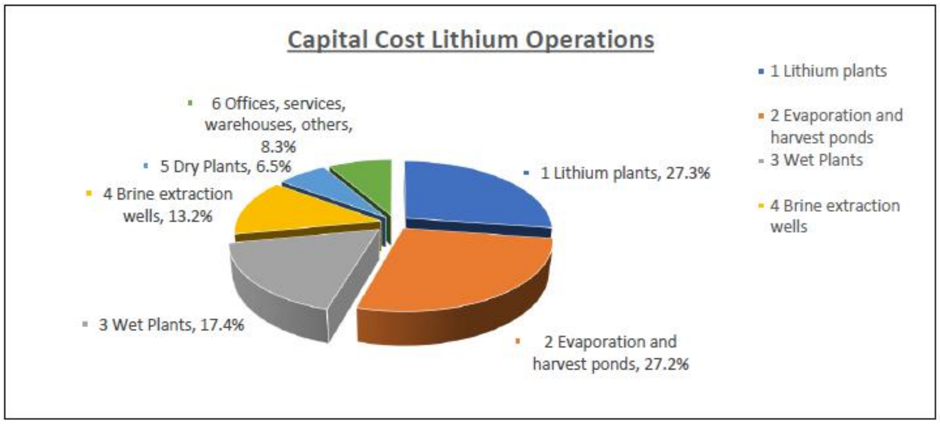
At the end of 2020, the capital cost that had been invested in these facilities was close to 2,300 million US dollars. The cost of capital distributed in the areas related to lithium and chloride and sulfate potassium production (see Table 18-1).

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," which cover about 55% of the capital cost, which when added to the "Wet Plants and Brine Extraction Wells", covers close to 85% of the entire cost of capital for lithium operations. The main investments are presented in Figure 18-1.

Figure 18-1. Capital Cost of Lithium Operations



As shown in Figure 18-1, the main investments in lithium and potassium production are "Lithium Carbonate and Lithium Hydroxide Plants", as well as the "Evaporation and Harvest Ponds. This is followed by the area of "Wet Plants" with 17% and the "Brine Extraction Wells" with 13%.

Over the first 9 months of 2022, the capital investment came from the construction of plants and was close to US$ 320 million.

18.1.1 Lithium Plants

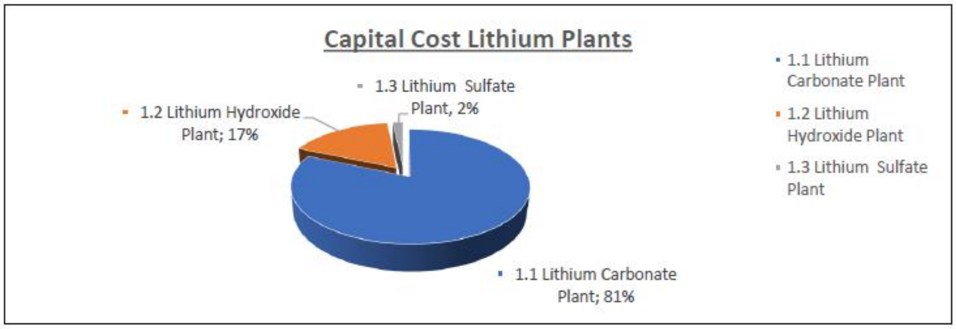
SQM produces lithium carbonate at the Salar del Carmen facilities, near Antofagasta, Chile, from highly concentrated lithium chloride made in the Salar de Atacama. The annual production capacity of the lithium carbonate plant at the Salar del Camen is 150,000 tonnes per year, which during 2023 is expected to expand to produce 210,000 tonnes of lithium carbonate.

Regarding the Lithium production plants, the main investments are broken up as shown in Table 18-2 and in Figure 18-2. The lithium carbonate plant covers 81% of the total investment in lithium plants.

Table 18-2. Lithium Plant Investments

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 Costs for Lithium Plants



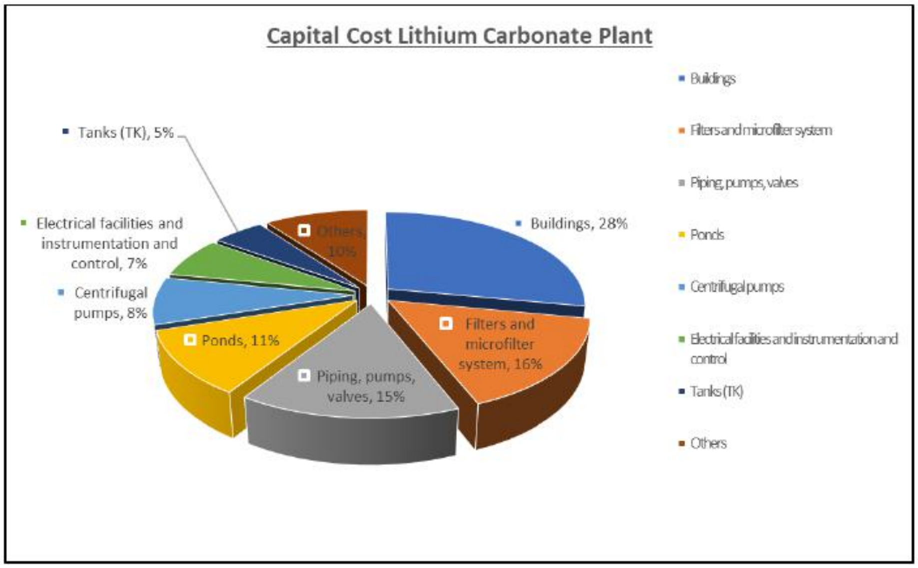
18.1.1.1 Lithium Carbonate Plant

The main investment in the lithium carbonate plant is in buildings, mechanical equipment (namely filters, centrifugal pumps, other pumps, valves, pipes, ponds, drying equipment, electrical installations and instrumentation and control), as well as warehouses. (Table 18-3 and Figure 18-3).

Table 18-3. Investment in the Lithium Carbonate Plant

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 for the Lithium Carbonate Plant



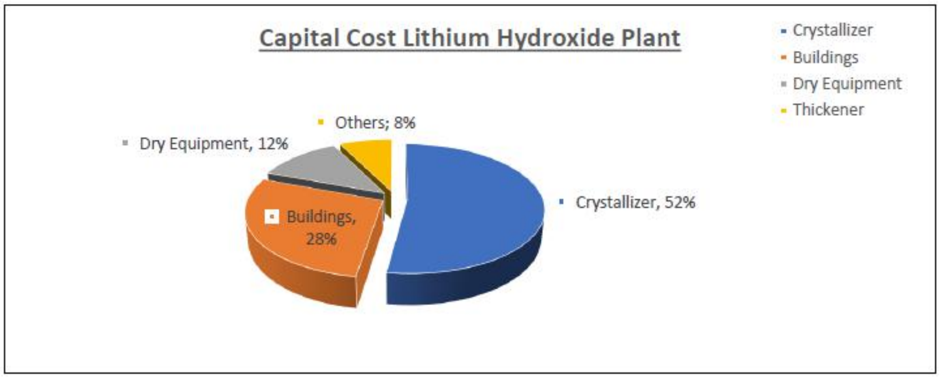
18.1.1.2 Lithium Hydroxide Plant

The main investments in the lithium hydroxide plant include the crystallizer and buildings (Table 18-4 and Figure 18-4), as well as the drying equipment and thickener.

Table 18-4. Investments in the Lithium Hydroxide Plant

Lithium Hydroxide Plant	%
Crystallizer	52%
Buildings	28%
Dry Equipment	12%
Thickener	8%

Figure 18-4. Capital Costs for the Lithium Hydroxide Plant



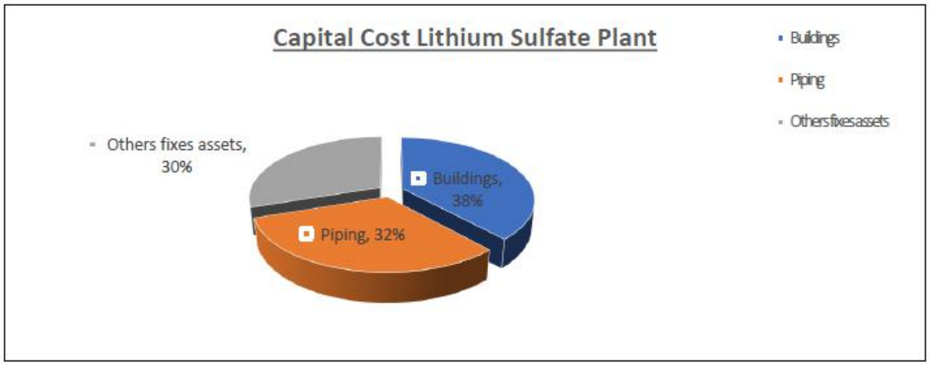
18.1.1.3 Lithium Sulfate Plant

The main investments in the lithium sulfate plant include buildings and piping, as shown in Table 18-5 and in Figure 18-5.

Table 18-5. Investments in the Lithium Sulfate Plant

Lithium Sulfate Plant	%
Buildings	38%
Piping	32%
Other fixed assets	30%

Figure 18-5. Capital Cost Lithium Sulfate Plant



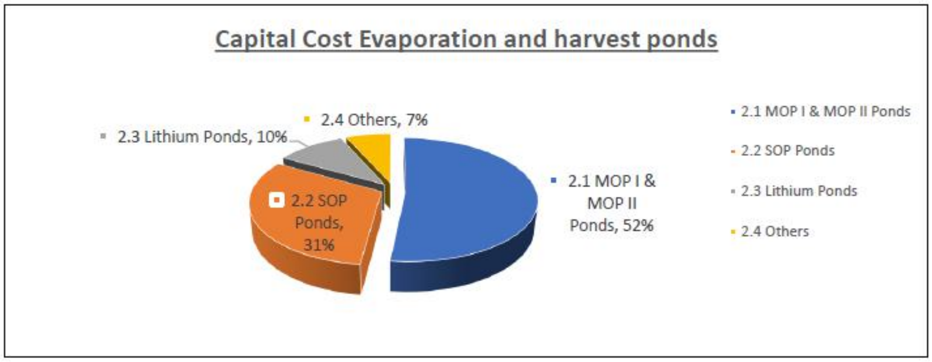
18.1.2 Evaporation and Harvest Ponds

At the evaporation and harvest ponds, the main investments are in the subareas indicated in Table 18-6 and Figure 18-6 The MOP I and II, and SOP ponds cover 83% of the total investment.

Table 18-6. Main Investments in Evaporation and Harvest Ponds

Evaporation and harvest ponds	%
MOP I & MOP II Ponds	52%
SOP Ponds	31%
Lithium Ponds	10%
Others	7%

Figure 18-6. Capital Cost Evaporation and Harvest Ponds



The main investment in the evaporation and harvest ponds is related to the earthworks and pond operation in conjunction with the piping, with little investment in buildings and electrical facilities (see Table 18-7, Table 18-8, and Table 18-9).

Table 18-7. Main Investments in MOP I and MOP II Ponds

MOP I & MOP II Ponds	%
Pond	74%
Piping	11%
Others	15%

Table 18-8. Main Investments in SOP Ponds

MOP I & MOP II Ponds	%
Pond	74%
Piping	11%
Others	15%

Table 18-9. Main Investments in Lithium Ponds

Lithium Ponds	%
Pond	71%
Others	29%

18.1.3 Wet Plants

Regarding the facilities of the wet plants, the main investments are in the subareas shown in Table 18-10. The Muriate of potash, MOP H I, and H II Plants cover 84% of the total investment of wet plants.

Table 18-10. Main Investments in Wet Plants

Wet Plants	%
MOP H II Plant	44%
MOP H I Plant	40%
SOP H Plant	10%
PC I	6%

The main investments in the wet plants are found in buildings, pumps, comminution equipment, conveyor belts, filters, flotation equipment and electrical facilities, as shown in Table 18-11.

Table 18-11. Detailed Investments in Wet Plants

MOP H II Plant / MOP H I Plant / SOP H Plant / PC I	%
Buildings	28%
Pumps, Piping & Valves	11%
Facilities/electrical equipment/Instrumentation/ Engine Control Center/ Electrical Substation	10%
Comminution equipment	7%
Filter	6%
Conveyor Belt	5%
Flotation equipment	4%
Other fixed assets	29%

18.1.4 Brine Extraction Wells

The primary investments in brine extraction wells include the components listed in Table 18-12, with the MOP extraction well area amounting to almost 80% of the total investment.

Table 18-12. Main Investments in Brine Extraction Wells

Brine Extraction Wells	%
MOP Wells	80%
Lithium Wells	13%
SOP Wells	7%

The main investments in brine extraction wells are found in wells, piping, pumps, and electrical installations (Table 18-13).

Table 18-13. Detailed Investments in Brine Extraction Wells

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 investments in the dry plants are found in compaction equipment, drying equipment, buildings, and comminution equipment.

18.1.6 Future Investments

SQM has plans to continue the capacity expansion of its plants, complying with the CORFO quotas agreed. The Lithium Carbonate Plant will be upgraded and expanded to reach a 210 kTonnes in 2023 and 250 kTonnes in 2026. Investments in the Lithium Hydroxide plant are on-going to increase its production up to 37.5 kTonnes per year (expected in 2024).

For the expansion of lithium carbonate production from 150 kTonnes to 210 kTonnes, an additional investment is anticipated. Part of this investment has been made during 2022 and the construction phase will be completed in 2023.

In the case of investment in the expansion of lithium carbonate production from 210 kTonnes to 250 kTonnes, an additional investment is needed. These projects will be completed between 2024 and 2025. The expansion from 210 kTonnes to 250 kTonnes requires an additional site, investments in the Salar de Atacama, and the addition of a new waste evaporation plant.

Projects planned for execution in 2022 through 2024 are presented in Table 18-14. These investments address improving aspects of quality, performance, sustainability, and increased production capacity.

Table 18-14. Projects in Execution (2022 to 2024 Period)

Projects Grouped by Objective	2023	2024	Category
Well Exploration and Qualification SdA	X	X	Quality and Performance
Lithium Well Improvements	X	X	Performance Increase
Research Products and Process Optimization SdA	X	X	Performance Increase
Lithium Carbonate Plant Quality (70 ktpa)	-	-	Improves Quality
Lithium Carbonate Plant Expansion and Quality (120 ktpa)	-	-	Increase Capacity
Quality Lithium Carbonate Plant (180 ktpa)	X	-	Improves Quality
Evaporation Plant (120-180 ktpa)	-	-	Sustainability
Site Facilities (120-250 ktpa)	X	X	Increase Capacity
Line 3 Lithium Hydroxide (+ Extensions)	X	-	Increase Capacity
Quality and Performance Lithium Hydroxide	-	-	Performance Increase
Sustainability and Environment	X	X	Sustainability
Plant Support	X	X	Lift

Major future investments projected in the potassium and lithium operations include:

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

SQM's use of up-to-date technology together with the high concentrations of lithium and other characteristics of the Salar de Atacama (e.g., high evaporation rates and concentration of other minerals) allows it 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 tonnes per year. Currently SQM is in the process of increasing this production capacity to 30,000 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 to have a total production capacity of 50,000 tonnes.

During the first 9 months of 2022, 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 2,900 million dollars. The distribution of the operating cost is presented in Table 18-15.

Table 18-15. Distribution of Operating Costs

Description of operational cost		Share %
1	CORFO rights and other agreements	72 %
2	Raw materials and consumables	10 %
3	Contractor works	5 %
4	Depreciation expense	4 %
5	Employee benefit expenses	3 %
6	Freight / Transportation cost of products & Export Costs	3 %
7	Operation transports	2 %
8	Others	1 %

The highest operating cost corresponds to Corfo rights, as it has a direct relation with the lithium price.

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, and 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 include sodium carbonate (used in the production of lithium carbonate, sulfuric acid, kerosene, anti-caking and anti-dust agents, and ammonium nitrate), 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 Agreement Costs

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 tonnes of metallic lithium (1,860,670 tonnes of lithium carbonate equivalent). This is in addition to the approximately 64,816 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 Table 18-16.

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

Table 18-16 shows that in the case of Lithium carbonate, for a price lower than $4,000 USD/tonne, 6.8% of the final sale price is paid to CORFO. In the case of lithium hydroxide, for a price lower than $5,000 USD/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 lithium carbonate prices higher than $10,000 USD/tonne and lithium hydroxide prices greater than $12,000 USD/tonne.

Additionally, there are contribution agreements to development and to the surrounding communities, which are summarized below:

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.

Foregoing accounts for the variation in operational costs depend 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", which contributes to the rental of machinery for construction and ground movements.

Additionally, there are costs for "Intercompany Corporate Services" that are invoiced between subsidiaries .

The balance refers to many other contractors that complement the workforce for operation of the facilities.

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 related export costs.

f) Operation Transport Costs:

This mainly corresponds to costs associated with product transport from the Salar de Atacama Plant to the Port, transportation of brine from the Salar de Atacama to the Salar del Carmen, and to a lesser extent the transportation of personnel on-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 approval timing, availability of funding, projected commodities markets, and prices.

Cashflows related to the production of Li_2CO_3, LiOH and KCl for the period 2023 to 2030 with the investments projected for a 180 ktpy plant and its expansion to 250 ktpy have been considered, assuming the expansion to 250ktpy as the case base. Revenue from the sale of each of the products is accounted for, as well as the current projection of their prices. In the case of the long-term price of Li_2CO_3, a base value of 15,000 USD/tonne has been considered with a long-term KCl price of 300 USD/ton. The price of LiOH was assumed to be 5% higher than the price of Li_2CO_3. It is important to note that at the end of 2022, the lithium carbonate price was close to 78,000 USD/tonne. For this analysis, a conservative scenario is assumed where the lithium carbonate price is projected to decrease and stabilize at 15,000 USD/tonne in 2025. Additionally, it is assumed all products made annually at the Plant are 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 analyzed.

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

		2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate	ktpy	150	158	213	150	150	150	150	120
Lithium Hydroxide	ktpy	25	32	37	100	100	100	100	70
Potassium Chloride	ktpy	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

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.

The estimated revenues for Lithium and for Potassium Chloride are presented in Table 19-2.

Table 19-2. Revenues of Lithium and KCl

		2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate Sales	ktpy	150	158	213	150	150	150	150	120
Lithium Hydroxide Sales	ktpy	25	32	37	100	100	100	100	70
Potassium Chloride Sales	ktpy	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Lithium Carbonate Price	USD/tonne	50,000	40,000	25,000	15,000	15,000	15,000	15,000	15,000
Lithium Hydroxide Price	USD/tonne	52,500	42,000	26,250	15,750	15,750	15,750	15,750	15,750
Potassium Chloride Price	USD/tonne	900	700	500	300	300	300	300	300
Lithium Revenues	M US$	7,050	4,790	3,778	3,825	3,825	3,825	3,825	2,903
KCI Revenues	M US$	840	600	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, as well as other factors (including operation transport, freight and 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 was obtained from approximate estimates of its unit cost (for the 12 months ending 3Q2022), considering a variable part and 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/tonne	80% Variable
Employee Benefits	800 USD/tonne	60% Variable
Depreciation	900 USD/tonne	0% Variable
Contractors	1,000 USD/tonne	10% Variable
CORFO Rights and other Agreements	Calculated	
Others	300 USD/tonne	15% Variable

According to the terms of the Lease Agreement, regarding lithium production, CCHEN established a total accumulated sales limit, as amended by the CORFO Arbitration Agreement in January 2018. Additionally, 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 operational costs at the Salar de Atacama and Salar del Carmen is shown in Table 19-4. Operating Costs for Lithium and KCl.

Table 19-4. Operating Costs

		2023	2024	2025	2026	2027	2028	2029	2030
Raw Materials and Consumables	M US$	340	364	460	460	460	460	460	364
Employee Benefits	M US$	132	140	168	168	168	168	168	140
Depreciation	M US$	139	141	149	149	149	149	149	141
Contractors	M US$	165	174	210	210	210	210	210	174
CORFO Rights and other Agreements	M US$	2,521	1,534	950	962	962	962	962	739
Others	M US$	201	204	216	216	216	216	216	204
	Total Costs M US$	3,499	2,557	2,154	2,166	2,166	2,166	2,166	1,762

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 will be necessary to expand the Lithium Carbonate plant to 180 ktonnes from 2023 and to 250 ktonnes from 2025.

The expansion of lithium carbonate production to 180 ktonnes is expected to be in place in June 2023, reaching 210 kTonnes by December 2023. The expansion to 250 kTonnes will be finished during 2025. Additionally, the expansion of the lithium hydroxide plant underway, and it is expected to reach a capacity of 32.5 kTonnes by the end of 2023, 37.5 kTonnes by the end of 2024, and 100 kTonnes in 2025. Additionally, there are other projects in execution for improving aspects related to quality, performance, sustainability and increased production capacity.

The estimated investments during the period of 2023 to 2030 are presented in Table 19-5.

Table 19-5. Estimated Capital Investments

		2023	2024	2025	2026	2027	2028	2029	2030
Investments	M US$	525	515	436	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 tax rate of 28%. The estimated Net Present Value (NPV), before and after financial costs and taxes, is presented in Table 19-6 for the LOM. CORFO payments are included in Costs.

Table 19-6. Estimated Cashflow Analysis

			2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	7.890	5.390	4.138	4.185	4.185	4.185	4.185	3.263
Costs	M US$	-	-3.499	-2.557	-2.154	-2.166	-2.166	-2.166	-2.166	-1.762
Investments	M US$	-	-525	-515	-436	-60	-60	-30	-30	-30
Depreciation	M US$	-	139	141	149	149	149	149	149	141
Cashflow before Financial Costs and Taxes	M US$	-	4.005	2.459	1.697	2.109	2.109	2.139	2.139	1.612
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28 %	-1.110	-677	-464	-579	-579	-588	-588	-440
Cashflow after Financial Costs and Taxes	M US$	-	2.855	1.741	1.193	1.489	1.489	1.511	1.511	1.132

Net Present Value (NPV) before Financial Cost & Taxes. (M US$)	10 %	$12.753.342
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)	10 %	$9.028.761

The summary estimate of payment sums to CORFO as well as other agreements and taxes in the period is as follows:

Table 19-7. Estimated Sum Of Payments to CORFO And Other Agreements and Taxes (2022-2030)

CORFO Rights and other Agreements	Sum in M US$	9,591
Taxes	Sum in M US$	5,025
Total CORFO Rights and other Agreements and taxes		14,616

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$/tonne	40,000/25,000/15,000 (2023/2024/ (2025-2030)
Lithium Hydroxide Price	US$/tonne	5% over Lithium Carbonate Price
Potassium Chloride Price	US$/tonne	180 to 420
Estimated Cost + CORFO Rights and other Agreements	US$/tonne	5,700 + calculate (22.5% of Revenues for 15,000)
Taxes	%	28
Discount rate	%	10

19.5.1 Lithium Carbonate Price

Lithium carbonate long term price sensitivities were analyzed with variations from USD 10,000 / tonne to 20,000 USD / tonne. As 2022 reached new highs in prices, the base case of 40,000 and 25,000 USD/ tonne was considered. The pessimistic (conservative) case considered 30,000 and 20,000 USD/ tonne for 2023 and 2024, respectively, while the optimistic case assumed 60,000 and 40,000 US /tonne for 2023 and 2024, respectively. The remaining assumptions of the base case were maintained, and results are 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	15,000	10,000	20,000	**9,029**	6,166	13,234	0	-2,863	4,205

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, maintaining the rest of the base case assumptions.

Table 19-10. Cost Sensitivities

Costs Sensitivities Scenarios	Unit	Sensitivity	Net Present Value (NPV) after FC & Taxes (M US$)	NPV Variation (M US$)
Lithium Carbonate to 250 ktpy	USD/tonne	15,000	**9,029**	0
Lithium Carbonate to 250 ktpy & 20% increase costs	USD/tonne	15,000	8,279	-750
Lithium Carbonate to 250 ktpy & 20% decrease costs	USD/tonne	15,000	9,779	750

19.5.3 Potassium Chloride Price

Table 19-11 shows the variations in NPV considering a 20% decrease and 20% increase in the KCl sales prices, maintaining the rest of the base case assumptions. Values are presented in millions of 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 KCI	Pessimistic	Optimistic	Base price KCI	Pessimistic -20% price KCl	Optimistic +20% price KCl	Base	Pessimistic	Optimistic
Assuming a Lithium Carbonate at 250 ktpy	USD/tonne	yr 22 & 23: 600 yr 24 to 30: 300	480 240	720 360	**9,029**	8,667	9,390	0	-362	361

19.5.4 CORFO Rights and Other Agreement 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. Table 19-12 shows the variation in contributions according to the change in production and variation in prices. The remaining 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/tonne	15,000	10,000	20,000	**9,591**	5,394	15,310	0	-4,197	5,719

19.5.5 Tax Sensitivities

Variations in the price of lithium carbonate affect the contributions that must be paid to the State for taxes.

Table 19-13 shows the differences 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/tonne	15,000	10,000	20,000	**5,025**	3,387	7,267	0	-1,638	2,242

The sum of the contribution to the State of Chile for Taxes and for CORFO Rights and Others is shown in Table 19-14 considering the production cases of 250 ktpy with Li2CO3 prices of 10,000, 15,000, and 20,000 USD/tonne.

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/tonne	15,000	10,000	20,000	**14,616**	8,781	22,577	0	-5,835	7,961

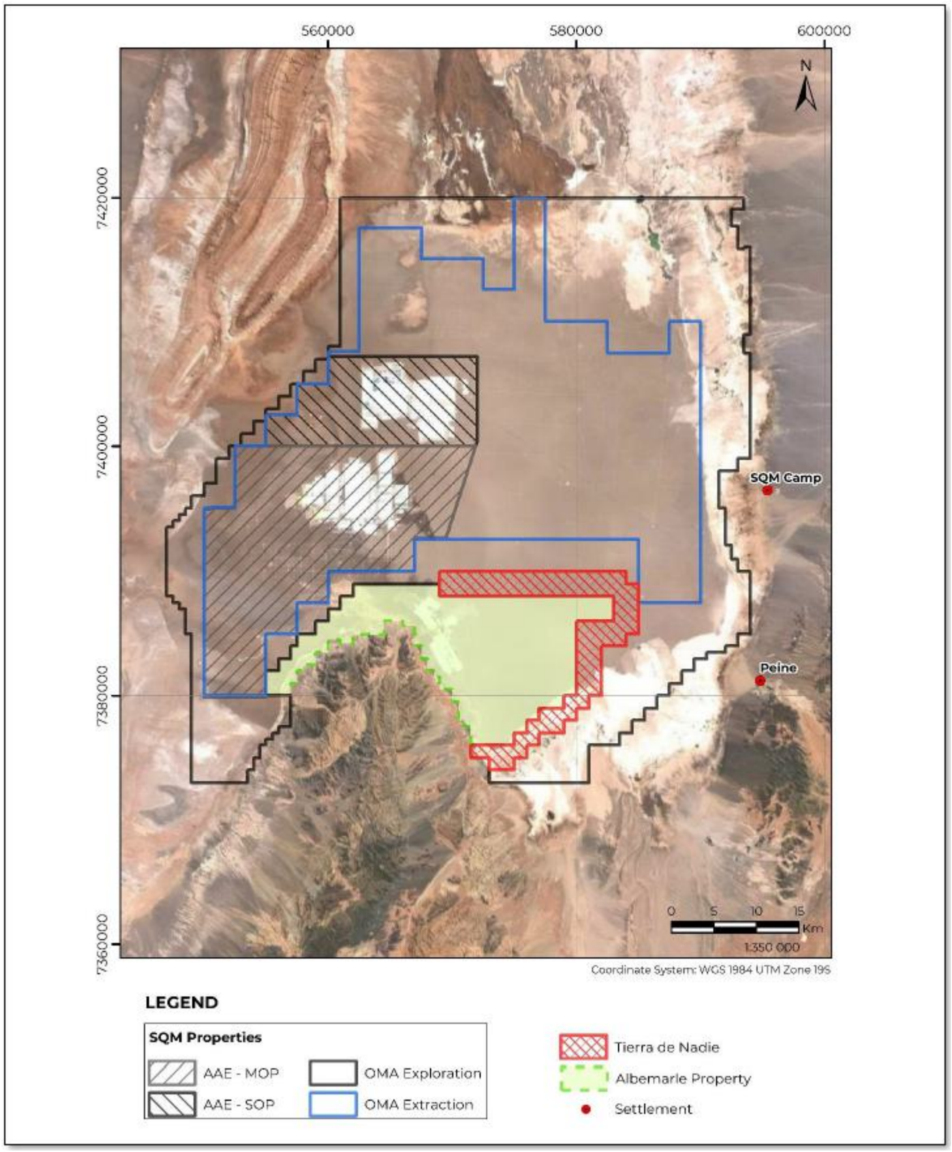
20 ADJACENT PROPERTIES

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 southeastern portion of the salt flat. 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 TRS 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. An updated TRS was prepared on February 14, 2023.

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 (Figure 20-1).

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.

The QP 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 drilling 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, 2022, 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 250 Mm^3 for the 2023-2030 period, with a decreasing total flow rate from 2023 (1,223 L/s) to 2030 (822 L/s).

- During the first 4 years of the LOM, the Proven Reserves correspond to 0.94 million tonnes of LCE and 5.78 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

- Regarding the social and environmental aspects related to the Project, it should be noted that the environmental procedures carried out previously do not define specific commitments. A similar situation is observed with the current evaluation of the Environmental Impact Study (EIA) of the project "Plan for the Reduction of Extractions in the Salar de Atacama".
- Regarding the current processing, the agencies with environmental competence made observations to the Environmental Impact Study submitted to the SEIA about the area of influence, eventual impacts and measures on human groups. The Holder, for his part, requested to expand the Indigenous Consultation to other organizations other than the Camar Indigenous Community. Said request was no accepted by the Executive Directorate of the SEA.

- The company has agreements with some of the indigenous and non-indigenous communities close to the Project for different aspects related to commitments defined in the different environmental authorizations and with programs associated with corporate guidelines for community relations. These activities are reported in the annual sustainability reports.

- During 2022, the fourth version of the Compliance Program (PdC) was approved. The information on the follow-up of the actions associated can be founded on the SNIFA platform of the Superintendence of the Environment (SMA), regarding the community some training and dissemination activities remain to be accredited. Notwithstanding the foregoing, the communities surrounding the project may claim the resolutions of the SMA, especially those that were not included in the indigenous consultation process. The reclamation can be related to any non-compliance regarding the PdC, so in this case SMA should investigate the non-compliance claimed and make a resolution, so this resolution would be reclaimable.

- SQM has a Human Rights Risk Matrix and an Ethical Sustainability and Human Rights Policy. The company does not have a specific Social Risk Matrix. There have been initiatives to evaluate these aspects, however, progress is unknown.

- Salar de Atacama has not been audited during this last year. However, they keep permanent contact with the authorities, especially with SMA.

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.

- 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 2023 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 and a validation period was also analyzed between 2021 and 2022.

- 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 ratio which impacts the overall efficiency levels of the lithium production system. This ratio must be controlled and forecasted for the 2023-2030 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. In this specific case, the delays could be related to the complexity of the observations and questions made in ICSARA, therefore, in order to give a satisfactory response to the authority, an extraordinary or exceptional response period will probably be needed.

- For the PdC, the risk of non-compliance could imply applicable sanctions such as revoking of the RCA, closure of the project, or fines for infraction. Also, this can be reclaimed by the community generating conflicts.

- 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.

- There are no latent or manifest risks associated with social aspects that could hinder SQM's operation, beyond the times associated with obtaining environmental permits that could delay the execution and implementation of the projects in the pipeline. Specifically, the Owner's responses to the ICSARAS, or the implementation and termination of the Indigenous Consultation process itself.

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 2023 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.
- Recently, subsidence phenomena have been observed in the vicinity of the KCL plant. For this reason, SQM has been recommended to assess potential security risks and impact on critical production infrastructure.

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.

Environment/Social Aspects/Closure

- Continue and/or adapt the execution of the actions committed in the Compliance Program (PdC), ensuring its strict compliance.
- Adapt and/or develop a social risk matrix to SQM's human rights policies through a specific program.
- Develop and deliver answers as complete and transparent as possible to the authority within the framework of the ADDENDUM to avoid iterations, and delay.

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.

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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.

5. Data and Analysis Related to the Exploratory Phases of the Project

Table 25-1 provides a list of the information provided by the Registrant (SQM) for matters discussed in the Technical Report Summary.

Table 25-1. Information Provided by the Registrant (SQM)

Classification	Technical Report Summary Section	Reliance
Legal Aspects	Section 3	The QP is not qualified to offer a legal perspective regarding information and documentation on: Mineral titles, surface land agreements, current permitting status, royalties, and other agreements. However, they have summarized this document and have designated SQM personnel as reviewers to confirm the statements contained therein.
General Information	Section 4	Information about The Project was provided by the Registrant (SQM). The information consists of consultant and SQM report, as well as correspondence. The QP performs a review to validate the information provided by the Registrant (SQM).
General Information	Section 5	The historical information was provided by the Registrant (SQM) and others technical studies.
General Information	Sections 6 & 7	Information about The Project was provided by the Registrant (SQM). The information consists of consultant and SQM report, as well as correspondence. The QP performs a review to validate the information provided by the Registrant (SQM)
General Information	Sections 8 & 9	The information about the Project was provided by the Registrant (SQM). The information consists of the chemical analysis process, carried out in the Salar de Atacama Analysis Laboratory (Lab SA), and the porosity analysis, carried out in the Salar de Atacama Porosity Laboratory (Lab POR). The QP performs a review to validate the information and treatment of the data provided by the Registrant (SQM)
General Information	Sections 10, 13, 14 & 15	The Registrant (SQM) provided the QP with the information related to the test procedures, risk factors, operational factors, analytical laboratories and sampling, representative samples, process and recovery factors. The QP performs a review to validate the information provided by the Registrant (SQM)

Classification	Technical Report Summary Section	Reliance
Resource Information	11	The Registrant (SQM) provides the QP with all information that complies with S-K-1300 regulations (wellfield location, OMA Extraction Zone information, historical production data, hydraulic parameter values, etc.). The QP is responsible for validating the information provided by the Registrant (SQM). and provide future recommendations based on new measurement methodologies associated with the nature of The Project.
Reserve Information	12	The QP is responsible for analyzing the information provided by the Registrant (SQM), conducting a detailed calibration analysis, and creating a temporary reserve classification. The QP validates the information and provides future recommendations based on the changes in the aforementioned factors.
Macroeconomic trend	Sections 16, 18 & 19	The Registrant (SQM) provides documents related to the production capacity of the Project and its expected growth projections, as well as public knowledge documents that argue the Project's competitiveness within the lithium and its derivatives market. It also provides information related to operating costs. The QP validates and determines the feasibility of the Project based on operational costs, revenues, taxes, and other factors.
Environmental scope information	Section 17	It is the responsibility of the Registrant (SQM) to provide the QP with information related to the environmental scope (baseline studies, environmental management and monitoring plans, social risk matrices and community impact implications, permits, remediation plans, mine closure, among others).

TECHNICAL REPORT SUMMARY OF THE NUEVA VICTORIA OPERATION YEAR 2022

Date: March 2024

Summary

This report provides the methodology, procedures and classification used to obtain SQM's Nitrate an Iodine Mineral Resources and Mineral Reserves, at the Nueva Victoria Site. The Mineral Resources and Reserves that are delivered correspond to the update as of December 31, 2022.

The results obtained are summarized in the following tables:

Mining	Total Inferred Resource			Total Indicated Resource			Total Measured Resource		
	Tonnage (Mt)	Nitrate grade (%)	Iodine grade (ppm)	Tonnage (Mt)	Nitrate grade (%)	Iodine grade (ppm)	Tonnage (Mt)	Nitrate grade (%)	Iodine grade (ppm)
Nueva Victoria	31.1	6.5	343	573	6	460	219.5	5.9	441

Mineral Resources 2022

Mining	Proven Reserves (1) (million metric tons)	Average grade Nitrate (Percentage by weight)	Average grade Iodine (Parts per million)	Average Cut-off grade for the Mine (2)
Nueva Victoria	219.5	5.9%	441	Nitrate 3.0 %

Sector	Probable Reserves (million metric tons)	Average grade Nitrate (Percentage by weight)	Average grade Iodine (Parts per million)	Average Cut-off grade for the Mine (2)
Nueva Victoria	553	5.1%	415	Nitrate 3.0 %

(1) The above tables show the Proven Reserves before losses related to the exploitation and treatment of the ore. Proven Reserves are affected by mining methods, resulting in differences between the estimated reserves that are available for exploitation in the mining plan and the recoverable material that is ultimately transferred to the leaching heaps. The average mining factor for each of our mines varies between 80% and 90%, while the average global metallurgical recovery of nitrate an iodine processes contained in the recovered material varies between 55% and 70%.

(2) The cut-off grade of the Proven and Probable Reserves vary according to the objectives required in the different mines. The assigned values correspond to the averages of the different sectors.

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1 EXECUTIVE SUMMARY

PROPERTY SUMMARY AND OWNERSHIP

The Nueva Victoria Property, situated 145 km southeast of the city of Iquique, covers an area of 70,587 hectares (ha) of low topographic relief terrain. The property boundary includes several nitrate and iodine deposits of economic value including *Hermosa Oeste, Tente en el Aire, Pampa Hermosa*, *Pampa Engañadora, etc.* The Nueva Victoria Property also has substantial potential for metallic mineralization, notably copper and gold, which could in the future sustain exploitation by SQM or generate royalties. Several properties adjacent to the Nueva Victoria Project host mineral deposits with geological characteristics like those at Nueva Victoria, including mining lots held by ACF Minera S.A., owned by the Urticoechea family.

GEOLOGY AND MINERALIZATION

Nueva Victoria is a nitrate-iodine deposit located in the Intermediate Basin (Central Depression) of northern Chile, limited to the west by the Coastal Range (representing the Jurassic magmatic arc) and to the east by the Precordillera (associated with the Cenozoic magmatic activity which gave rise to the large Cu-Au deposits of northern Chile), generating a natural barrier for their deposition and concentration.

The regional geology in which the Nueva Victoria deposits are immersed corresponds to Paleogene clastic sedimentary rocks, over a volcanic basement, associated with lavas of intermediate composition (mainly andesites - tuffs) representing Jurassic volcanism, overlying a series of intrusive belonging to the Cretaceous, which mostly outcrops outside the property area.

The mineralization at Nueva Victoria is mantiform, with a wide areal distribution, forming deposits several kilometers in extension. The mineralization thicknesses are variable, with mantles of approximately 1.0 to 6.0 meters (m).

Because of geological activity over time (volcanism, weathering, faulting) the deposits can be found as continuous mantles, thin salt crusts and superficial caliche and "Stacked" caliche.

The mineralogical association identified corresponds mainly to soluble sulfates of Na - K, less soluble sulfates of Ca, Chlorides, Nitrates, and Iodates.

Within the mineral species of interest, for Nitrates; Nitratine Potassium Nitrate; Hectorfloresite; Lautarite, Bruggenite as Iodates.

In 2022, there was a detailed exploration program of 5,250 ha in the Franja Oeste, TEA Sur; TEA Central, Oeste y Hermosa Oeste. Currently, drilling totals 96,532 reverse circulation (RC) drill holes (390,802 meter). All the drill holes were vertical. Drilling is carried out with wide grid in the first reconnaissance stage (1,000 x 1,000 m; 800 x 800 m; 400 x 400 m); to later reduce this spacing to define the resources in their different categories.

MINERAL RESOURCE STATEMENT

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

All available samples were used without compositing and no capping, or other outlier restriction, to develop a geological model in support of estimating Mineral Resources. Hard contacts were used between different geological units. Sectors with a drill hole grid of 50 x 50 m and up to 100T ~ 100 x 50 m were estimated in a three-dimensional block model using the Ordinary Kriging (KO) interpolation method in one pass. Additionally, variograms were constructed and used to support the search for ellipsoid anisotropy and linear trends observed in the data. Iodine and nitrate grade interpolation was performed using the same variogram model calculated for Iodine. In the case of sectors with drill holes grids greater than 100T m and up to 200 x 200 m were estimated in a three-dimensional block model using the Inverse Distance Weighted (IDW) interpolation method. For areas with drill holes grids from 200 x 200 m up to 400 x 400 m were estimated in two dimensional using the Polygon Method.

Mineral Resources were classified using the drill hole grid. Zones with grid of 50 x 50 m up to 100T ~ 100 x 50 m were classified as Measured. For Indicated Mineral Resources, the zone should have a 100 x100 m and 200 x 200 m drill hole grid. To define inferred Resources a 400 x 400 m drill hole grid was used.

The Mineral Resource Estimate, exclusive of Mineral Reserves, is reported in Table 1-1. Note that based on the application of modifying factors and that because the caliche deposits are at the surface, all Measured an Indicated Mineral Resources with environment permits has been converted into Mineral Reserves, as result, only Inferred Mineral Resources are reported in this Technical Report Summary (TRS). As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage, or grades.

Table 1-1. In-Situ Mineral Resource Estimate, Exclusive of Mineral Reserves, effective December 31, 2022.

Inferred Resource			
Nueva Victoria	**Tonnage (Mt)**	**Nitrate (%)**	**Iodine (ppm)**
Cocar	5.1	8.3	221
Los Angeles	9.3	9.0	331
Hermosa Oeste	15.5	4.7	387
TEA Oeste	1.2	4.0	397
Total	**31.1**	**6.5**	**343**

(a) 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.

(b) Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported Long Term was subtracted from the Mineral Resource inclusive of Mineral Reserves. All Measured an indicated Resources with environment permits has been converted into Mineral Reserves; as a result, only inferred Mineral Resources are reported in this TRS.

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

(d) The units "Mt", "ppm" and "%" refer to million tons, parts per million, and weight percent respectively.

(e) The Mineral Resource estimate considers a nitrate cut-off grade of 3.0 %, based on accumulated cut-off grades and operational average grades, as well as caliche thickness ≥ 2.0 m and overburden thickness ≤ 1.0 m. The nitrate cut-off grade considers the cost and medium-and long-term price forecast of generating iodine as discussed in Section 11, 16 and 19 of this TRS.

(f) As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage or grades.

Density was assigned to all materials with a default value of 2.1 (t/m^3), this value comes from several analysis made by SQM in Nueva Victoria and other operations.

Resource Estimate considers a cut-off grade of Nitrate of 3.0%, this value considers the corresponding operational, financial and planned investment costs, depreciation, profit margin, and taxes. The iodine price used was to determine reasonable prospects for economic extraction is 40,000 USD/ton the same as that used to estimate Mineral Reserves.

Marta Aguilera is the QP responsible for the Mineral Resources. The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that could materially affect the Mineral Resource Estimate that are not discussed in this Technical Report.

MINERAL RESERVE STATEMENT

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, forecast 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 tons and grade, modifying factors including mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

The Measure Mineral Resources defined by drill hole grid 50 x 50 m and up to 100T; and evaluated using 3D blocks and Ordinary Kriging are considered as high level of geological confidence are qualified as Proven Mineral Reserves with unit conversion coefficient in tonnage and Iodine and Nitrates grades. (See Table 12.2)

The Indicate Mineral Resources defined by drill holes grids greater than 100T up to 200 x 200 m; and evaluated using 3D blocks model and Inverse Distance Weighted (IDW) interpolation method is considered as medium level of geological confidence are qualified as Probable Mineral Reserves. Conversion factors used are less than one for iodine (0.90) and nitrate (0.85) grades.

Mineral Reserves are based on a nitrate cut-off grade of 3.0 %, Iodine price of 40.0 USD/kg; for finished fertilizer products sold at Coya Sur price of 820 USD/ton; and based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19). All Mineral Reserves are defined in sectors with environmental permits (RCA)

Based on these criteria, Proven Reserves Mineral at Nueva Victoria are estimated in to 219.5 million tons (Mt) with an estimated average nitrate grade of 5.9% and 441 ppm iodine.

Probable Mineral Reserves at the Nueva Victoria site are 553.0 Mt with and estimated average nitrate grade of 5.1% and 415 ppm iodine.

Mineral Reserves are stated as in-situ ore.

Table 1-2. Mineral Reserve at the Nueva Victoria Mine (Effective 31 December 2022)

	Proven Reserves	Probable Reserves	Total Reserves
Tonnage (Mt)	219.5	553	772.5
Iodine Grade (ppm)	441	415	422
Nitrate Grade (%)	5.9	5.1	5.3
Iodine (kt)	96.8	229.5	326.3
Nitrate (kt)	12,951	28,203	41,154

Notes:

(a) Mineral Reserves area based on Measured and Indicate Mineral Resources at an operating cutoff of 3.0 % nitrate. Operating constraints of caliche thickness ≥ 2.0 m; overburden thickness ≤ 1.0 m and waste / caliche ratio ≤ 0.5 are applied.

(b) Proven Minerals Reserves are based on Measured Mineral Resources at the criteria described in (a) above.

(c) Probable Mineral Reserves are based on Indicated Mineral Resources at the criteria described in (a) above with a grade call factor of 0.85 for Nitrate and 0.9 for Iodine confirmed by the calculation of the uncertainty of the estimated model by IDW.

(d) Mineral Reserves are stated as in-situ ore (caliche) as the point of reference.

(e) The units "Mt", "kt"; "ppm" and "%" refer to million tons, kilotons; parts per million, and weight percent respectively.

(f) Mineral Reserves are based on an Iodine price of 40.0 USD/kg and a finished fertilizer product sold at Coya Sur of 820 USD/ton. Miner is also based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19).

(g) Marta Aguilera is the QP responsible for the Mineral Resources.

(h) The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that could materially affect the Mineral Reserve estimate.

(i) Comparison of values may not total due to rounding of numbers and the differences caused by use of averaging methods.

MINE DESIGN AND SCHEDULING

At Nueva Victoria the total amount of Caliche extraction reached in 2022 was 44.3 million tons (Mt). Caliche production for the Long Term (LP) form 2023 through 2040 ranges between 44 Mt per year to 40 Mt per year for a total ore production of 773 Mt with an average iodine grade of 422 ppm and a nitrate grade of 5.3%. The mining procedure at Nueva Victoria involves the following processes:

Removal of surface layer and overload (between 0.50 m to 1.0 m thick).

Caliche extraction, up to a maximum depth of 6 m, through explosives (drill & blast) or surface miner (continuous miner MC).

Caliche loading, using front-end loaders and/or shovels.

Transport of the mineral to heap leach, using mining trucks (rigid hopper) of high tonnage (100 to 150 tons).

Construction of heap leach to accumulate a total of 1 Mt, with heights of 7 to 15 m and a crown area of 65,000 square meters (m^2).

The physical stability analysis performed by SQM indicates that these heaps are stable for long-term stable, and no slope modification is required for closure.

Continuous irrigation of heap leach is conducted to complete the leach cycle. The cycle of each heap lasts approximately 300 to 500 days and during this time, heap height decreases by 15% to 20%.

The criteria set by SQM to establish the mining plan correspond to the following:

Caliche thickness ≥ 2.0 m

Overburden thickness ≤ 1.0 m

Barren / Mineral Ratio < 0.5

Nitrate cut-off grades of 3.0 %.

Unit sales Price for prilled Iodine 40,000 USD/ton and a unit total cost of 19.5 USD/kg (mining, leaching, seawater pipeline and plant processing).

Approximately 71% of the caliche will be extracted using the traditional methods of drill & blast while the remaining 29% will we extracted using CM (continuous miner).

In the mining processes, SQM considers an efficiency between 80% an 90% (losses of mineral and grades dilution in the integral process of mineral extraction, load, and transport; and heap leach construction).

Given the production factors set in mining and leaching processes (56.6 % for Iodine and 58.7 % for Nitrates production for leaching that are average values), a total production of 184.6 kt of Iodine and 15,256 kt of nitrate salts is expected for this period (2023- 2040) from lixiviation process to treatment plants.

METALLURGY AND MINERAL PROCESSING

1.1.1 Metallurgical Testing Summary

The test work developed is aimed at determining the susceptibility of raw materials to production by means of separation and recovery methods established in the plant, evaluating deleterious elements, to establish mechanisms in the operations and optimize the process to guarantee a recovery that will be intrinsically linked to the mineralogical and chemical characterization, as well as physical and granulometric of the mineral to be treated.

Historically, SQM Nitrates, through its Research and Development area, has conducted tests at plant and/or pilot scale that have allowed improving the knowledge about the recovery process and product quality through chemical oxidation tests, solution cleaning and recently, optimization tests of leaching heap operations, through the prior categorization of the ore to be leached.

SQM's analysis laboratories located in the city of Antofagasta and the Iris Pilot Plant Laboratory (Nueva Victoria) perform physicochemical, mineralogical, and metallurgical tests. The latter allow to know the behavior of the caliche bed against water leaching and thus support future performance. In addition, the knowledge generated contributes to the selection of the best irrigation strategy to maximize profit and a and the estimation of recovery at industrial scale by means of empirical correlations between the soluble content of caliches and the metallurgical yields of the processes.

1.1.2 Mining and Mineral Processing Summary

The Nueva Victoria Operation comprises the sectors of Nueva Victoria belonging to Nueva Victoria, Sur Viejo and Iris. The production process begins with mining of "Caliche "ore. The ore is heap-leached to generated iodate & nitrate rich leaching solutions referred to by SQM as "Brines". The brines are piped to processing plants where the iodate is converted to iodide, which is them processed to obtain pelleted ("Prilled") iodine. The iodine-depleted brine which exits the iodide plant is referred to as brine Feble ("BF") by SQM, literally feble brine in the sense of depleted, weakened. A proportion of the of the BF is recirculated to the heap-leaching stage of the process; the remaining BF is routed to the evaporation ponds at Sur Viejo. The solar evaporation ponds produce salts rich in sodium nitrate and potassium nitrate. These nitrate-rich salts are sent to the SQM Coya Sur Plants (locate 160 Km to the south of Nueva Victoria, and 7 Km southeast of the town of Maria Elena in the Antofagasta Region of northern Chile) where they are refined to produce commercial sodium nitrate a potassium nitrate.

The surface area authorized for mining at Nueva Victoria is 1,299 square kilometers (km^2). The surface area authorized for mining at Iris is 45.5 km^2. No expansion is planned at Iris.

Caliche extraction at Nueva Victoria is 37 million tons per year (Mtpy), with an additional 6.48 Mtpy at Iris. The overall mining rate at Nueva Victoria and Iris will be increased to a total of 71.48 Mtpy with the incorporation of the TEA expansion.

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, forecast or projection in the forward-looking information include any significant differences from one or more of the materials factors or assumptions that were set forth in this section including prevailing economic conditions continue such that projected capital costs, labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

The annual production estimates were used to determine annual estimates of capital and operating costs. All cost estimates were in 2022 USD. Total capital costs are estimated to be about USD 873 million for seawater pipelines, new facilities for the TEA expansion project, as well as sustaining and expansion capital for current operations. Annual operating costs were based on historical operating costs, material movements and estimated unit costs provided for SQM. These including mining, leaching, iodine and nitrate production. Ore capital costs included working capital and closure costs. Annual total operating cost of 6.3 USD/ton caliche to 7.7 USD/ton of caliche, with an average total operating cost of 7.1 USD/ton of caliche over the Long Term. (Table 19.3)

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, forecast or projection in the forward-looking information include any significant differences from one or more of the materials 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.

All costs were assumed in 2022 USD.

For the economic analysis a Discounted Cashflow (DCF) model was development.

An iodine sales price of 40,000 USD/ton and a nitrate salt for fertilizer price of 333 USD/ton was used in the discounted cashflow. The imputed nitrate salts for fertilizer price of 333 USD/ton were estimated based on average price for finished fertilizer products sold at Coya Sur of 820 USD/ton, less 487 USD/ton for production cost at Coya Sur.

QP believes these prices reasonably reflect current market prices and are reasonable to use as sales prices for the economic analysis for this Study.

The discounted cashflow establishes that the Mineral Reserves estimate provided in this report are economically viable. The base case NPV_{10} is estimated to be USD 1.85 billion. The Net Present Value for this study is most sensitive to operating cost and sales prices of both iodine and nitrates. (Table 19.4) QP considers the accuracy and contingency of cost estimates to be well within a Prefeasibility Study (PFS) standard and enough for the economic analysis supporting the Mineral Reserve estimated for SQM.

CONCLUSIONS AND RECOMMENDATIONS

Miss. Marta Aguilera QP of Mineral Resources and Mineral Reserves concludes that the work done in the review of this TRS includes adequate details and information to declare the Mineral Reserves. In relation to the resource treatment processes, the conclusion of the responsible QP, Gino Slanzi, is that appropriate work practices and equipment, design methods and processing equipment selection criteria have been used. In addition, the company has developed new processes that have continuously and systematically optimized its operations.

Some recommendations are given in the following areas:

Continue with the improvements implemented during the year 2022 for the Qa-Qc program to integrate it to Acquire System manages to align with the best practices of the industry, facilitating with this a more robust quality control.

With the migration of geological database to Acquire platform, traceability of drilling, geology, geochemical data is achieved in a secure base.

It is considered important to evaluate the leachable material through heap leaching simulation, which allows the construction of a conceptual model of caliche leaching with a view to secondary processing of the riprap to increase the overall recovery . It is recommended to continue with the research work of the geometallurgical model to determine the real recovery to the increase of water.

Environmental issues include leachate or acid water management, air emissions management, tailings dump management, and leachate riprap.

All the above recommendations are considered within the declared CAPEX/OPEX and do not imply additional costs for their execution.

2 INTRODUCTION

This Technical Summary Report (TRS) was prepared by SQM's team of professionals and external advisors for Sociedad Química y Minera de Chile (SQM), in accordance with the requirements of Regulation SK, Subpart 1300 of the United States Securities Exchange Commission (SEC), hereinafter referred to as SK 1300.

TERMS OF REFERENCE AND PURPOSE OF THE REPORT

At Nueva Victoria SQM produces nitrate salts (sodium nitrate and potassium nitrate) and iodine, by heap leaching and evaporation.

The effective date of this TRS report is December 31, 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 as of December 31, 2022.

Except where noted, coordinates in this TRS are presented in metric units using the World Geodesic Reference System (PSAD) 1956 Universal Transverse Mercator (UTM) ZONE 19 South (19S).

The purpose of this TRS is to report Mineral Resources and Mineral Reserves for SQM's Nueva Victoria operation.

SOURCE OF DATA AND INFORMATION

This TRS is based on information from SQM and public domain data. All information is cited throughout this document and is listed in the final "References" section at the end of this report. Table 2-1 provides the abbreviations (abbv.) and acronyms used in this TRS.

Table 2-1. Abbreviations and Acronyms

Acronym/Abbv.	Definition
'	minute
"	second
%	percent
°	degrees
°C	degrees Celsius
100T	100 truncated grid
AA	Atomic absorption
AAA	Andes Analytical Assay
AFA	weakly acidic water
AFN	Feble Neutral Water
Ajay	Ajay Chemicals Inc.
AS	Auxiliary Station
ASG	Ajay-SQM Group
BF	Brine Feble
BFN	Neutral Brine Feble
BWn	abundant cloudiness
CIM	Centro de Investigación Minera y Metalúrgica

Acronym/Abbv.	Definition
cm	centimeter
CM	continuous miner
CU	Water consumption
COM	Mining Operations Center
CSP	Concentrated solar power
CONAF	National Forestry Development Corporation
DDH	diamond drill hole
DGA	General Directorate of Water
DTH	down-the-hole
EB 1	Pumping Station No. 1
EB2	Pumping Station No. 2
EIA	environmental impact statement
EW	east-west
FC	financial cost
FNW	feble neutral water
g	gram
G	gravity
GU	geological unit
g/cc	grams per centimeter
g/mL	grams per milliliter
g/ton	grams per ton
g/L	grams per liter
GPS	global positioning system
h	hour
ha	hectare
ha/y	hectares per year
HDPE	High-density Polyethylene
ICH	industrial chemicals
ICP	inductively coupled plasma
ISO	International Organization for Standardization
kg	kilogram
k_h	horizontal seismic coefficient
kg/m^3	kilogram per cubic meter
km	kilometer
k_v	vertical seismic coefficient
kN/m^3	kilonewton per cubic meter
km^2	square kilometer
kPa	Kilopascal
kt	kilotonne
ktpd	thousand tons per day
ktpy	kilotonne per year

Acronym/Abbv.	Definition
kUSD	thousand USD
kV	kilovolt
kVa	kilovolt-amperes
$L/h\text{-}m^2$	liters per hour square meter
$L/m^2/d$	liters per square meter per day
L/s	liters per second
LR	Leaching rate
LCD/LED	liquid crystal displays/light-emitting diode
LCY	Caliche and Iodine Laboratories
LdTE	medium voltage electrical transmission line
LIMS	Laboratory Information Management System
LOM	life-of-mine
m	meter
M&A	mergers and acquisitions
m/km^2	meters per square kilometer
m/s	meters per second
m^2	square meter
m^3	cubic meter
m^3/d	cubic meter per day
m^3/h	cubic meter per hour
m^3/ton	cubic meter per ton
masl	meters above sea level
mbgl	meter below ground level
mbsl	meters below sea level
mm	millimeter
mm/y	millimeters per year
Mpa	megapascal
Mt	million ton
Mtpy	million tons per year
MW	megawatt
MWh/y	Megawatt hour per year
NNE	north-northeast
NNW	north-northwest
NPV	net present value
NS	north south
O^3	ozone
ORP	oxidation reduction potential
PLS	pregnant leach solution
PMA	particle mineral analysis
ppbv	parts per billion volume
ppm	parts per million

Acronym/Abbv.	Definition
PVC	Polyvinyl chloride
QA	Quality assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality control
QP	Qualified Person
RC	reverse circulation
RCA	environmental qualification resolution
RMR	Rock Mass Rating
ROM	run-of-mine
RPM	revolutions per minute
RQD	rock quality index
SG	Specific gravity
SEC	Securities Exchange Commission of the United States
SSE	South-southeast
SEIA	Environmental Impact Assessment System
MMA	Ministry of Environment
SMA	Environmental Superintendency
SNIFA	National Environmental Qualification Information System (SMA online System)
PSA	Environmental Following Plan (Plan de Seguimiento Ambiental)
SEM	Terrain Leveler Surface Excavation Machine
SFF	specialty field fertilizer
SI	intermediate solution
SING	Norte Grande Interconnected System
S-K 1300	Subpart 1300 of the Securities Exchange Commission of the United States
SM	salt matrix
SPM	sedimentable particulate matter
Sr	relief value, or maximum elevation difference in an area of 1 km^2
SS	soluble salt
SX	solvent extraction
t	ton
TR	Irrigation rate
TAS	sewage treatment plant
TEA project	Tente en el Aire Project
tpy	tons per year
t/m^3	tons per cubic meter
tpd	tons per day
TRS	Technical Report Summary
ug/m^3	microgram per cubic meter
USD	United States Dollars
USD/kg	United States Dollars per kilogram
USD/ton	United States Dollars per ton

Acronym/Abbv.	Definition
UTM	Universal Transverse Mercator
UV	ultraviolet
VEC	Voluntary Environmental Commitments
WGS	World Geodetic System
WSF	Water soluble fertilizer
wt.%	weight percent
XRD	X-Ray diffraction
XRF	X-ray fluorescence

DETAILS OF INSPECTION

The most recent site visit dates for each Qualified Person (QP) are listed in Table 2-2:

Table 2-2. Summary of site visits made by QPs to Nueva Victoria in support of TRS Review

Qualified Person (QP)	Expertis	Date of Visit	Details of Visit
Marta Aguilera	Geology	nov-22	Nueva Victoria Mine and Facilities
Gino Slanzi	Metallurgy and Mineral Processing	dic-22	Inspection of Iodine Plants, Mine and Leaching Piles
Marco Lema	Mining	dic-22	Nueva Victoria Mine and Facilities

During the site visits to the Nueva Victoria Property, the QPs, accompanied by SQM technical staffs:

Visited the mineral deposit (caliche) areas.

Inspected drilling operations and reviewed sampling protocols.

Reviewed core samples and drill holes logs.

Assessed access to future drilling locations.

Viewed the process though mining, heap leaching to the finished prilled iodine product.

Reviewed and collated data and information with SQM personnel for inclusion in the TRS.

PREVIOUS REPORTS ON PROJECT

Technical Report Summary prepared by WSP Consulting Chile (WSP), March 2022.

3 DESCRIPTION AND LOCATION

LOCATION

The Nueva Victoria Property is in the Commune of Pozo Almonte, in the Province of Tamarugal, within the Region of Tarapacá of northern Chile. The center of the property is situated 80 km south-southeast (SSE) of the City of Iquique and 70 km south of the City of Pozo Almonte.

The access control checkpoint to the Property is located on the eastern side of the Ruta 5 South trunk road (the Panamericana Highway), 83 km south of the City of Pozo Almonte. The Nueva Victoria Property is approximately 55 km north-south by 40 km east-west.

Figure 3-1. General Location Map

MINERAL TITLES, CLAIMS, RIGHTS, LEASES AND OPTIONS

SQM currently has 5 mineral properties located in the north of Chile, in the First Region of Tarapacá (I) and Second Region of Antofagasta (II). These are the Nueva Victoria, Pampa Orcoma; María Elena, Pedro de Valdivia and Pampa Blanca properties. All properties cover a combined area of approximately 291,080 ha and has been make prospecting grid resolution of 400 x 400 m or finer.

The Nueva Victoria Property covers an area of approximately 77,115 ha.

MINERAL RIGHTS

SQM owns mineral exploration rights over 1,539,177 ha of land in the I and II Regions of northern Chile and is currently exploiting the mineral resources over less of 1% of this area (as of Dec 2022).

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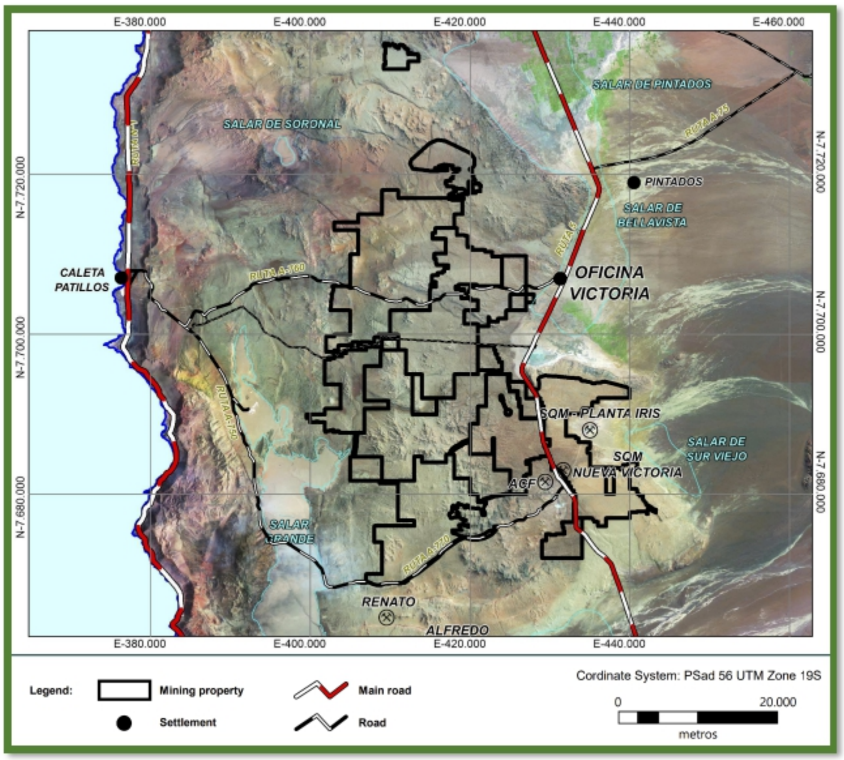
Figure 3-2. Location of Nueva Victoria Project



ENVIRONMENTAL IMPACTS AND PERMITTING

Since 1997, SQM has completed numerous Environmental Impact Assessments (EIA) (*Estudio de Impacto Ambiental)* and Environmental Impact Statements (EIS) (*Declaración de Impacto Ambiental, DIA*) in support of the development and ongoing expansion of the Nueva Victoria Property (including the "Pampa Hermosa" and "TEA" Projects). These environmental assessments are completed within the Chilean regulatory platform Sistema de Evaluación de Impacto Ambiental (SEIA), which is managed by the Chilean Regulatory Authority, the *Servicio de Evaluación Ambiental* (SEA, ***https://www.sea.gob.cl/***).

Section 17.1 of this TRS details these environmental studies and the environmental approvals (permits), termed *Resoluciones de Calificación Ambiental* (RCA), issued by SEA.

OTHER SIGNIFICANT FACTORS AND RISKS

SQM's operations are subject to certain risk factors that may affect the business, financial conditions, cash flow, or SQM's operational results. The list of potential risk factors is summarized below:

- Risks related to be a company based in Chile; potential political risks as well as changes to the Chilean Constitution and legislation that could conceivably affect development plans, production levels, royalties and other costs.
- Risks related to financial markets.

ROYALTIES AND AGREEMENTS

Apart from paying standard mineral royalties to the Government of Chile, in compliance with the Chilean Royalty Law, SQM has no obligations to any third party in respect of payments related to licenses, franchises or royalties for its Nueva Victoria Property.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

This section of the TRS provides a summary of the physical setting of the Nueva Victoria Property, access to the property and relevant civil infrastructure.

TOPOGRAPHY

The Nueva Victoria Property is located in the Intermediate Basin (Central Depression) of the Atacama Desert. The property constitutes an area of gentle topographic relief with an average elevation of 1.500 masl.

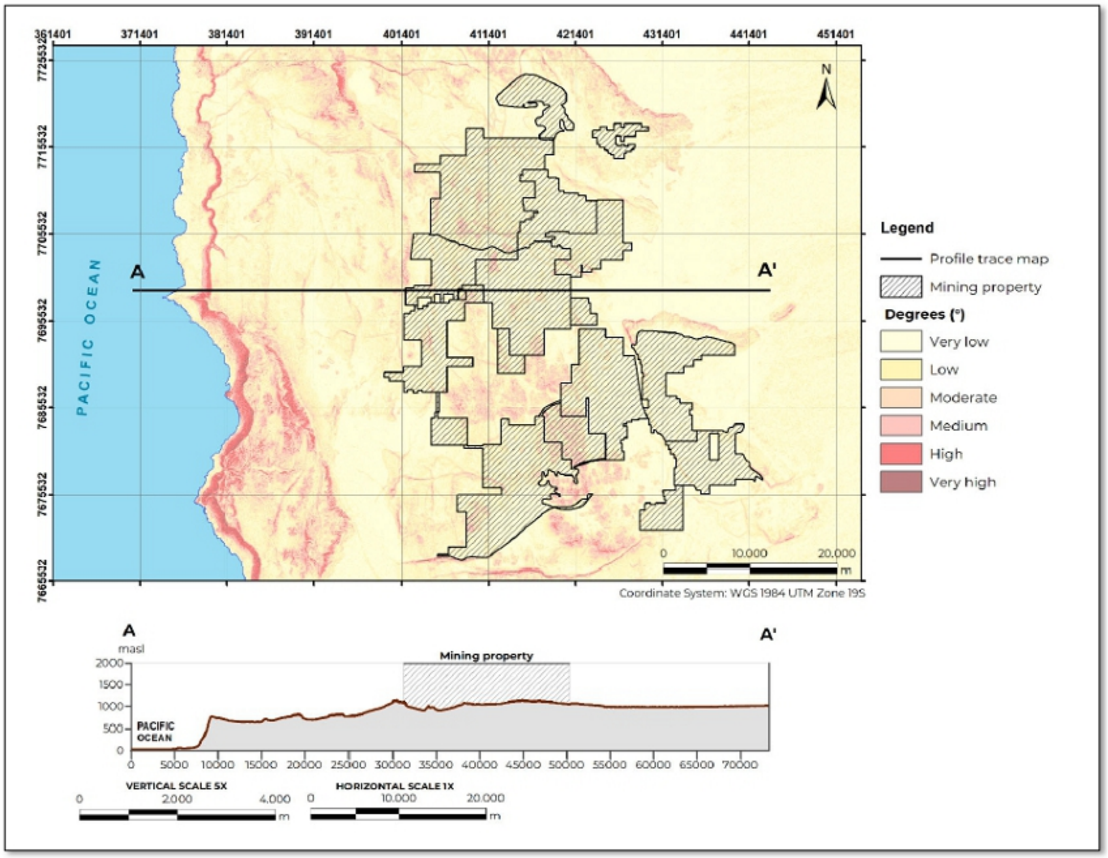
Figure 4-1 presents a topographic map developed from a digital elevation model (DEM) corresponding to a 30 m resolution ASTER satellite image. The lower part of the figure presents a topographic cross section through the DEM. The figure categorizes the topographic slope into the six categories summarized in Table 4-1.

Table 4-1. Slope Categories applied in the analysis of the ASTER DEM

Slope Category	From	To
Very Low	0°	4.3°
Low	4.3°	9.94°
Moderate	9.94°	16.71°
Medium	16.71°	26.58°
High	26.58°	
Very High	Slopes > 38.66°	

From inspection of Figure 4-1, it can be appreciated that the Nueva Victoria Property presents slopes that vary from very low (near flat) to moderate or medium. The steepest slopes are observed in the western sector, close to the coast, due to the coastal scarp.

Figure 4-1. Slope parameter map Sr and elevation profile trace AA"



VEGETATION

The Nueva Victoria Property is a desert landscape devoid of vegetation cover (EIA, 2007).

ACCESS TO THE PROPERTY

As detailed in Section 1 of this TRS, the Nueva Victoria Property is situated 80 km SSE the City of Iquique and 70 km south of the City of Pozo Almonte. The principal route to the property from Diego Aracena International Airport is as follows:

1. Drive 28 km north on Ruta 1 to the City of Iquique.

2. Travel northeast through the City of Iquique on primary roads to take Ruta 16 (motorway) to reach the settlement of Alto Hospicio at 44 km total distance driven.

3. Continue East on Ruta 16 (motorway) for 83 km to reach the deserted mining town of Humberstone. Humberstone is a Chilean National Monument and part of a UNESCO World Heritage Site where saltpeter (KNO_3) was formerly mined.

4. At Humberstone, turn south on the trunk road of Ruta 5, reaching the City of Pozo Almonte at 87 km from Humberstone.

5. Continue south on the trunk road of Ruta 5, reaching the SQM access control checkpoint (*garita*) of the Nueva Victoria property at 171 km.

CLIMATE AND LENGTH OF OPERATING SEASON

Nueva Victoria is in the Intermediate Basin (Central Depression) of the hyper arid Atacama Desert at a latitude of approximately 21°S. The topographic relief at the property is gentle and much of the area is essentially flat with an average elevation of 1,500 masl. Long-term annual rainfall is close to 0 mm, and the annual average temperature is 18° C. Relative humidity of the air is low. On very rare occasions, the convective summer rains which occur from November to February over land above 4,000 masl on the Altiplano of the Andes may extend west to bring very infrequent rain to the Intermediate Basin and Nueva Victoria.

The climate of the study area is classed as a low marginal desert climate within the Köppen climate classification (EIA, 2007).

Nueva Victoria operates all year, there are no climate constraints which would force the operations to shut down during any part of the year. However, in the event of a very rare thunderstorm, precautions must be taken to eliminate the risk to life that that lightning strikes could present.

INFRASTRUCTURE

In the Nueva Victoria mining area and, the following facilities and infrastructures can be found.

The main facilities at Nueva Victoria are follows:

- Caliche mining areas.
- Industrial water supply.
- Heap leaching operation.
- Iodine plants (Nueva Victoria and Iris properties).
- Evaporation ponds (Sur Viejo).
- Iodine production & prilling Plant NV (Nueva Victoria).
- Administrative and technical offices and training rooms.
- Medical facilities.
- Camp and associated facilities (gym, restaurant, etc.).
- Domestic waste disposal site.
- Hazardous waste yard.
- Non-hazardous industrial waste yard.

5 HISTORY

Commercial exploitation of caliche mineral deposits in northern Chile began in 1830s when sodium nitrate was extracted from the mineral for use in explosives and fertilizers production. By the end nineteenth century, nitrate production had become Chile's leading industry, and, with it, Chile became a world leader in nitrates production and supply. This boom brought a surge of direct foreign investment and the development of the Nitrate “Offices” or “Oficinas Salitreras” as they were called.

Synthetic nitrates' commercial development in 1920s and global economic depression in l930s caused a serious contraction of the Chilean nitrate business, which did not recover in any significant way until shortly after World War II. Post-war, widely expanded commercial production of synthetic nitrates resulted in a further contraction in Chile's natural nitrate industry, which continued to operate at depressed levels into their 1960s.

The Victoria “Office” was first established between 1941 and 1944 by the “Compañía Salitrera de Tarapacá”. At its peak, Victoria produced 150,000 metric tons of nitrates with over 2,000 employees. In 1960, CORFO, Chile´s Production Development corporation. Formed the roots of SQM. In 1971, Anglo Lautaro sold all its shares to CORFO and SQM became wholly owned by the Chilean government since SQM´s inception, nitrates and iodine have been produced from caliche deposits in northern Chile.

In late 2002, Nueva Victoria East was re-established as a mining operation. Nueva Victoria mineral is transported by trucks to heap leach facilities where iodine is produced. This site is made up of facilities located in three sectors corresponding to Nueva Victoria, Sur Viejo and Iris.

The overall site layout is shown in Figure 6-4.

In 2014, there was investment into developing new mining sectors and increased production of both nitrates and iodine at Nueva Victoria, achieving a production capacity (including Iris facility) of approximately 8,500 metric tons per year of iodine at the site.

In 2015, SQM company focused on increasing the efficiency of its operations. This included a plan to restructure our iodine and nitrates operations. To take advantage of highly efficient production facilities at Nueva Victoria, it was decided to suspend mining and nitrates operations and reduce iodine production at Pedro de Valdivia site. During 2017, production capacity for iodine was increased at Nueva Victoria, with current effective iodine capacity at approximately 14,000 metric tons per year.

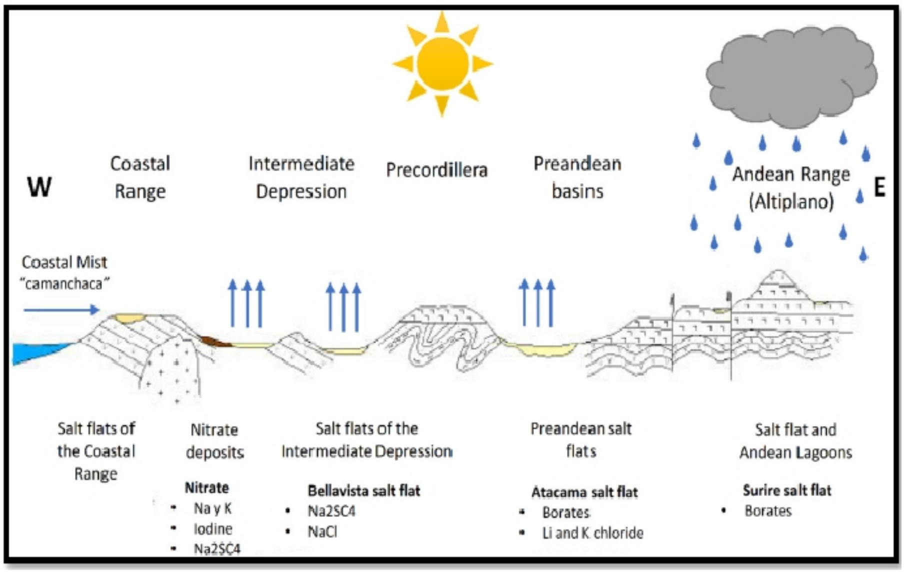
6 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

REGIONAL GEOLOGICAL SETTING

In Chile, the nitrate-iodine deposits are in the intermediate basin, limited to the east by the Coastal Range (representing the Jurassic magmatic arc) and the Precordillera (associated to the magmatic activity originating from the mega Cu-Au deposits in northern Chile), generating a natural barrier for their deposition and concentration. (Figure 6-1)

The salt and nitrate deposits of northern Chile occur in all topographic positions from hilltops and ridges to the centers of broad valleys (Ericksen, 1981). They are hosted in rocks of different ages and present very varied lithologies; however, a distinctive feature is that they are always related in some way to a key unit known as the Saline Clastic Series (CSS → Late Oligocene to Neogene). The CSS comprises mainly siliciclastic and volcanoclastic sandstones and conglomerates produced by erosion and re-sedimentation of pre-existing rocks of the Late Cretaceous-Eocene volcanic arc. This key stratigraphic unit includes rocks deposited under a range of sedimentary environments including fluvial, eolian, lacustrine, and alluvial, but all were developed primarily under arid conditions. The upper parts of CSS include lacustrine and evaporitic rocks composed mainly of sulfates and chlorides. The outcrop of CSS always lies to the west of the ancient Late Cretaceous-Eocene volcanic arc, covering the present-day topography (Chong et al., 2007).

Figure 6-1. Geomorphological scheme of saline deposits in northern Chile.



Note: Nitrate deposits are restricted to the eastern edge of the Coastal Range and in the Central Basin (Taken from Gajardo, A & Carrasco, R. (2010). Salares del Norte de Chile: Potential Lithium Source. SERNAGEOMIN, Chile).

Most of the nitrate deposits in Chile are found in the provinces of Tarapacá and Antofagasta, with more northerly occurrences in Tarapacá largely restricted to a narrow band along the eastern side of the Coastal Range; while, to the south they extended extensively not only in the Coastal Range, but also in the Central Valley and the Andean Front (Garret, 1983). Extremely rare minerals are present in this type of deposits, among which we find nitrates, nitrate-sulphates, chlorides, perchlorates, iodates, borates, carbonates, and chromates. The mineralization occurs as veins or impregnations filling pores, cavities, desiccation polygons and fractures of unconsolidated sedimentary deposits; or as a massive deposit forming a consolidated to semi-consolidated cement as extensive uniform mantles cementing the regolith, called caliche.

The regional geology in which the Nueva Victoria nitrate-iodine deposits are situated corresponds to Paleogene clastic sedimentary rocks, over a volcanic basement, associated with lavas of intermediate composition (mainly andesites - tuffs) representing Jurassic volcanism. The area of influence of the geological component includes the coastal plain, the coastal Farellón, the coastal mountain range and the central Gran pampa. The oldest rocks outcropping in the area correspond to Upper Carboniferous Granitoids. This unit is covered by rocks of the Sierra de Lagunas Strata, which correspond to Upper Triassic-Lower Jurassic volcano-sedimentary products and affected by associated hypabyssal intrusive rocks. The Sierra de Lagunas strata are covered in apparent concordance by rocks of The Oficina Viz Formation, which represent the volcanic products of the Lower and Middle Jurassic magmatic arc.

The Cerro Vetarrón Monzonite outcrops in the central sector of the Cordillera de la Costa, it is partly contemporaneous with the Oficina Viz Formation. The Oficina Viz Formation is concordantly covered by marine sedimentary rocks of the Huantajaya Group → the Lígate Cove Formation and the El Godo Formation.

Plutonic rocks originated in the arc magmatism during the Upper Jurassic-Lower Cretaceous, represented by the Patache Diorite, the Cerro Carrasco Intrusive Complex, and the Oyarbide Intrusive Complex, as well as by hypabyssal bodies associated with the latter unit. These complexes outcrop in the coastal strip and in the western edge of the Coastal Range.

The deformation processes of north-south faults associated with the Atacama Fault System caused structural basins (tensional basins and grabens) where the Cerro Rojo Formation and Punta Barranco Formation were continentally deposited. These Mesozoic units are intruded by Lower Cretaceous subvolcanic intrusive and granitoids of the Montevideo Intrusive Complex. These intrusive bodies outcrop in the easternmost portion of the Cordillera de la Costa and the second unit presents ages that decrease towards the east. On the other hand, in the eastern limit of the Coastal Range, isolated rocks of Upper Cretaceous intrusive outcrop, which represent the magmatism of that period and evidence the migration of the magmatism axis towards the east.

The Great Coastal Escarpment generated during the Pleistocene-Holocene by the combined action of eustatic, tectonic and erosive events, limits the western edge of the Coastal Range with the Coastal Strip. Attached to the Great Coastal Escarpment there are large volumes of colluvial deposits, which are also found on a smaller scale along escarpments associated with east-west faults and on the slopes of some mountain fronts. After the generation of the Great Coastal Escarpment, sedimentation of littoral deposits occurs at its foot. Massive landslide deposits caused by various gravitational displacements of material from the western edge of the Coastal Mountain Range.

In the Pleistocene-Holocene, the deposition of the Alto Hospicio Gravels and the alluvial deposits occur in the Coastal Range in the Pleistocene-Holocene, which are restricted to the bottoms of the ravines and locally form alluvial fans. These deposits have a considerably smaller extension than the Oligocene-Pliocene deposits, which shows a reduction in the contribution of alluvial clastic material. On the other hand, in the Central Basin there are large extensions of Pleistocene-Holocene alluvial deposits, whose components come from the erosion of rocks from the Precordillera. These alluvial deposits are cut and covered by active alluvial deposits, of lesser extension and made up of clays, silts, and fine sands.

LOCAL GEOLOGY

The geology of the Nueva Victoria Property is presented in Figure 6-2. The geological units are described below.

6.1.1 Intrusive Igneous Rocks

Granites, diorites, quartz monzonites and gabbro of Cretaceous age, intruded as sills and dikes. Denoted as **Jg** on the geological map.

6.1.2 Volcanic and Marine Sedimentary Sequences

Jurassic age marine sedimentary rocks (sandstones, glauconitic breccias, shales and limestones) with intercalations of continental andesites and andesitic breccias. Denoted as **Jm(m)** on the geological map.

6.1.3 Stratified Sedimentary and Volcaniclastic Rocks

This category comprises Mesozoic to Cenozoic sedimentary and volcaniclastic units comprising:

- Continental volcanoclastic rocks of Jurassic age comprising andesites, breccias & andesitic agglomerates with intercalations of continental sediments. Denoted as **Jv (i)** on the geological map.

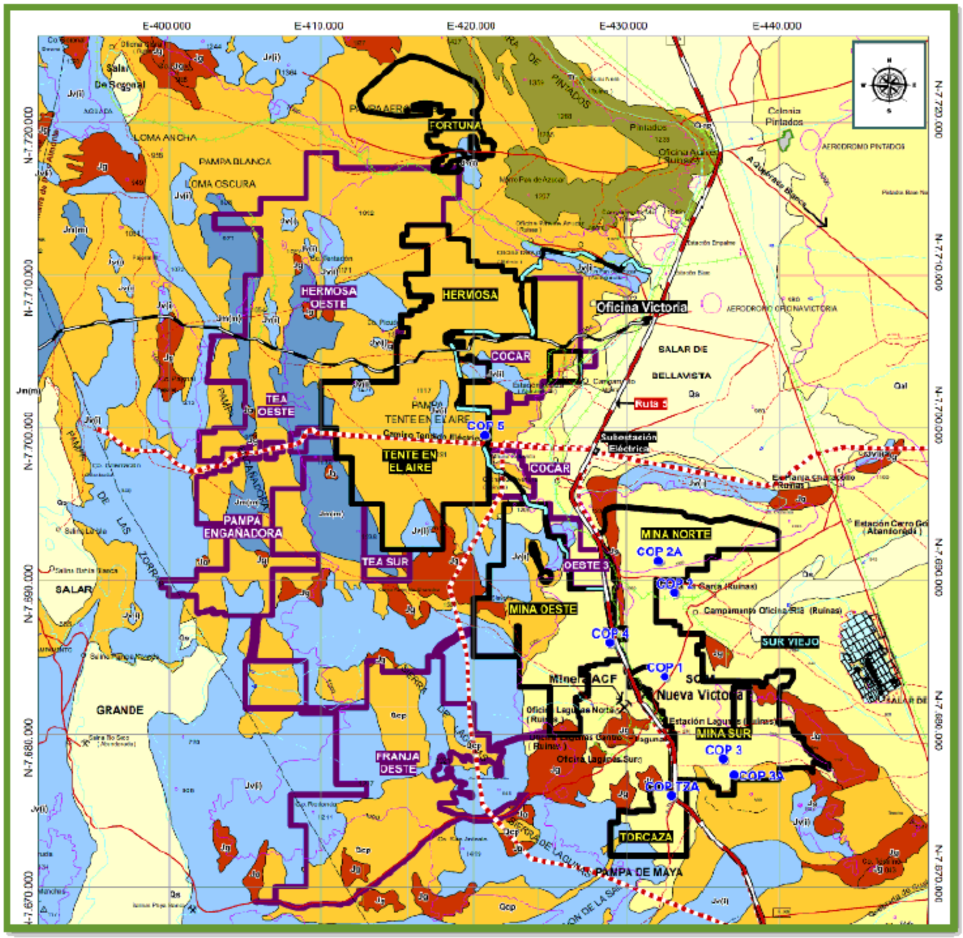
- Continental clastic sedimentary rocks of Triassic age comprising conglomerates, sandstones & quartzites with intercalations of marine sedimentary rocks. Denoted as **Tr** on the geological map.

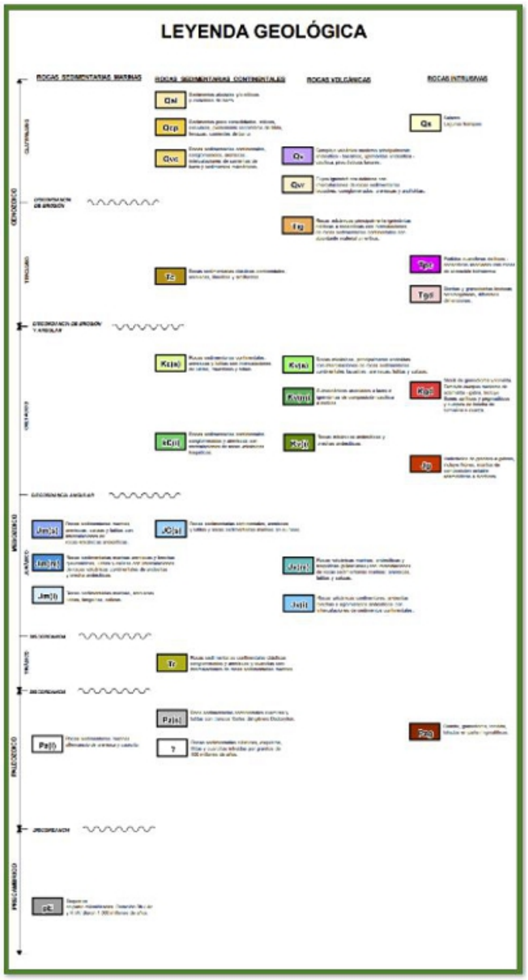
- Poorly to well consolidated sediments of Quaternary age comprising aeolian sediments, colluvial deposits, alluvial fans, terraces, and sedimentary debris flows. Denoted as **Qcp** on the geological map.

- Evaporitic salts forming salt pans, salt flats, saline & gypsiferous crusts, associated with modern and former wetlands and brackish or saline lagoons and areas of former or current shallow water tables. Denoted as **Qs** on the geological map.

- Recent alluvial sediments, sedimentary debris flows and aeolian deposits. Denoted as **Qal** on the map.

Figure 6-2. Geological map at Nueva Victoria. Internal document-SQM




LEYENDA GEOLÓGICA
ROCAS SEDIMENTARIAS MARINAS
ROCAS SEDIMENTARIAS CONTINENTALES
ROCAS VOLCÁNICAS
ROCAS INTRUSIVAS

Through the collection of geological information by logging of drill holes and surface mapping, five stratified subunits have been identified within the Quaternary Unit (Qcp) (Units A to E). (Figure 6-3). These units correspond to sediments and sedimentary rocks that host the non-metallic or industrial ores of interest, i.e., iodine and nitrate. Each of the units is described below.

6.1.4 Unit A

Forms the upper part of the profile. It corresponds to a sulfated soil or petrogypsic saline detrital horizon of light brown color. It has an average thickness of approximately 0.4 m. It consists mainly of sand and silt-sized grains, and to a lesser extent gravel-sized clast. It presents as a well-cemented horizon at depth, while higher in the profile, within 0.2 m of ground surface, weathering and leaching of the more soluble components have rendered it porous and friable. At ground surface it presents as loose fine sand to silt-sized sediment, referred to locally as "chuca" or "chusca" which is readily transported by the wind or lofted by dust devils. Below the chusca, the competent part of the unit may present subvertical cracks vertical cracks, which may become filled with chusca o aeolian sediments.

6.1.5 Unit B

Underlies Unit A. It corresponds to a light brown detrital sulfate soil characterized by anhydrite nodules in a medium to coarse sand matrix. Its thicknesses may vary laterally. It is typically between 0.5 to 1.0 m but may become laterally impersistent.

6.1.6 Unit C

Underlies Unit B. It comprises fine to medium dark brown sandstones, with intercalations of sedimentary breccias. The thickness of this unit varies between 0.5 to 2.0 m. The sandstones and breccias are well consolidated and cemented by salts comprising sulfates, chlorides & nitrates. The salts occur as envelopes around the sedimentary clasts (sand and gravel grains), fill cavities between the sedimentary clasts and form saline aggregates due to saline efflorescence, (the deposition of salts from the evaporation of water from the capillary fringe of shallow water tables).

6.1.7 Unit D

Underlies Unit C. It comprises dark brown matrix-supported polymictic breccias. The thickness of this units varies between 1 to 5 m. The clasts are angular, tending towards sub rounded with depth. They range from 2 mm (very fine gravel) to 80 mm (small cobble) in diameter. Lithologically, the clasts comprise porphyritic andesites, amygdaloidal andesites, intrusive and highly altered lithics. The matrix of the breccias consists of medium to coarse sand-sized grains. The breccia is well consolidated and cemented by salts. As in the case of Unit C, the salts comprise sulfates, chlorides and nitrates, which occur as envelopes around the clasts, fill cavities and present as saline aggregates resulting from saline efflorescence.

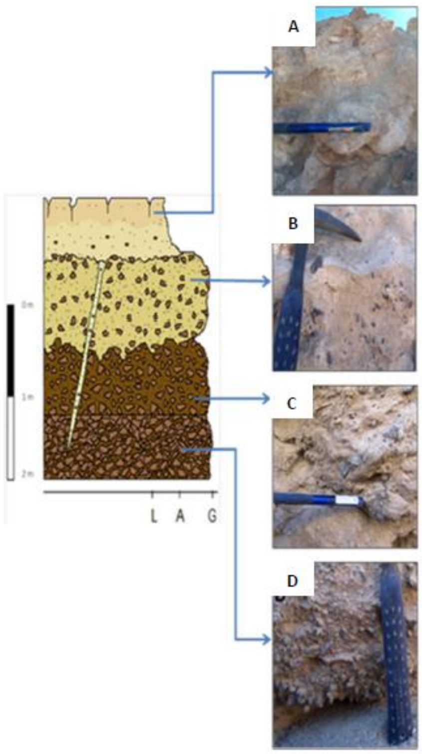
6.1.8 Unit E

This unit is like Unit D, except for the sedimentary fabric and structure. It comprises dark brown clast-supported polymictic conglomerates. The clasts are sub rounded, and present a wide range of sizes, with some clasts exceeding 100 mm in diameter. Their composition includes porphyritic andesites, intensely epidotized and chloritized porphyritic andesites, fragments of indeterminate altered intrusive rocks and clasts with abundant iron oxide. The deposit is well cemented by salts, which, as in the case of Units C & D envelope the clasts, fill cavities and occur as aggregates or accumulations of salts formed by saline efflorescence.

6.1.9 Unit F

Corresponds to the igneous basement of the sedimentary sequence. At Nueva Victoria this corresponds mainly to Cretaceous volcanic rocks, andesitic to dioritic lavas, and granitic bodies. The basement presents little mineralization of economic interest, this being restricted to fracture infills, where present.

Figure 6-3. Typical profile of the Qcp unit at Nueva Victoria.



A: Upper horizon of sulfate sediments, forming loose, readily wind-transportable "chusca" where it is weathered and leached at the ground surface. This unit varies in thickness in the range 0.5 – 0.9 m.

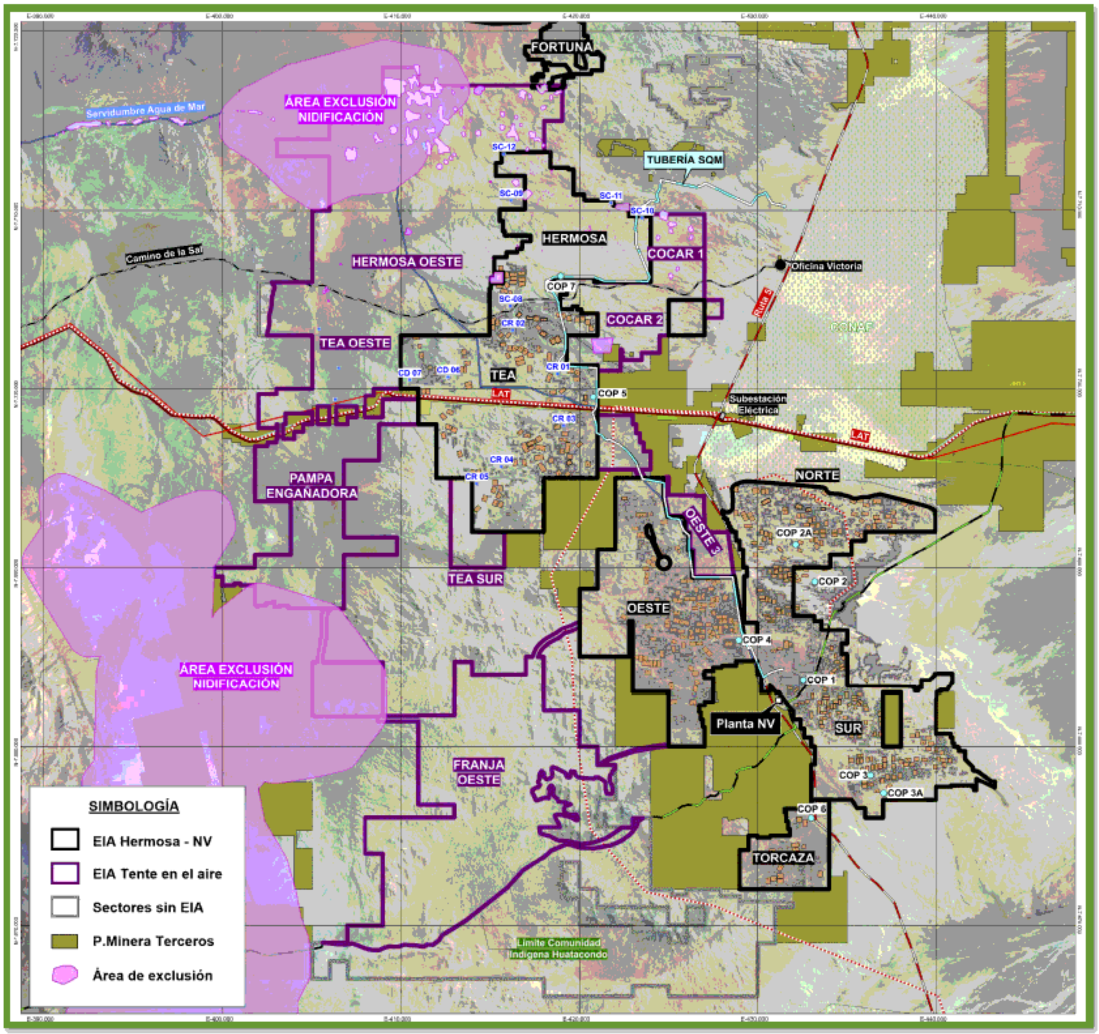
B: Anhydrite nodules in a medium to coarse sand matrix. This unit typically varies in thickness in the range 0.5 – 1.0 m, but it may become laterally impersistent.

C: Horizon fine to medium-grained dark brown sandstones with intercalations of sedimentary breccias. This unit hosts economic mineralization. The thickness of the unit typically varies between 1.0 – 1.5 m.

D: Level of fine to medium-grained breccias. As in the case of Unit C, this unit hosts economic mineralization. The thickness of the unit varies between 1.0 - 3.0 m.

The Geology of the different sectors of Nueva Victoria corresponds mainly to sedimentary and volcano-sedimentary associations, on a Jurassic igneous crystalline Jurassic basement, related through sedimentation cycles, which could correspond to the distal facies of an alluvial fan, which vary in size from medium sand to fine gravel. In general, the facies found correspond to breccias, sandstones, andesites, intrusive, and tuffs. In the TEA and Hermosa sectors, salt crusts can be observed encasing sandstones, as well as cover of anhydrite, which is present in an irregular manner and with variable thicknesses. In the West Mine Sector, the anhydrite crust is much more frequent, reaching maximum thicknesses, of the order of metric. Figure 6-4 shows the location of the sectors that are described in detail.

Figure 6-4. Nueva Victoria Sectors



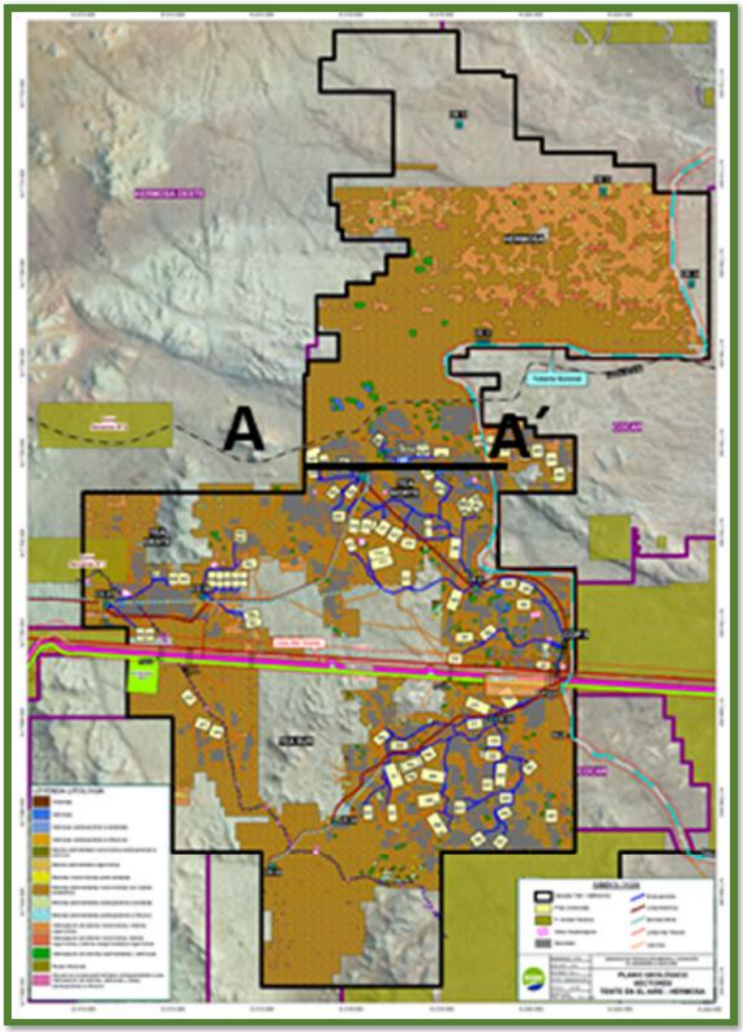
6.1.10 Tente en el Aire (TEA)

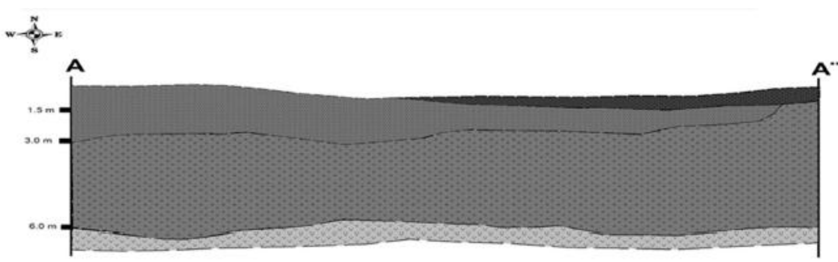
Morphologically, this deposit area is in a flat area (pampa) crossed by a NW-SE fault system and surrounded by volcanic outcrops. The low topographic relief has protected the evaporite deposits against erosive processes, particularly in the south and northeast of TEA. The western part of TEA has been affected by surface runoff that leached the caliche, making it soft, friable and porous and reducing its nitrate content. Lithologically TEA presents a sequence of sandstones and polymictic breccias over a volcanic basement. Salt crusts and variable thicknesses of anhydrite cover the sandstones (Figure 6-5).

The occurrence of mineralization corresponds to mineralized mantles (caliche) which typically vary in thickness in the range 3.0 – 3.5 m. 70% of TEA is covered by high-nitrate content, competent caliche, cemented by a high content of soluble salts. The remaining 30% of TEA is covered by reduced nitrate leached caliche of lower geomechanically quality.

Nitrate mineralization in TEA caliche is in the range 4.5 – 6.5% $NaN0_3$ with iodine is in the range 400 - 430 ppm I_2.

Figure 6-5. Schematic Cross section of TEA Deposit.



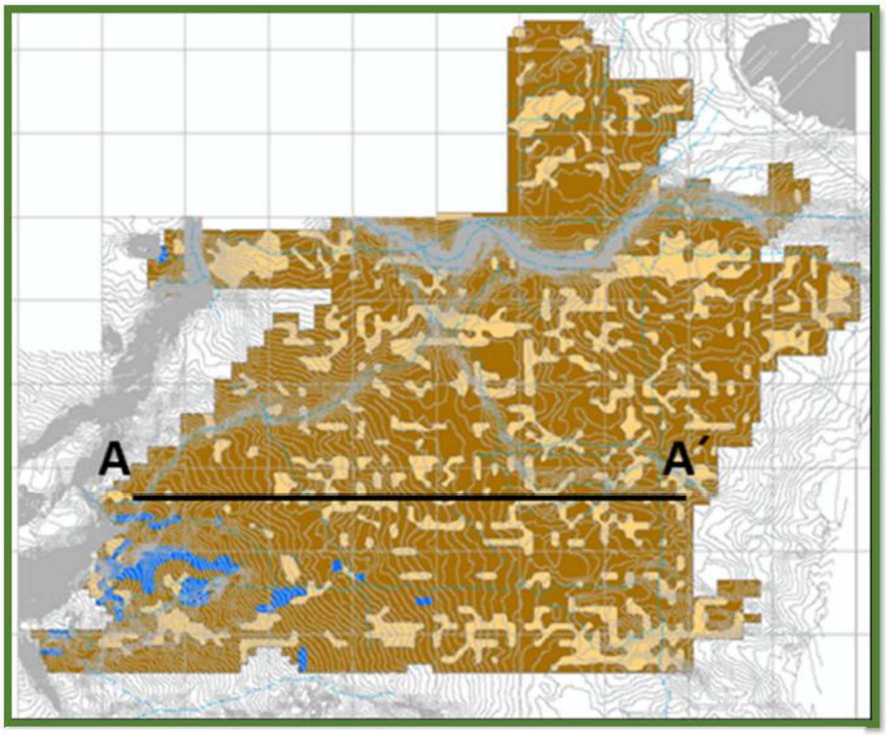


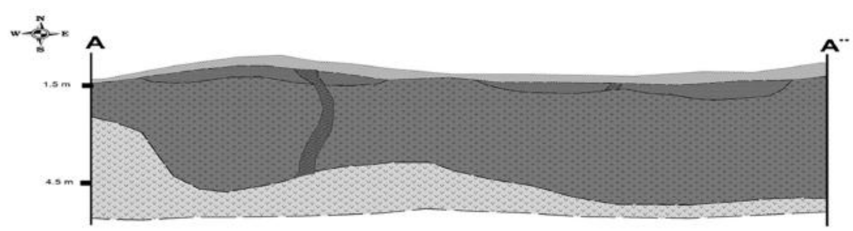
6.1.11 Torcaza

The Torcaza deposit area comprises an open pampa in the southeast, limited by volcanic outcrops to the west and by fluvial deposits to the east. Its geology comprises a sequence of fine-grained sandstones and medium-grained breccias, with a tendency to an increase in clast sizes with depth. The mineralized mantles of caliche are typically 2.5 – 3.2 m in thickness. Nitrate content is spatially variable. A Nitratine ($NaNO_3$) horizon can be identified in the stratigraphic sequence between the sandstone and breccia subunits, deposited by mineral-rich groundwaters
(Figure 6-6).

The nitrate grade at Torcaza is in the range 4.0 – 6.0 % $NaN0_3$ and the iodine grade is in the range 350 - 430 ppm.

Figure 6-6. Stratigraphic Cross Section of Torcaza sector





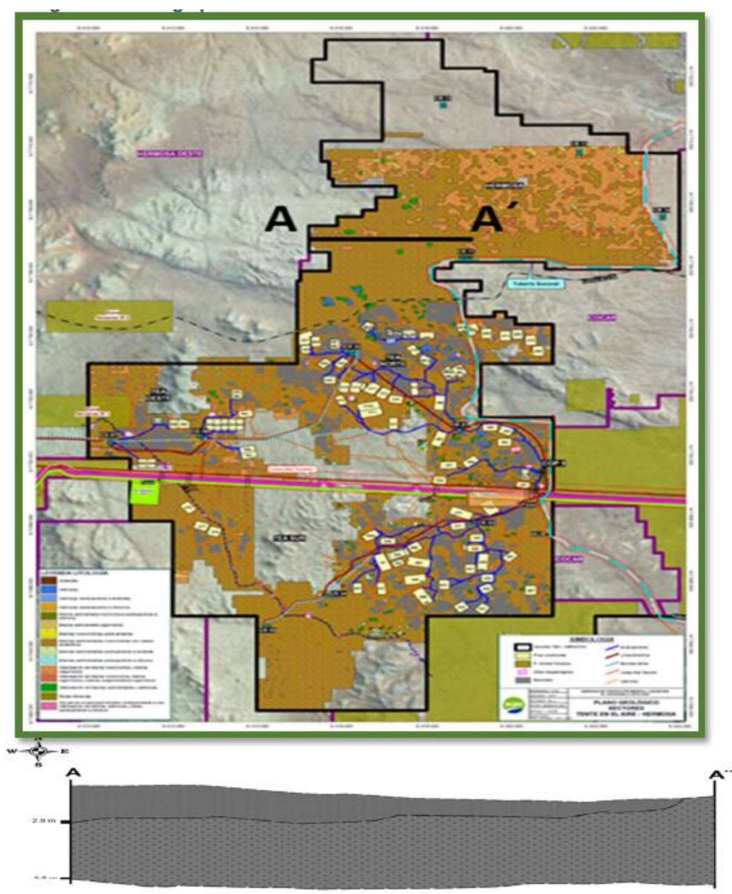
6.1.12 Hermosa

The Hermosa deposit area comprises a closed basin crossed by a system of NW-SE faults. It is and area of gently undulating relief with areas of salt accumulation. It is limited by volcanic outcrops to the west and north. The gentle topographic relief has limited erosion. The geology at Hermosa comprises a sequence of medium-grained sandstones and polymictic breccias over oligomictic breccias resting on volcanic basement (Figure 6-7).

The mineralized mantles (caliche) at Hermosa typically vary in thickness in the range 3.5 – 4.0 m. 90% of Hermosa is covered by high-nitrate content, competent caliche, cemented by a high content of soluble salts. The remaining 10% of Hermosa is covered by reduced nitrate leached caliche of lower geomechanically quality.

Nitrate mineralization in Hermosa caliche is in the range 5.5 – 7.5 % $NaN0_3$, with iodine is in the range 400 - 450 ppm I_2.

Figure 6-7. Stratigraphic Column and Schematic cross section of Hermosa Sector.



6.1.13 West Mine

The West Mine corresponds to an open Pampa to the southeast located in an alluvial environment, limited by volcanic outcrops to the west and by fluvial deposits to the east. Lithologically, the sector is formed by a sequence of fine sandstones and medium breccias with an increase of clasts at depth. And anhydrite crust is present in this sector and is much more frequent than in other sectors, reaching the maximum thicknesses, of order metric (Figure 6-8).

Like the Torcaza deposit area, the West Mine deposit area comprises an open pampa in the southeast, limited by volcanic outcrops to the west and by fluvial deposits to the east. Its geology comprises a sequence of fine-grained sandstones and medium-grained breccias, with a tendency to an increase in clast sizes with depth.

At West Mine, the anhydrite crust is more prominent and laterally persistent than in the other deposit areas and may attain a thickness of the order of a 1 m.

The mineralized mantles of caliche are a little thinner than in TEA and Hermosa, generally attaining a thickness in the range 2.0 – 2.5 m. The caliche has been subject to leaching which has reduced its nitrate content and geomechanically competence.

The nitrate grade at West Mine is in the range 3.5 – 5.5 % $NaN0_3$ and the iodine grade is in the range 350 - 450 ppm.

6.1.14 North Mine

The North Mine deposit area corresponds to a raised block, bounded to the east by the Sur Viejo salt flat.

The caliches of this sector have suffered salt remobilization and erosion, reflected in the lower nitrate content and reduced thickness of the caliche. Lithologically, the caliches correspond to sandstones and breccias with high quartz contents, which makes them highly abrasive. Figure 6-9 presents the stratigraphic column and a cross section for North Mine.

The caliche mantles present average thicknesses of 2.0 – 2.2 m. The geomechanically quality of the caliches in this sector is generally high, except locally where they are cut by faults which may result in significant clay content.

As for the West Mine deposit area, the nitrate grade at North Mine is in the range 3.5 – 4.5 % $NaN0_3$ and the iodine grade is in the range 400 - 450 ppm.

Figure 6-8. Schematic Cross section of West Mine Sector.

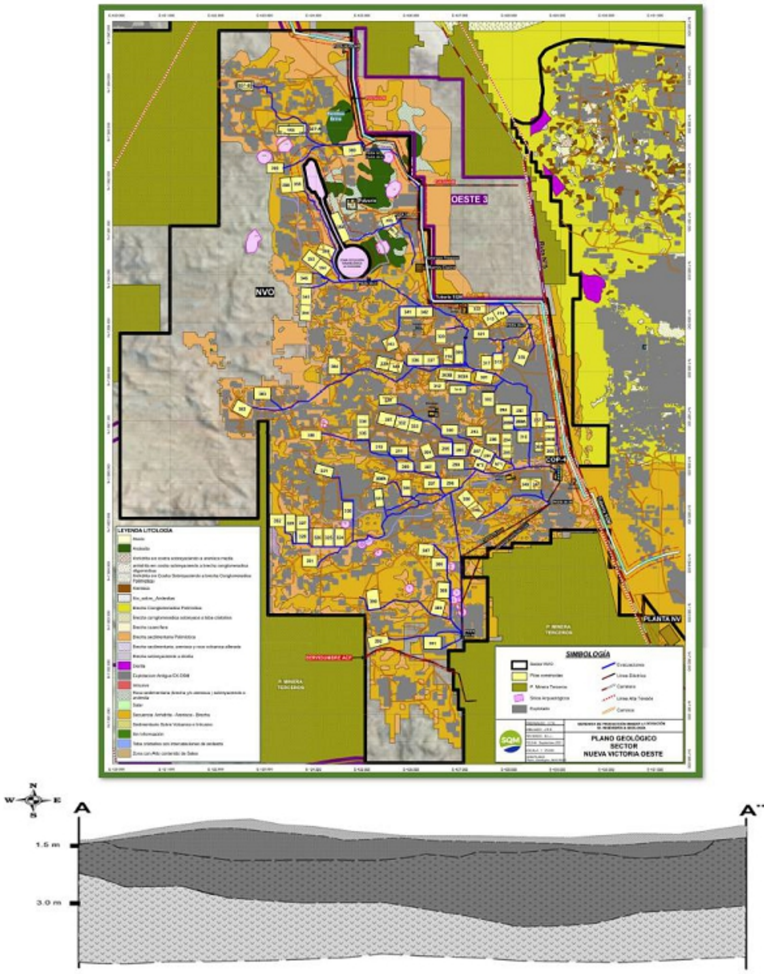
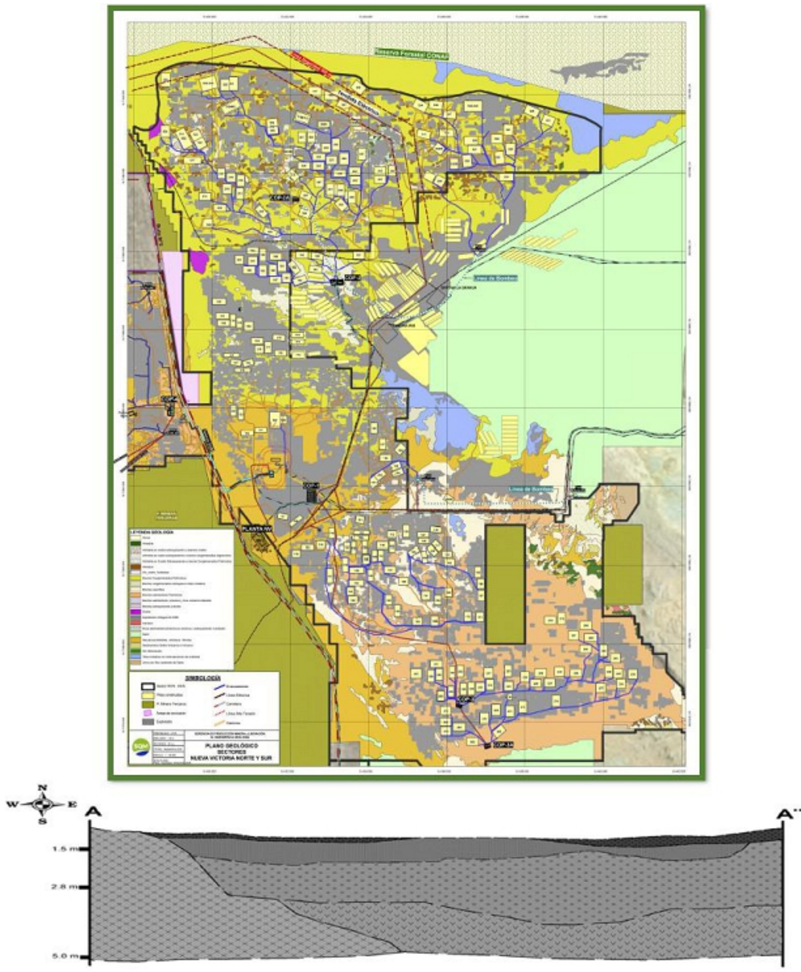


Figure 6-9. Schematic Cross Section of North Mine Sector.



6.1.15 South Mine

The South Mine deposit area corresponds to a tectonically uplifted basin, bounded to the east by the Sur Viejo salt flat. The South Mine deposit area was enriched by surface water runoff after mineralization which favored the remobilization of soluble salts and enrichment with chlorides, sulfates, potassium, calcium, and sodium. The geology of South Mine comprises a sequence of anhydrites, sandstones and polymictic breccias over siltstones with variable clay content.

The caliche mantles reach average thicknesses of 2.0 meters. Their geomechanically quality is generally high, except locally where they are cut by faults which may result in significant clay content.

The nitrate grade at South Mine is lower than at North Mine and West Mine, being in the range 2.5 – 3.5 % $NaN0_3$, although the iodine grade is a little higher at 400 - 500 ppm.

MINERALIZATION

Table 6-1 presents a summary of the mineralogy of the Nueva Victoria Property. The number of samples included in the database on which the table is based are indicated by the "n = "value in the table header. TEA has by far the greatest number of samples with n = 226. An "X" indicates the presence of the mineral in the samples of the sector. In the case of TEA, the proportion of the 226 samples analyzed in which the mineral of intertest was recorded are indicated as percentage. The table uses the following color coding to indicate the percentage content by mass of dry sample of each mineral of interest:

Red fill indicates that the mineral accounts for 10% or greater of the mass of the dry samples.

Orange fill indicates that the mineral accounts for between 5% and 10% of the mass of the dry samples.

Yellow fill indicates that the mineral accounts for between 1% and 5% of the mass of the dry samples.

An "X" in a cell with no color fill indicates that the mineral of interest accounts for less than 1% of the mass of the dry samples.

Table 6-1. Mineralogy of Nueva Victoria Caliches.

Group	Mineral (Spanish name in brackets)	Formula	Pampa Blanca (n = 10)	South Mine (n = 21)	West Mine (n = 6)	North Mine (n = 21)	North Mine Gravels (n = 2)	TEA (n = 226)	TEA Gravels (n = 3)
Nitrates	Nitratine (Nitratina)	$NaNO_3$	X	X	X	X	X	X (79%)	X
	Darapskita (Darapskita)	$Na_3(SO_4)(NO_3).H2O$	X	X				X (6%)	
	Saltpetre (Nitrato potassic)	KNO_3		X					
Iodates	Lautarite (Lautarita)	$Ca(IO_3)_2$		X				X (9%)	X
	Hectorfloresite (Hectorfloresita)	$Na_9(IO_3)(SO_4)_4$		X				X (59%)	X
	Fuenzalidaita	$K_6(Na, K)_4Na_6Mg_{10}(SO_4)_{12}(IO_3)_{12}.12H_2O$						X (8%)	
	Bruggenite	$Ca(IO_3)2.H_2O$						X (25%)	
Chlorides	Halite	NaCI	X	X	X	X	X	X (82%)	X
	Sylvite	KCI		X					
	Potassium-rich halite	(K, Na)CI		X					
Sulfates	Anhydrite	$CaSO_4$	X	X	X	X		X (76%)	
	Glauberite	$Na_2Ca(SO_4)_2$	X	X	X	X	X	X (21%)	X
	Loeweite,	$Na_{12}Mg_7(SO_4)_{13}.15H_2O$	X	X	X			X (13%)	
	Polyhalite	$K_2Ca_2Mg(SO_4)_4.2H_2O$		X	X	X	X	X (81%)	X
	Kieserite	$MgSO_4.H_2O$	X	X				X (55%)	
	Astrakanit	$Na_2Mg(SO_4)_2.4H_2O$		X	X	X	X	X (78%)	X
	Humberstonita	$K_3Na_7Mg_2(SO_4)_6(NO_3)_2.6H_2O$		X		X	X	X (8%)	
	Hexahydrite	$MgSO_4.6H_2O$		X			X	X (55%)	
	Epsomite	$MgSO_4.7H_2O$						X (4%)	
	Gypsum	$CaSO_4.2H_2O$	X	X		X	X	X (15%)	X
	D'Ansite	$Na_{21}Mg(SO_4)10Cl_3$						X (0.4%)	
	Bassanite	$2(CaSO_4).H_2O$		X					
	Mirabilite	$Na_2SO_4.10H_20)$							X
	Cesanite	$Ca_2Na_3(OH)(SO_4)_3$							X
	Thenardite	Na_2SO_4		X					
	Pentahydrite	$MgSO_4.5H_2O$		X					
	Vanthoffite	$Na_6Mg(SO_4)_4$		X					
Silicates	Silicate minerals generally		X	X	X	X	X	X	X

6.1.16 Genesis of Caliche Deposits

Wetzel (1961) postulated that nitrate deposits are enriched in salts by mudflow events. Mueller (1960) supported the theory of Singewald and Miller (1916) which cited accumulation by capillary rise and evaporation of groundwater at the margins of salt flats. Fiestas (1966) suggested that reactions between acids from volcanic gas clouds and the rocks and soils of the nitrate fields was important in the genesis of the mineral salts concentrated within the caliche deposits. Ericksen (1975) proposed that the mineral salts have a mainly atmospheric origin, the product of dry atmospheric precipitation of mineral salt aerosols carried inland from the coast; the aerosols being derived from marine spray at the ocean surface / atmosphere interface, particularly from waves in the breaker zone of the coast. In 1963, working with condensed fog samples, he demonstrated that the coastal fogs of northern Chile contain mineral salts which could be an important source of mineral salts that subsequently become concentrated over time by leaching and evaporation, forming economic caliche deposits.

Authors such as Pueyo et al. (1998) and Reich et al. (2003) describe mechanisms for the genesis of saline groundwaters and brines, which can give rise to the generation of caliche deposits in porous host rocks such as sandstones and breccias, though processes of concentration, primarily evapo-concentration, by the evaporation of water from the capillary fringe of shallow water tables. The soluble mineral salts first enter the source water via the leaching of altered rocks and pre-existing saline materials. They emphasize the role the hydrological system operating over long periods of time in the leaching and transport of the salts, including during periods of former wetter climate (hydrological paleo system).

Current thinking is that the mineral salts of most economic caliche deposits in the arid north of Chile, except for a few specific cases of marine evaporite deposits, have a dominantly volcanic origin. Chong (1991) noted that the leaching of volcanic materials would have been favored by thermal processes related to the middle Tertiary volcanic arc. Álvarez (2016) explained how groundwater leaching of iodine from iodine bearing organic-rich rocks may constitute an important origin of iodine in caliche deposits.

6.1.17 Nueva Victoria

The mineralization at Nueva Victoria is mantiform, with distinct deposit areas of several kilometers in extension. Mineralized mantle (caliche) thicknesses vary between deposit areas, falling within the range 1.0 – 6.0 m. Because of the action of geological processes over time (weathering, erosion, faulting, volcanism) the caliche deposits can take a variety of forms, including, as detailed below.

6.1.18 Continuous Mantles

Laterally continuous mineralization hosted in sandstones and breccias; presenting caliche thicknesses generally in the range 2.0 – 4.0 m, but occasionally reaching up to 6.0 m. Nitrate grades tend to be highest where the caliche is thickest. Iodine grades tend to reduce at depth. The caliche mantles may be cut by fractures filled with cemented sands (sand dikes). Secondary deposition of mineral salts may be observed along bedding plane contacts.

6.1.19 Thin salt Crusts and Superficial Caliche

Evaporite deposits presenting as thin (0.5 to 1.2 m), laterally discontinuous mineralization, often developed within and over fine-grained sandstones of high competence. Nitrate grades in these thin deposits can reach 20% and iodine can attain values of 1,500 ppm.

6.1.20 Stacked caliches.

This type of deposit is found in sectors with a high degree of leaching. It is particularly associated with alluvial fans. The leaching of the overlying material reduces its degree of cementation and geomechanical competence and reduces the grade of economic mineralization that it contains. Reprecipitation of the leached minerals at depth in the formation (e.g., alluvial fan) results in better-cemented, geomechanically more competent, more mineralized caliches at depth. The thickness of these mineralized caliches is variable, but is generally around 2.0 m. Generally, the mineral grades of these caliches are lower than the other caliche deposit styles.

6.1.21 Other Economic Mineralization

Most of the economic nitrate and iodine mineralization associated with caliche mantles occurs as:

- Envelopes around the sedimentary clasts (sand and gravel grains) of host sandstones, breccias and conglomerates.
- Filling of the pore space between the sedimentary clasts.
- Evaporite aggregates due to saline efflorescence.

Economic mineralization may also manifest itself in the following ways:

- Cutting the caliche mantles as fracture infills (sand dikes).
- Veins of 0.5 to 1.0 m thickness associated with sediment - lava contact surfaces.
- As veins of 0.5 to 1.0 m thickness in volcanic rocks.
- As veins in altered or fractured volcanic rocks.

The nitrate deposits at Nueva Victoria are located on the western edge of the Intermediate Basin, formed mainly by surface or shallow horizontal to sub-horizontal strata of clastic sedimentary rocks (sandstones, breccias and conglomerates) which have been mineralized by solutions rich in mineral salts (nitrates, chlorides, iodates) to form caliche deposits found in large horizontal layers, ranging in thickness from 1 to 4 m, with barren material (overburden) ranging from 0.0 to 2.0 m at the top.

7 EXPLORATION

Nueva Victoria is an active mine operation. Ongoing exploration is conducted by SQM with primary purpose of supporting mine operations and increasing estimated Mineral Resources. The exploration strategy is focused on have preliminary background information on the tonnage and grade of the ore bodies and will be the basis for decision making for the next Recategorization campaigns. Exploration work was completed by mine personnel.

SURFACE SAMPLES

SQM does not collect surface samples for effect of exploration.

TOPOGRAPHIC SURVEY

Detailed topographic mapping was created in the different sectors of Nueva Victoria by aerial photography, using an unmanned aircraft operated by remote control, Wingtra One (Figure 7-1); equipment with 42 Mega pixels resolution, maximum flight altitude 600 m, flight autonomy 40 minutes. The accuracy in the survey is 15 to 10 cm.

The measurement was contracted to STG since 2015.

Figure 7-1. Wingtra One Fixed-Wing Aircraft

Prior to 2015, the topography survey was done by data measurement profiles every 25 meters; these profiles were done by walking and collecting information from points as the land surveyor made the profile. With this information, the corresponding interpolations were generated to obtain sector surfaces and contour lines.

DRILLING METHODS AND RESULTS

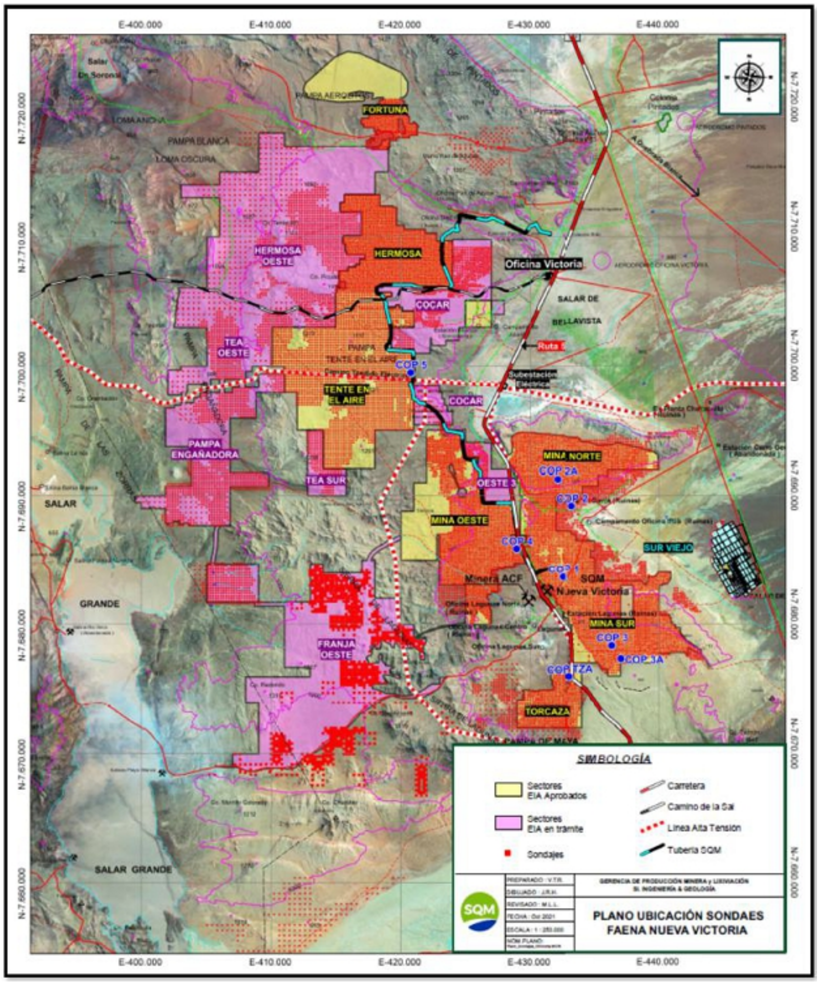
The Nueva Victoria geologic and drill hole database included 96,532 holes that represented 390,802 m of drilling. Table 7-1 summarizes the drilling by sector. Figure 7-2 shows the drill hole locations. As for the type of drilling used, it corresponds to RC holes, with a maximum depth of 7 meters. All the Nueva Victoria drilling was done with vertical holes.

Table 7-1. Detail of the Number of Drill Holes and Total Meters Drilled by sector in Nueva Victoria, Iris, and Soronal Properties

SQM Property	Sector	EIA	Grid	N° of Drill Holes	Total Meters	Core Recovery (%)
Soronal	Fortuna	Hermosa	100	1,021	5,105	No Data
	Hermosa	Hermosa	100 - 100T	8,350	41,695	89
	Tente en el Aire	Hermosa	100 - 100T - 200	7,313	36,565	89
	Hermosa Oeste	TEA	200 - 400	1,496	8,637	84
	Coruña	Hermosa	100	1,038	6,228	No Data
	TEA Oeste	TEA	200 - 400	560	3,360	85
	TEA Sur	TEA	100T	1,165	6,336	87
	Cocar	TEA	100 - 200	1,015	5,075	No Data
	Pampa Engañadora	TEA	200 - 400	1,225	7,350	82
	Franja Oeste	TEA	200 - 100T	4,009	19,985	83
Nueva Victoria & Iris	Oeste 3	TEA	50 - 100	485	2,183	84
	Mina Oeste	Nueva Victoria	50 - 100	18,350	64,225	90
	Mina Norte	Nueva Victoria	50 - 100	21,165	74,078	83.5
	Mina Sur	Nueva Victoria	50 - 100	24,115	84,403	94
	Iris Vigia	Nueva Victoria	200 - 100T	825	3,578	87
	Torcaza	Torcaza	50 - 100 - 200	4,400	22,000	88.1
				96,532	**390,802**	

The drilling campaigns were carried out according to the resource projection priorities of the Superintendence of Mineral Resources and LP Planning. Subsequently, this prospecting plan was presented to the respective VPs to ratify if they comply with the reserve projections to be planned, if they do not coincide, the prospecting plan is modified.

Figure 7-2. Drill hole location map



Drilling at Nueva Victoria was completed with prospecting grids of 400 x 400 m, 200 x 200 m, 100 x 100 m, 100 locked and 50 x 50 m.

7.1.1 Grid > 400 m

Areas that have been recognized and that present some mineralization potentials are initially prospected in wide mesh reverse air holes, generally greater than 400 m with variable depths of 6 to 8 m depending on the depth at which the ore is encountered. In consideration of the type of grid and the fact that the estimations of tonnage and grades are affected in accuracy, this resource is defined as a Hypotheticals and Speculative Resources, exploration target grid > 400 m.

7.1.2 400 m Grid

Once the Inferred sectors with expectations are identified, 400 x 400 m prospecting grids are carried out. In areas of recognized presence of caliche or areas where 400 x 400 m grid drilling is accompanied by localized closer spaced drilling that confirms the continuity of mineralization, the 400m grid drilling provides a reasonable level of confidence and therefore define dimensions, thickness, tonnages, and grades of the mineralized bodies, used for defining exploration targets and future development. The information obtained is complemented by surface geology and the definition of geological units. This area is used to estimated Inferred Resources. In other cases when there is no reasonable level of confidence the 400 x 400 m grid will be defined as a Potential Resource.

7.1.3 200m and 100m Grid

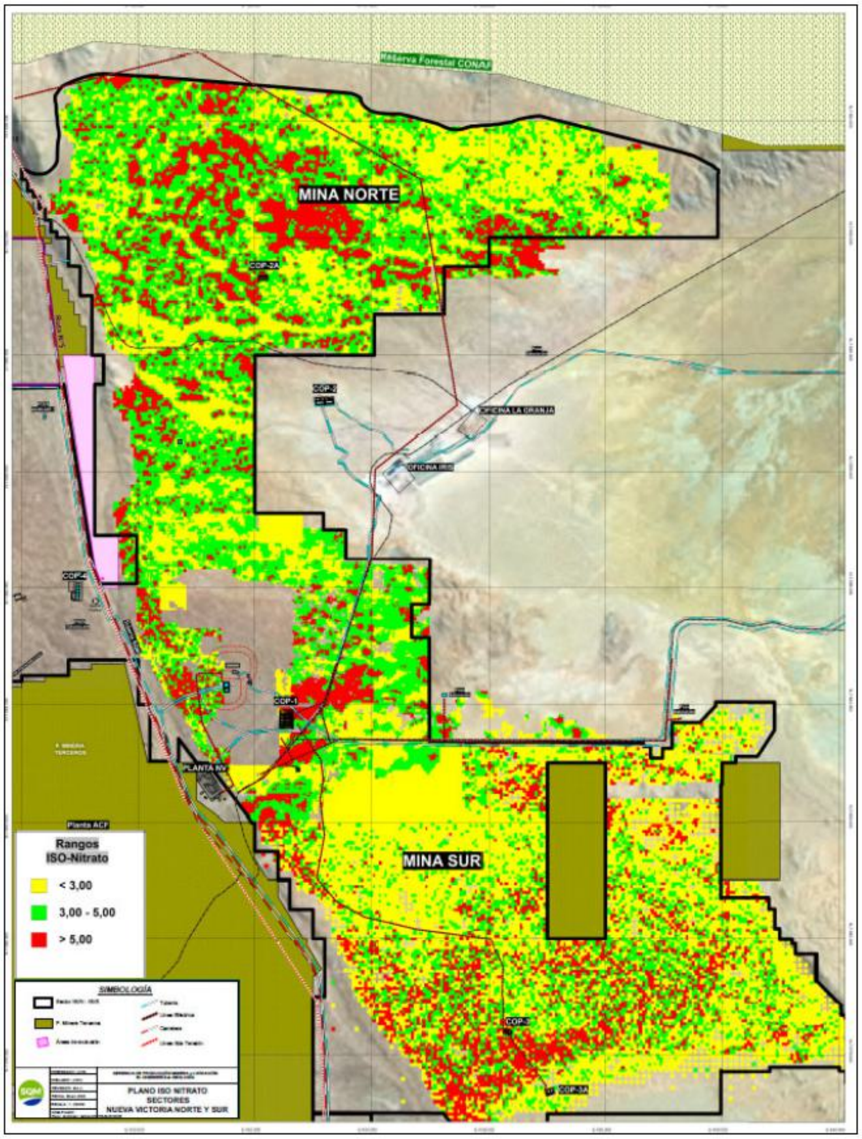
Subsequently, the potential sectors are redefined, and the 200 x 200 m and 100 x 100 m prospecting grid is carried out, which in this case allows to delimit, with a significant level of confidence, the dimensions, power, tonnage, and grades of the mineralized bodies as well as the continuity of the mineralization. At this stage, detailed geology is initiated, the definition of geological units on surface continues to be complemented and sectors are defined to carry out geometallurgical assays. This area is used to estimated Indicated Mineral Resources

7.1.4 100T and 50m Grid

The 50 x 50 m and 100T ~ 100x50 m prospecting grid allows to delimit with a significant level of confidence (amount of information associated to the drilling grid) the dimensions, powers, tonnages, and grades of the mineralized bodies as well as the continuity of the mineralization. The definition of geological units and collect information on geometallurgical assays from the pilot plants depending on the prospecting site is then continued. This area is used to estimate Measured Mineral Resources.

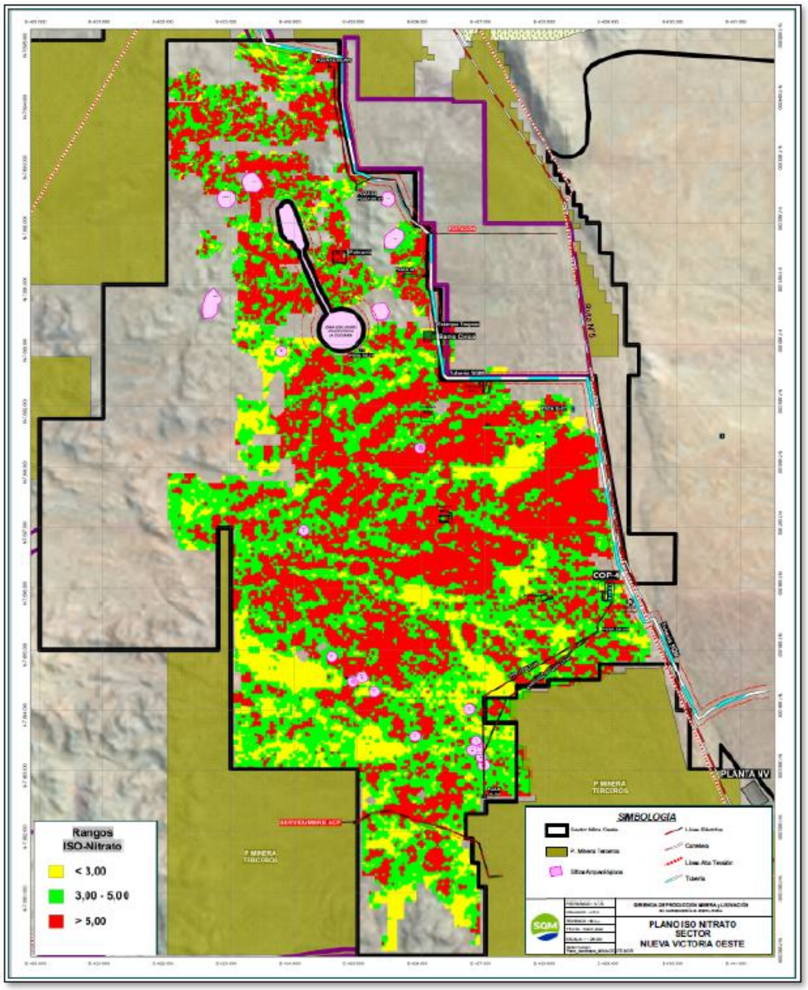
The results of the drilling campaigns in the sector of North Mine and South Mine can be seen in Figure 7-3, where it is highlighted in red the sectors with nitrates greater than 5.0%, in green the nitrates between 3.0 – 5.0% and in yellow the nitrates less than 3.0%. The mineralized bodies at Mina Norte and Sur are distributed in a discontinuous and irregular distribution, with a higher concentration of nitrate mineralization in the central and western portion of the North mine, as well as in the southern and south-western part of the South mine.

Figure 7-3. Iso-Nitrate Map Nueva Victoria of North and South Mine Sector



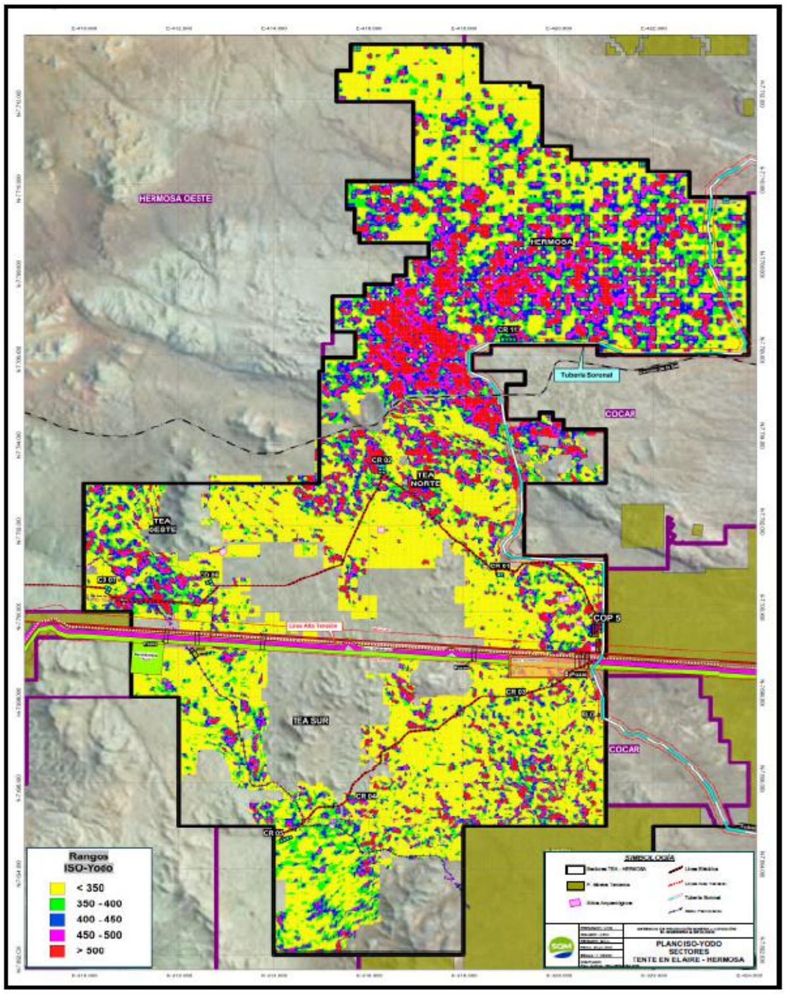
The results of the drilling campaigns in the West Mine sector are shown in Figure 7-4. As shown, the red highlight represents sectors with nitrates greater than 5.0%. The green highlight represents the nitrates between 3.0 – 5.0%, and the yellow highlight denotes the nitrates less than 3.0%. The mineralized bodies in West Mine are distributed in a discontinuous and irregular way in almost its totality, presenting a greater mineralized volume in the central portion.

Figure 7-4. Iso-Nitrate Map Nueva Victoria West Mine Sector



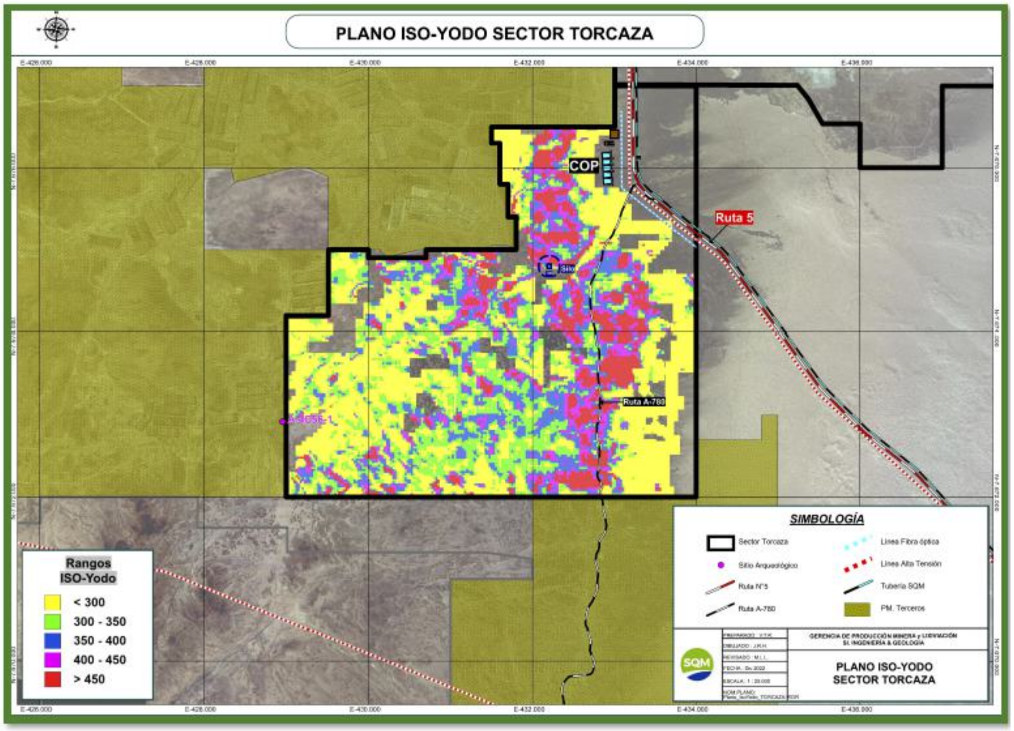
The results of the drilling campaigns in the TEA and Hermosa sectors are shown in Figure 7-5. Sectors with nitrates greater than 5.0% are highlighted in red, nitrates between 3.0 – 5.0% in green, and nitrates less than 3.0% in yellow. The mineralized bodies in TEA and Hermosa show greater continuity in nitrate mineralization in the central, north-east, and south-east portions, being the west sector of low continuity and greater irregularity.

Figure 7-5. Iso-Iodine Map Nueva Victoria; TEA and Hermosa Sector



The results of the drilling campaigns in the Torcaza sector are shown in Figure 7-6. Sectors with nitrates greater than 5.0% are highlighted in red, nitrates between 3.0 – 5.0% in green and nitrates less than 3.0% in yellow. The mineralized bodies at Torcaza are continuous and regular in the eastern portion, while in the western portion, the mineralization is discontinuous and irregular.

Figure 7-6. Iso-Iodine Map Nueva Victoria TEA en Torcaza sector



7.1.5 2022 Campaigns.

SQM has an ongoing program of exploration, recategorization and resource evaluation in the areas surrounding the Nueva Victoria mine, which is currently in operation. SQM has performed reconnaissance drilling at 400 m spacing or lower in 18.91% of the area covered by its mining properties over the areas with caliche interest. (Table 7-2 and Table 7-3).

In 2022, a Mineral Resource recategorization project was carried in the TEA sector and its surroundings, to have exploitable Mineral Reserves for the development of the Five-Year Plan.

For this purpose, 5,957 drill holes representing 31,523 m were carried out, at an estimated cost of 115.7 USD/m; obtaining total salt analysis sample by sample. With this information, the TEA SUR, Franja Oeste, Hermosa Oeste, Iris Vigia and Pampa Blanca will be recategorized, expecting to obtain resources for 44 Mt.

Table 7-2. Meters Drilled in Campaigns 2022

Project / Area	Holes Drilled	Total Meters
TEA Sur	995	5,316
Franja Oeste	2,579	12,835
Hermosa Oeste	284	1,365
Iris Vigia	285	1,418
Pampa Blanca	1,814	10,589
Total	**5,957**	**31,523**

Table 7-3. Campaigns 2022 Average $NaNO_3$ and I_2

Project / Area	Holes Drilled	Average NaNO3 (%)	Average I2 (ppm)
TEA Sur	995	4.3	403
Franja Oeste	2,579	4.1	401
Hermosa Oeste	284	5.8	428
Iris Vigia	285	3.3	406
Pampa Blanca	1,814	5.8	491
Total	**5,957**	**4.7**	**430**

7.1.6 Exploration Drill Sample Recovery

Core recovery has been calculated for all RC holes completed to date. In historical campaigns, the recovery was lower due to the type of drilling rig used.

Since 2015, the drilling equipment was adapted, which allowed a decrease in the loss of material and consequently an improvement in sample recoveries. It should be noted that the recoveries are above 80%, a value that fluctuates in direct relation to the degree of competence of the rock to be drilled, having for example lower recoveries in Franja Oeste and Pampa Engañadora, which present semi-soft caliches of low compaction. Sectors such as Hermosa and TEA have recoveries close to 90% as they correspond to caliche sectors with high competition and mineralization. Table 7-4 details the recovery percentages by sector in Nueva Victoria. Recoveries in sectors such as Fortuna and Cocar correspond to historical campaigns where there is no recovery information.

Table 7-4. Recovery Percentages at Nueva Victoria by Sectors

SQM Property	Sector	EIA	Grid	N° of Drill Holes	Total Meters	Core Recovery (%)
Soronal	Fortuna	Hermosa	100	1,021	5,105	No Data
	Hermosa	Hermosa	100 - 100T	8,350	41,695	89
	Tente en el Aire	Hermosa	100 - 100T - 200	7,313	36,565	89
	Hermosa Oeste	TEA	200 - 400	1,496	8,637	84
	Coruña	Hermosa	100	1,038	6,228	No Data
	TEA Oeste	TEA	200 - 400	560	3,360	85
	TEA Sur	TEA	100T	1,165	6,336	87
	Cocar	TEA	100 - 200	1,015	5,075	No Data
	Pampa Engañadora	TEA	200 - 400	1,225	7,350	82
	Franja Oeste	TEA	200 - 100T	4,009	19,985	83
Nueva Victoria & Iris	Oeste 3	TEA	50 - 100	485	2,183	84
	Mina Oeste	Nueva Victoria	50 - 100	18,350	64,225	90
	Mina Norte	Nueva Victoria	50 - 100	21,165	74,078	83.5
	Mina Sur	Nueva Victoria	50 - 100	24,115	84,403	94
	Iris Vigia	Nueva Victoria	200 - 100T	825	3,578	87
	Torcaza	Torcaza	50 - 100 - 200	4,400	22,000	88.1
				96,532	**390,802**	

7.1.7 Exploration Drill Hole Logging

For all the samples drill hole logging was carried out by external and internal personnel, which was done in the field. Since 2015 ARVI Mining Limited is the company in charge of logging activities in Nueva Victoria. SQM personnel validated the logs through periodic reviews. Logging procedures used documented protocols. Geology logging recorded information about rock type, mineralogy, alteration and geomechanics.

The logging process included the following steps:

Measurement of the “destace” and drill hole using a tool graduated in cm.

Mapping of cutting (RC) and/or drill hole cores (DDH), defining their color, lithology, type and intensity of alteration and/or mineralization.

Determination of geomechanical units → Leached, smooth, rough and intercalations.

The information is recorded digitally with a Tablet and/or computer, using a predefined format with control system and data validation in Acquire. This Platform was incorporate by SQM as database administrator for all its sites in 2022.

The Supervisor Logging Geologist from external contractor was responsible for:

Generate geological data of the highest possible quality and internal consistency, using established procedures and employing System in Acquire.

Locate and verify information of work to be mapped.

Execute geomechanical and lithological drill hole mapping procedures.

Supervise field activities. And coordinate and report permanently to SQM personnel on the progress and execution of the work carried out according to the program.

7.1.8 Exploration Drill Hole Location of Data Points

The process of measuring the coordinates of drill holes collars was performed, in 2 stages. Prior to the drilling of the drill holes, the geology area generates a plan and list with the number of drill holes by Acquire, to be marked and coordinates to the personnel of the external contractor of the STG company. A Land surveyor measured the point in the field and identifies the point with a wooden stake and an identification card with contain barcode with information of number of drill hole recommended, coordinates and elevation.

Holes are surveyed, after drilling, with GNSS equipment, for subsequent processing by specialized software with all the required information. Once the complete campaign is finished, the surveyed data was reviewed, and a list was sent with the drill id information and its coordinates.

Collar coordinates were entered into Microsoft® Excel sheets and later aggregated into a final database in Acquire by personnel from the SQM.

At the completion of drilling, the drill casing was removed, and the drill collars were marked with a permanent concrete monument with the drill hole name recorded on a metal tag on the monument.

7.1.9 Qualified Person's Statement on Exploration Drilling

The Qualified Person believes that the selection of sampling grids of gradually decreasing spacing as Mineral Resources areas are upgrades from Inferred to **Measured Mineral Resources** and as they are further converted to Proven, and Probable Mineral Reserves where production plans have been applied, is appropriate and consistent with good business practices for caliche mining. The level of detail in data collection is appropriate for the geology and mining method of these deposits.

8 SAMPLE PREPARATION, ANALYSIS AND SECURITY

SITE SAMPLE PREPARATION METHODS AND SECURITY

Analytical samples informing Nueva Victoria Mineral Resources were prepared and assayed at the Iris plant and Internal Laboratory located in city of Antofagasta.

All sampling was completed by the external operators. Based on review of the procedures during the site visit and subsequent review of the data, it is the opinion of the QP that the measures taken to ensure sample representativeness were reasonable for estimating Mineral Resources.

8.1.1 RC Drilling

The RC drilling is focused on collecting lithological and grade data from the “Caliche mantle”. RC Drilling was carried out with a 5 ½ inch diameter by an external company "Perforations RMuñoz" under the supervision of SQM, both parties were coordinate to establish the drilling points. Once the drilling point was designated, the positioning of the drilling rig was surveyed, and the drill rig was set up on the surveyed drill hole location. (A and B).

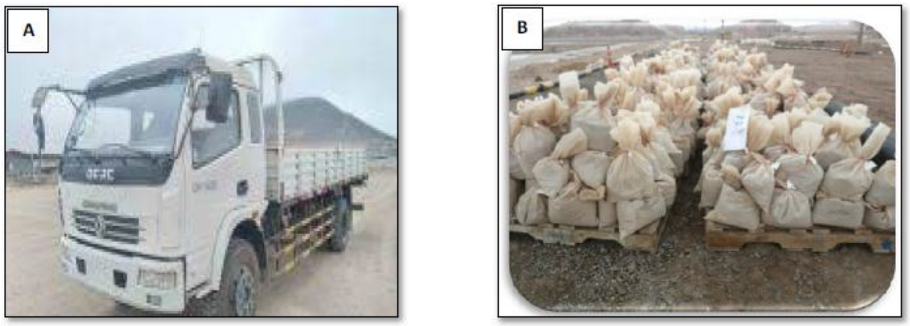
Once set up, drilling commenced (Figure 8-1 C). At the beginning of each drill hole, the drilling point was cleaned or uncovered, eliminating the soft overburden, or chusca, with a backhoe.

Samples were collected from the cyclone at continuous 50 cm intervals in plastic bags. The samples were weighed and quartered at the platform. A cutting sample was taken and left on the floor as a control sample. The sample bag was tied, and a number card was inserted. (Figure 8-1 D).

Figure 8-1. A) Drilling Point Marking B) Drill Rig Positioning C) RC Drilling D) RC Samples at Platform

Samples were transported by truck to the plant for mechanical preparation and chemical analysis. Samples were unloaded from the truck in the correct correlative order and positioned on Pallets supplied by the plant manager. (Figure 8-2).

Figure 8-2. A) Transportation Truck. B) Pallets with RC Samples



8.1.2 Sample Preparation

Mechanical sample preparation was carried out by Pilot Plant Iris V7 located at Nueva Victoria. Sample preparation includes (Figure 8-3)

Division of the sample in a cone splitter into 2 parts, one of which corresponds to discard. The sample obtained should weigh between 1.0 to 1.8 kg.

Drying of the sample in case of humidity.

Sample size reduction using cone crushers to produce an approximately 800 g sample passing a number 8 mesh (-#8).

Division of the sample in a Riffle cutter of 12 slots of ½" each. The sample is separated in 2, one of them corresponds to rejection and the other sample must weigh at least 500 g.

Sample pulverizing.

Packaging and labeling, generating 2 bags of samples, one will be for the composites in which 200 g are required (original) and the other will be for the laboratory, in which 150 g are required. (Figure 8-4).

Insertion points for quality control samples in the sample stream were determined. Standards samples were incorporated every 60 samples and duplicates every 20 samples, including the first sample. Samples were shipped in boxes containing a maximum of 65 samples (weighing approximately 15 kg) to the Caliche Iodine Internal laboratory.

Figure 8-3. Sample Preparation Flow Diagram

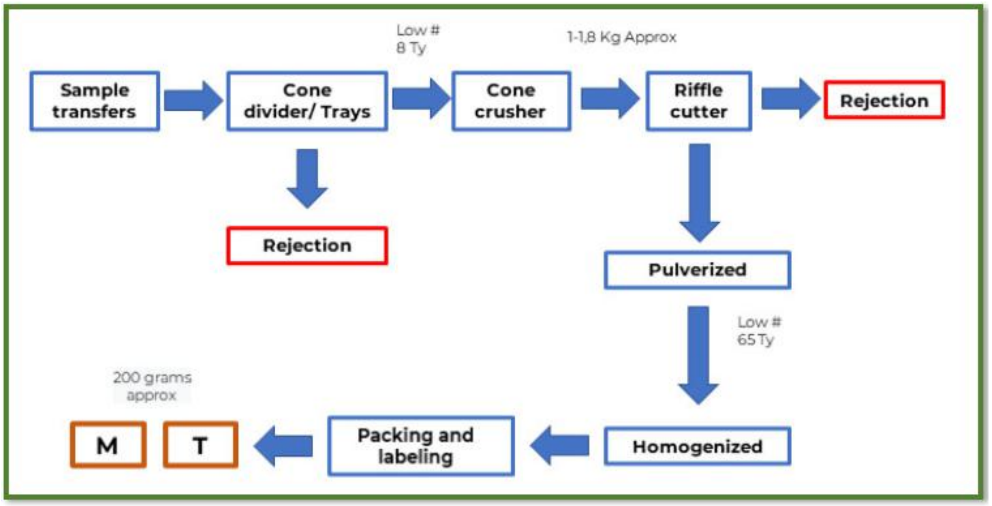


Figure 8-4. A) Sample Division B) Cone Crusher C) Riffle Cutter D) Sample Pulverizing E) Packaging

LABORATORIES, ASSAYING AND ANALYTICAL PROCEDURES

Chemical analysis for NO3 an iodine was performed at the Caliche Iodine laboratory, located Antofagasta. Which is ISO 9001:2015 certified in shippable iodine, replicated in caliche and drill holes.

The caliche iodine laboratory has capacity to analyze 350 samples/day for nitrate and iodine analysis. Sample handling, from receipt to analysis, is performed in 4 areas:

- Receiving and pressing area
- Nitrate area
- Redox volumetric area
- XRF Equipment area

Nitrate analysis was performed by UV-Visible Molecular Absorption Spectroscopy. The minimum concentration entered the laboratory information Management System (LIMS) system was 1,0%, the result was expressed in % of NaNO3. Iodine analysis was performed by Redox volumetric and X-ray Fluorescence. The minimum concentration reported to the LIMS system was 0,005%.

RESULTS, QC PROCEDURES AND QA ACTIONS

8.1.3 Laboratory Quality Control

To validate the results of the laboratory analysis, the following control measures were carried out (Figure 8-5)

Iodine:

- Prepare a reference standard .
- Use of primary reference material.
- Measure the reference standard and the reagent blank to ensure the quality of the reagents used.
- Every 10 samples a QC of 5 g/L prepared with a salt of a NaNO3.
- Of the obtained result should not exceed 2% of the nominal value of the QC, otherwise the variables should be revised, and the analysis of the batch should start from the beginning.

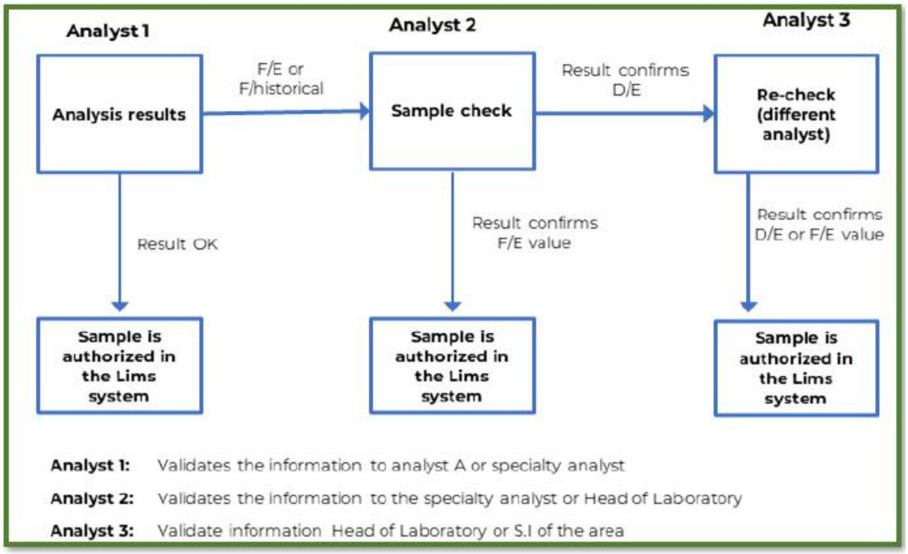
Nitrate:

Analyze at the beginning of the sample set a standard solution.

- Every 5 samples a QC of 8 g/L prepared with a solution of 1 mg/L of a $NaNO_3$ salt is measured, the variation of the obtained result should not exceed 5% of the nominal value of the QC, otherwise the variables should be revised, and the analysis of the batch should start from the beginning.

Solutions for human progress

Figure 8-5. Flow Chart for Approval of Laboratory Chemical Analysis Results



8.1.4 Quality Control and Quality Assurance Programs (Qa-Qc)

Qa/Qc programs were typically set in place to ensure the reliability and trustworthiness of the exploration data. They include written field procedures of aspects such as drilling, surveying, sampling, and assaying, data management, and database integrity.

Analytical control measures typically involved the internal laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. Assaying protocols typically involve regular duplicate assays and insertion of Qc samples.

SQM has a systematic QA/QC program controlled by Acquire; which included the insertion of different control samples into the sampling stream:

Coarse duplicate → 2% (1 every 50).

Analytical duplicate → 5% (1 per 20).

Standard → 1.7% (1 per 60).

Acquire and LIMS software managed the quality control by automatically checking the refined control samples and the Standards entered the system, generating warnings at the time of analysis.

2017 to 2020

The results of the QAQC program for the Nueva Victoria Sector from 2017 to 2020 and Hermosa sectors are detailed below.

Table 8-1 details the number of samples inserted for each of the controls and the variables analyzed.

Table 8-1. Number of Control Samples for Campaigns from 2017 to 2020 for Nueva Victoria Sectors.

Sector	Year	Control Type			Variable	
		Coarse Duplicate	Standard	Duplicates	Nitrate	Iodine
TEA	2017	298		298	x	x
TEA	2018-2019	492	630	1,815	x	x
Hermosa	2019-2020	559		559	x	x

a) TEA 2017

For the 2017 campaign, 298 coarse duplicates were inserted. Nitrate gives a good precision without bias. (Figure 8-6 and Table 8-2). Iodine presents low concentrations (ppm), so a lower precision is observed probably due to a nugget type effect, however no bias is observed (Figure 8-7 and Table 8-3).

Table 8-2. Coarse Duplicates for Nitrate TEA 2017

Statisticians	Nitrate Grade %		Difference	Error
	Original	Check	Original - Check	
Number	298	298		
Mean	4.0	4.2	0.135	0.091
Stand. Deviation	3.39	3.46	1.56	
% Difference	103.35			
Test T	0.137			
Minimum	1.0	1.0		
Percentile 25	2.0	2.1		
Median	2.9	3.1		
Percentile 75	4.6	4.8		
Maximum	20.0	20.0		
Correlation Index		**0.90**		

Figure 8-6. Scatterplot for Nitrate - Coarse Duplicates- TEA 2017

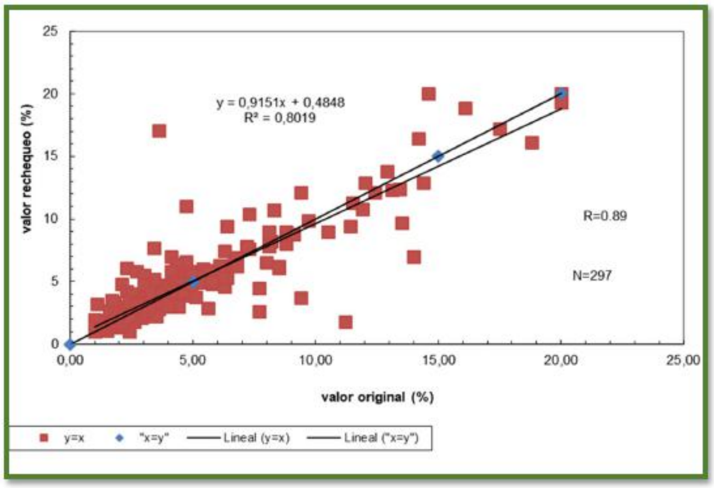
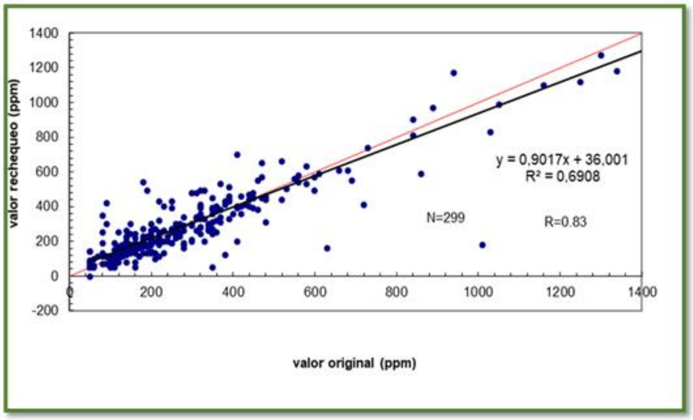


Table 8-3. Coarse Duplicates for Iodine-TEA 2017

Statisticians	Iodine Grade ppm		Difference	Error
	Original	Check	Original - Check	
Number	298	298		
Mean	285.1	285	-0.067	6.03
Stand. Deviation	229.86	213.83	103.94	
% Difference	99.98			
Test T	0.99			
Minimum	50	50		
Percentile 25	140	130		
Median	220	230		
Percentile 75	360	390		
Maximum	1,660	1,270		
Correlation Index		**0.89**		

Figure 8-7. Plots for Iodine - Coarse Duplicates TEA 2017



b) TEA 2018 -2019

Coarse Duplicate:

The analysis of the drilling campaign conducted at TEA shows that for Nitrate good precision is observed with no apparent bias. Iodine shows low concentrations (ppm), with lower precision, probably due to a nugget type effect, however no bias is observed. (Figure 8-8 and Table 8-4).

Table 8-4. Coarse Duplicates for Iodine and Nitrate TEA 2018-2019

Statisticians			
Iodine ppm	**Original**	**Duplicate**	**Difference**
Number	492	492	
Average	3.1	3.1	0.0
Median	2.4	2.4	0.0
Variance	5.5	5.9	0.5
Max	19.7	20.0	2.2
Min	1.0	1.0	-2.5

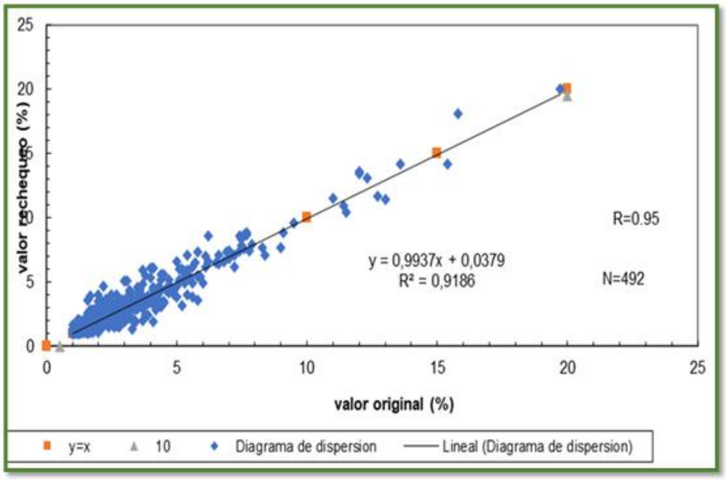
Test T	-0.277
Corr. Coefficient	**0.96**

Statisticians			
Nitrate %	**Original**	**Duplicate**	**Difference**
Number	492	492	
Average	277.1	269.5	7.6
Median	260	250	10
Variance	10,967.7	11,821.3	2,968.4
Max	820	770	190
Min	50	70	-170

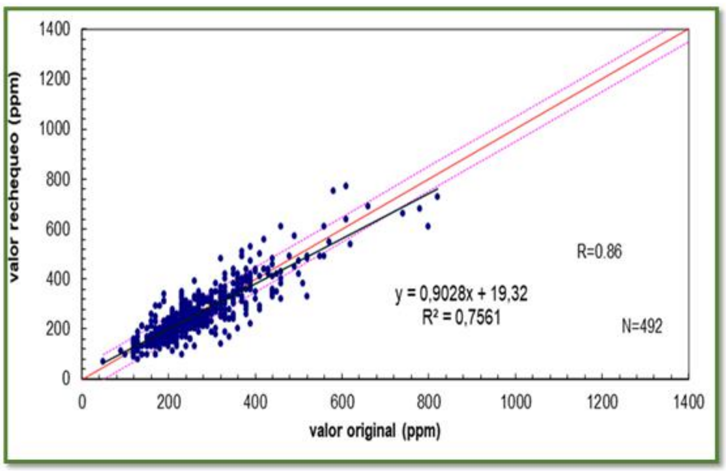
Test T	-0.001
Corr. Coefficient	**0.87**

Figure 8-8. Plots for Iodine and Nitrate - Coarse Duplicates- TEA 2018-2019

Nitrate Coarse Core



Iodine Coarse Core



Standard:

The ranges of variation of the analyses with respect to the standards used by SQM vary in nitrate by ± 0.35 to ± 0.53 % and for iodine ± 50 to ± 60 ppm. (Table 8-5).

Table 8-5. Standards Results - TEA 2018-2019

Nitrate %		
Date	**Rank +/-**	**Data**
Sept-18	0.35	87
Oct-18	0.53	87
Nov-18	0.45	66
Dec-18	0.46	114
Jan-19	0.46	163
Fec-19	0.46	113
Total Data		**630**

Iodine ppm		
Date	**Rank +/-**	**Data**
Sept-18	60	87
Oct-18	60	87
Nov-18	50	66
Dec-18	50	114
Jan-19	50	163
Fec-19	50	113
Total Data		**630**

Fine duplicates:

The ranges of variation of the analyses present a very good performance for nitrate and for iodine, showing no biases and with very good correlation between the original sample and the duplicate sample (Figure 8-9 and Table 8-6).

Table 8-6. Fine Duplicates for Iodine-and Nitrate TEA 2018-2019

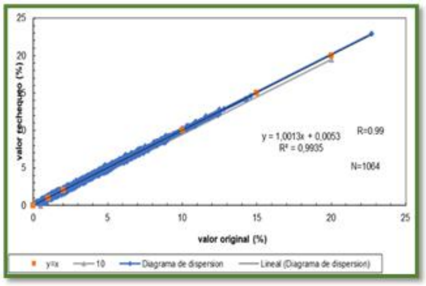
Statisticians			
Nitrate %	**Original**	**Duplicate**	**Difference**
Number	1,815	1,815	
Average	3.38	3.38	-0.01
Median	2.5	2.5	0
Variance	6.75	6.78	0.03
Max	22.7	22.9	0.5
Min	1.0	0.2	-0.6

Test T	-0.062
Corr. Coefficient	**0.99**

Statisticians			
Iodine ppm	**Original**	**Duplicate**	**Difference**
Number	1,815	1.815	
Average	290	290	0
Median	260	250	0
Variance	33,106	33,968	1,141
Max	2,500	2,530	130
Min	20	20	-140

Test T	-0.411
Corr. Coefficient	**0.98**

Figure 8-9. Plots for Nitrate and Iodine Fine Duplicates TEA 2018-2019



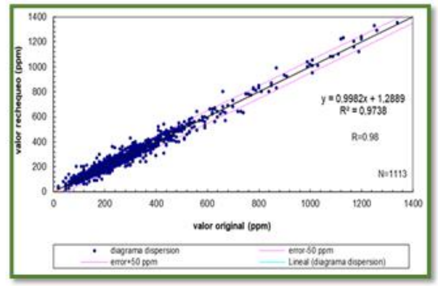
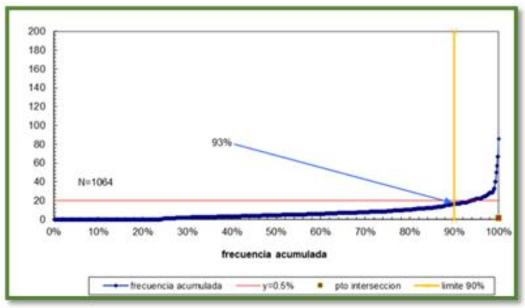
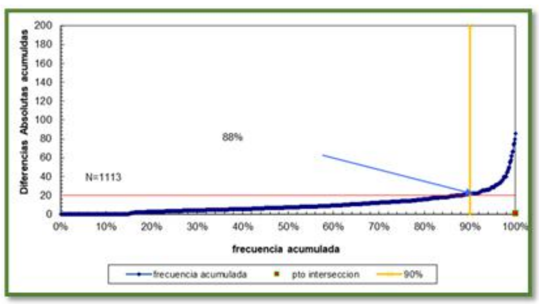


Figure 8-10. Plot Cumulative Absolute Difference for Nitrate and Iodine Fine Duplicates TEA 2018- 2019

Nitrate Plot





Graph represents the behavior of the accumulated absolute differences of all the samples analyzed by the laboratory. Using as a decision tool what is recommended by MRDI to accept the control analysis process, that in at least 90% of cases (cumulative frequency), the accumulated absolute difference should not exceed 20%.

In the laboratory the figure is 93% for nitrate and 88% for iodine, therefore its performance from the point of view of accuracy, is acceptable.

c) Hermosa 2019 - 2020

Coarse Duplicate:

The analysis of the drilling campaign conducted at Hermosa shows that for Nitrate good precision is observed with no apparent bias. Iodine shows low concentrations (ppm), with lower precision, probably due to a nugget type effect, however no bias is observed. (Figure 8-11 and Table 8-7).

Table 8-7 Coarse Duplicate for Nitrate and Iodine Hermosa 2019

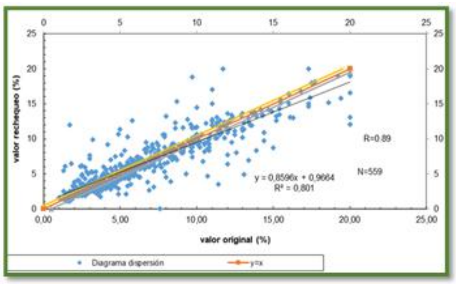
Statisticians			
Nitrate %	**Original**	**Duplicate**	**Difference**
Number	559	559	
Average	6.842	6.848	-0.006
Median	5.8	6	-0.2
Variance	17.962	15.569	2.393
Max	20	20	0
Min	1.0	1.0	0.0

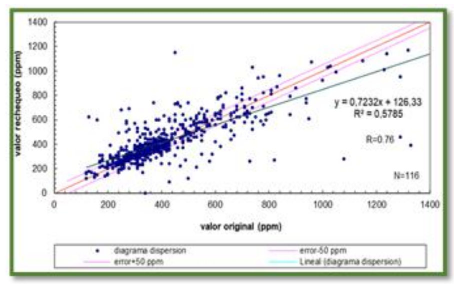
Test T	1.96
Corr. Coefficient	**0.81**

Statisticians			
Iodine ppm	**Original**	**Duplicate**	**Difference**
Number	559	559	
Average	439.9	444.4	-4.54
Median	370	380	-10
Variance	57,900.9	52,344.5	5,556.4
Max	2,000	2,000	0
Min	120	50	70

Test T	1.96
Corr. Coefficient	**0.76**

Figure 8-11. Plot for Nitrate Coarse Duplicate Hermosa 2019





8.1.5 Sample Security

SQM maintains strict control over sampling, mechanical sample preparation and chemical analysis. In each of the stages, the safety and chain of custody of the samples was safeguarded, using protocols that describe the steps to be followed for this purpose. All these controls are managed and controlled through the Acquire platform, in process of implement by SQM since Q3 2022, according to the follow sections.

This section highlights your current processes and procedures and introduces data management processes recommended for deployment in GIM Suite.

The following workflow architecture demonstrates the data flow and object requirements of GIM Suite.

Planning RC Drilling.

Current Situation: The drillings are planned by the geology area using modeling software, which generates an Excel file containing a previous identification of the drilling, which will later be modified for the final identification, along with the east and north coordinates and the planned depth are also indicated. This planning file is delivered to the outsourced company that will drilling the drill in the field. Below is an example of a planning file:

Id	Este	Norte	Profundidad
TEAO_0001	408,750	7,701,050	6.00
TEAO_0002	408,850	7,701,050	6.00
TEAO_0003	408,950	7,701,050	6.00
TEAO_0004	409,050	7,701,050	6.00
TEAO_0005	409,150	7,701,050	6.00
TEAO_0006	409,250	7,701,050	6.00
TEAO_0007	409,350	7,701,050	6.00
TEAO_0008	409,450	7,701,050	6.00
TEAO_0009	409,550	7,701,050	6.00
TEAO_0010	409,650	7,701,050	6.00
TEAO_0011	409,750	7,701,050	6.00
TEAO_0012	409,850	7,701,050	6.00
TEAO_0013	408,800	7,701,100	6.00
TEAO_0014	408,900	7,701,100	6.00
TEAO_0015	409,000	7,701,100	6.00

Solution to executed:

The proposed solution includes the following workspace objects:

Objects	Description
Import Planned Drilling	This import task into Arena should allow the user to import the planned drill hole data from the file. Coordinates must be entered in PSAD56. The object must enter the status of the drilling as Planned at the time of import, as well as store the identification of the probing planning in a virtual field. Template file for importing planned drillholes,
See planned drilling	Task in "Arena" that will show the information of the planned drillings.

8.1.5.1.1 Header:

Current Situation:

In general, a drilling planning can take up to 30 thousand meters of drilling, where between 4 thousand and 5 thousand meters per sector is applied, each drilling equipment in general works for 1 month and a half, the contractor company executes the drilling and monthly delivers to the geology area the file with the information taken in the field, some drilling that was planned may eventually not be executed due to poor conditions of the premises.

Each sheet of the Excel file corresponds to a drilling equipment, from this file the data of the following columns are taken.

Data	Description
Drilling	Final identification of Drill
Date	Date of execution
Diameter	Diameter of Drill
Accounting account	Project cost center
Grid	Spacing of Drill
Sector	Identification of drilled sector
Sample	Identification of original field-generated sample
From	Start section Sample Original
To	Final stretch original sample
Weight	Sample mass
Hardness	Compaction of the perforated section
Start time	Sampling start time
Completion Time	Sampling completion time
RPM	Revolutions per minute
Pull Down	Measure of force exerted by equipment to execute drilling
Sample Original	Identification of the parent sample of the duplicate terrain
Sample Check	Duplicate land identification

The original samples are taken at a depth after the highlight section, thus considering that the samples are not taken at the zero depth of the drilling, the samples usually have sections of 50 cm.

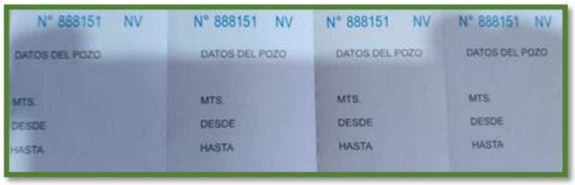
In this file they are also indicated in which samples were made the checks of field duplicates, these duplicates are indicated by the company that carried out the drilling, in the protocol the duplicates are made every 5 drilling.

The correlative of the samples is controlled by a checkbook used in the field that is delivered by the geology team before starting the drilling campaign, with this if they indicate the identifications of the originals, being that for the identification of the duplicate it is always applied as the last correlative associated with the drilling.

PROYECTO	SONDAJE	N_REPLANTEO	SUP	FECHA	DIAM	ESTE	NORTE	COTA	COD CAM	CTA.CTBLE	MALLA	TIPO	GEOL	SECTOR
RECATEGORIZACION TORCAZA	**87854L**	**TZ-238**	**A.C**	**11/27/2021**	**5.25**	**433,300**	**7,672,450**	**SD**	**01-21**	**12IO46701**	**T50**	**SONDAJE**	**??**	**TORCAZA**
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	**87855L**	**TZ-239**	**A.C**	**11/27/2021**	**5.25**	**433,350**	**7,672,450**	**SD**	**01-21**	**12IO46701**	**T50**	**SONDAJE**	**??**	**TORCAZA**

FECHA	DESTAC	SOBCAB	MUESTRA (extension TLA)	FROM	TO	PESO	COMP	TPO INI HH	TPO INI MM	TPO INI SS	TPO FIN HH	TPO FIN M	TPO FIN	RPM	P. DOWN
??	**0.20**	**0.00**	-1												
??	0.20	0.00	835354	0.20	0.70	15.0	2	0	0	0	0	2	33	98	500
??	0.20	0.00	835355	0.70	1.20	15.0	2-3	0	2	33	0	6	16	94	900
??	0.20	0.00	835356	1.20	1.70	17.0	3	0	6	16	0	8	29	94	900
??	0.20	0.00	835357	1.70	2.20	15.0	3	0	8	29	0	9	50	94	900
??	0.20	0.00	835358	2.20	2.70	17.0	3	0	9	50	0	11	23	98	700
??	0.20	0.00	835359	2.70	3.20	15.0	3	0	11	23	0	13	0	98	700
??	0.20	0.00	835360	3.20	3.70	15.0	3	0	13	0	0	14	21	98	700
??	0.20	0.00	835361	3.70	4.20	15.0	3	0	14	21	0	16	53	98	700
??	0.20	0.00	835362	4.20	4.70	17.0	3	0	16	53	0	18	17	98	700
??	0.20	0.00	835363	4.70	5.20	15.0	3	0	18	17	0	19	45	98	700
??	**0.30**	**0.00**	-1												

Example sample book occupied in the field with sample identification.



Continuing with the collar data, once the drilling is done, the surveying company performs the final coordinates of the drilling, delivering as a result an Excel file with the north, east, elevation data for each drilling executed. The final coordinates cannot have a difference greater than 10% of distance from their planned coordinate.

In the file the surveyor indicates that the drilling was not found in the field, indicating that they were eliminated.

Example file delivered by surveying company.

	NORTE	ESTE	ELEVACION	N° SONDAJE		
1	7686548.66	422244.349	1095.84	90097L	Corrido en terreno	
2	7686598.96	422293.23	1093.309	90096L	Corrido en terreno	
3	7686547.89	422341.558	1089.559	90098L	Corrido en terreno	
4	7686598.77	422393.755	1088.889	90095L	Corrido en terreno	
5	7686547.11	422443.379	1086.939	90099L	Corrido en terreno	
6	7686597.94	422493.942	1087.362	90094L	Corrido en terreno	
7	7686546.85	422533.12	1085.654	90100L	Corrido en terreno	
8	7686599.43	422579.95	1083.569	89892L	Corrido en terreno	
9	7686548.05	422634.1	1082.192	90808L	Corrido en terreno	Revisar N° de placa
10	7686597.14	422684.165	1080.857	89895L	Corrido en terreno	
11	7686547.19	422734.838	1078.775	90802L	Corrido en terreno	Revisar N° de placa
12	7686448.38	422732.532	1079.186	90804L	Corrido en terreno	Revisar N° de placa
13	7686499.13	422683.097	1080.583	90503L	Corrido en terreno	Revisar N° de placa
14	7686448.96	422632.374	1081.936	90883L	Corrido en terreno	
15	7686495.32	422587.789	1084.154	90104L	Corrido en terreno	
16	7686448.84	422535.13	1084.244	90882L	Corrido en terreno	
17	7686492.91	422483.54	1084.822	90805L	Corrido en terreno	Revisar N° de placa
18	7686449.78	422433.478	1085.25	90888L	Corrido en terreno	
19	7686498.2	422383.787	1087.035	90806L	Corrido en terreno	Revisar N° de placa
20	7686448.74	422333.377	1088.694	90880L	Corrido en terreno	
21	7686498.52	422282.956	1091.434	90807L	Corrido en terreno	Revisar N° de placa
22	7686502.79	422184.806	1096.079	90508L	Corrido en terreno	Revisar N° de placa
23	7686458.28	422247.164	1093.016	90509L	Corrido en terreno	Revisar N° de placa
24	7686398.3	422282.357	1090.277	MOACF 101	Corrido en terreno	Placa ilegible

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Import Final Drills	Object of import in Acquire 4 that allows the user to import the collar data of the final drillings, also considering the import of the original samples and their respective duplicates of terrain. Due to the geology having the same stretch as the geological mapping, it is indicated to occupy the compound of blastholes for the storage of this data.
Data Capture Collar	Data Capture of Sand based on Blastholes, which will be used in the field for the capture of collar and sample data, where you must indicate the sounding that the duplicate ground sample can take, the section of the first sample will be entered manually by user, once it must consider the highlight section of the drilling, The subsequent sections may be indicated automatically by the application, considering as a protocol that the samples original is usually 50 cm in size. The correlative of the samples will continue to be controlled by the checkbooks occupied in land, the user must manually enter the correlative of the first sample taken in the field, the correlative of the subsequent samples will be entered automatically by the application. In this Data Capture, the user can also change the status of the probe as Canceled, thus identifying the drilling that was not executed in the field.
Import Final Coordinates	With this importer object of the Acquire 4, the user will enter the final coordinates data of the drillings, the importer will validate if the final coordinates contain a difference in meters greater than 10% in relation to the planned coordinates, indicating a message to the user at the time of data entry.
Consult probing collar	Task in "Arena" that will show the information of the necklace of the soundings.
Dashboard Planned vs Executed Meters	Dashboard in Sand that presents a graph and grid with information of the planned meters on the perforated meters, thus providing additional information to control the meters of the drilling campaigns. The data can be filtered by date of execution of the drilling and sector of the mine.
Choose Sample Correlates	Data Entry object in Acquire 4 that will allow the user to enter a range of correlative samples making it possible to choose which samples will be printed the labels. Occupy METAIMPORTALISES table to manage the data entered for the printing of samples. The Fields will be entered as follows: CATEGORY = TAGS; SUBCATEGORY= GENERATED, PRINTED; SOURCE VALUE = Value of the initial SAMPLE ID; ALIAS VALUE = Value of the final SAMPLE ID. The object must appear with an ERROR message if there are samples generated with some SAMPLE ID within the range indicated by the user. The object must indicate the initial SAMPLE ID to be printed, so that user error is avoided.
Sample Label Report	Report in Acquire 4 that allows the user to print sample labels in the format of the checkbook, the report will be applied on an A4 or Letter size paper, considering that the printing will be made on a cardboard paper. The label will have the barcode with the identification of each sample, thus enabling the user to read the barcode with the tablet camera when entering the identification of the first sample

8.1.5.1.2 Geological mapping

Current Situation:

The mapping is done offline where the geologist occupies a spreadsheet entering the geological data associated with the data delivered by the drillers, the geology is entered associated with each section of sample generated in the drilling.

In the geological mapping, data on lithology, clasts, clays, color, sulfate, salt crust, anhydrite crust, sulfate destace, percentage of clasts and observation are captured.

In the same file, geomechanical mapping is also performed, where a code that is related to the intercalations of the rock in the wall of the drilling is captured.

ropuesto	Sobrecarga	Total muestras	Muestra	from	to	Litología	Clastos	Arcillas	Color	Sulfato	Costra salina	Costra anhidrita	Sulfato destace	% clastos aprox.	observacion
HSE-522	0.1	10	1	0.1	0.6	2	5	1	3	1		COSTRA ANHIDRITA		30	
HSE-522	0.1	10	2	0.6	1.1	2	5	1	3	1				40	
HSE-522	0.1	10	3	1.1	1.6	2	5	1	3	1				40	
HSE-522	0.1	10	4	1.6	2.1	2	5	1	3	1				40	
HSE-522	0.1	10	5	2.1	2.6	2	5	1	3	1				30	
HSE-522	0.1	10	6	2.6	3.1	2	5	1	3	1				40	
HSE-522	0.1	10	7	3.1	3.6	2	5	1	3	1				40	
HSE-522	0.1	10	8	3.6	4.1	2	5	1	3	1				40	
HSE-522	0.1	10	9	4.1	4.6	2	5	1	3	1				>50	
HSE-522	0.1	10	10	4.6	5.1	2	5	1	3	1				>50	
HSE-521	0.2	10	1	0.2	0.7	2	5	1	2	1		COSTRA ANHIDRITA		10	
HSE-521	0.2	10	2	0.7	1.2	2	5	1	2	1				10	
HSE-521	0.2	10	3	1.2	1.7	2	5	1	3	1				>50	
HSE-521	0.2	10	4	1.7	2.2	2	5	1	3	1				>50	
HSE-521	0.2	10	5	2.2	2.7	2	5	1	3	1				>50	
HSE-521	0.2	10	6	2.7	3.2	2	5	1	3	1				>50	
HSE-521	0.2	10	7	3.2	3.7	2	5	1	2	1				40	
HSE-521	0.2	10	8	3.7	4.2	2	5	1	2	1				40	
HSE-521	0.2	10	9	4.2	4.7	2	5	1	2	1				40	
HSE-521	0.2	10	10	4.7	5.2	2	5	1	2	1				40	

MAPEO GEOMECANICO INTERCALACIONES			
10	LIXIVIADO	50	INTERCALACION B
20	USO	60	INTERCALACION C
30	RUGOSO	XY	MIXTO
40	INTERCALACION A	9	ATERRADO

C O D I G O S						
COMPACTACION	ARCILLAS	SULFATO	LITOLOGIA		COLOR	
1.- NO COMPACTADO	1.- BAJO	1.- BAJO	1.- LIXIVIADO	10.- ARENISCAS CONGLOMERADICAS	1.- PARDO CLARO	7.- AMARILLO
2.- SEMI COMPACTADO	2.- MEDIO	2.- MEDIO	2.- BRECHA SEDIMENTARIA	11.- FALLAS	2.- PARDO	8.- ROJO
3.- COMPACTADO	3.- ALTO	3.- ALTO	3.- CONGLOMERADOS	12.- OTROS	3.- PARDO OSCURO	9.- VERDE
			4.- ARENISCAS	13.- METASEDIMENTITA	4.- GRIS CLARO	10.- LILA
			5.- ANDESITA	14.- ANHIDRITA	5.- GRIS	11.- NARANJA
			6.- TOBAS	15.- SEDIMENTARIO KT	6.- GRIS OSCURO	12.- BLANCO
			7.- INTRUSIVOS	16.- BRECHA HIDROTERMAL		
			8.- ARCILLOLITAS	17.- ROCA VOLCANICA ALTERADA		
			9.- LIMOLITAS	18.- SIN CUTTING		

Sondaje	Propuesto	Fom	To	Codigo
85218L	HSE-522	0	0.1	10
85218L	HSE-522	0.1	5.1	20
85217L	HSE-521	0	0.2	10
85217L	HSE-521	0.2	1.4	40
85217L	HSE-521	1.4	3.6	30
85217L	HSE-521	3.6	5.2	20
85216L	HSE-520	0	0.1	10
85216L	HSE-520	0.1	5.1	20
84978L	HSE-511	0	0.1	10
84978L	HSE-511	0.1	5.1	20
85220L	HSE-523	0	0.1	10
85220L	HSE-523	0.1	1.3	20
85220L	HSE-523	1.3	3.6	30
85220L	HSE-523	3.6	4.4	20
85220L	HSE-523	4.4	5.1	30
84980L	HSE-513	0	0.2	10
84980L	HSE-513	0.2	2	40
84980L	HSE-513	2	5.2	20
84979L	HSE-512	0	0.3	10
84979L	HSE-512	0.3	5.3	20
84981L	HSE-501	0	0.2	10
84981L	HSE-501	0.2	5.2	20
85190L	HSE-502	0	0.1	10

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Geological Mapping	Data capture in "Arena" that allows the user to perform the geological mapping of the drillings, this tool must allow the user to perform the mapping in the field so that it is not connected to the mine network. The task will occupy Blasthole as the task type.
Import Geologic Mapping	Importer in "Arena" that allows to enter the geological mapping data carried out in the field.
Geomechanic Mapping	Data capture in "Arena" where the geomechanical data of the drilling will be captured. For the data not related to the samples, this data capture must be of the Drillholes type.
Import Geomechanic Mapping	Importer in "Arena" that allows to enter the geomechanical mapping data carried out in the field.
Consult Geology of Drilling	Task in "Arena" that will show the information of the geology of the drillings.
Consult Geomechanic of Drilling	Task in "Arena" that will show the information of the geomechanics of the drillings.

8.1.5.1.3 Dispatch of samples for mechanical preparation

Current Situation:

Once the mapping and sampling is finished, the samples are sent to mechanical preparation, the detail of these samples is in a document that is sent to the pilot plant.


MEMORAMDUN

A Sr.

De Sr.

REF. ENVIO DE MUESTRAS A LABORATORIO

DE Nº al Nº

DE Nº al Nº

DE Nº al Nº

DE Nº al Nº

Muestras sin recuperacion

Total de muestras enviadas a Laboratorio

Observaciones:

Atte. a Ud.

At the time of receipt of the samples in the pilot plant, the responsible person enters in an Excel file the identifications of each of the samples, in this file that manages the sequence of the samples and indicates the position in which the duplicates will be taken, the file considers that every 20 samples a duplicate of pulp is generated.

Pulp duplicates have their own sample identification that is distinct from samples delivered by geology, by convention the nomenclature of the pulp sample carries a correlative as a prefix then a hyphen followed by the correlative of the original sample. The chemical results of the sample generated in the pilot plant are returned from the chemical laboratory, then these results are stored in the geology database.

Duplicados		Codigo de Muestra	N° Caja	Preparadas	Enviadas a Laboratorio	CC	N° Muestra
N	Detalle						
1	Duplicado	847410		x	x		1
		847411		x	x		2
		847412		x	x		3
		847413		x	x		4
		847414		x	x		5
		847415		x	x		6
		847416		x	x		7
		847417		x	x		8
		847418		x	x		9
		847419		x	x		10
		847420		x	x		11
		847421		x	x		12
		847422		x	x		13
		847423		x	x		14
		847424		x	x		15
		847425		x	x		16
		847426		x	x		17
		847427		x	x		18
		847428		x	x		19
		847429		x	x		20
2	Duplicado	847430		x	x		21
		847431		x	x		22
		847432		x	x		23

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Create dispatch order for Physical Sample Preparation	In this object the user can generate the order of dispatch of samples for physical preparation. Create a correlative and identifier for the office number. Example for identification. F2022-0001 where, F = Physical dispatch prefix, 2022 = Year of Shipment, 0001 = Correlative controller per year.
Print dispatch order for Physical Sample Preparation	Object that will allow to execute the printing of the report of shipment order to physical preparation.
Physical Office Reception	Script object in Acquire that allows the user to indicate the samples received in the pilot plant, the object must be filtered by physical dispatch number where it will make available the samples associated with this dispatch, thus enabling the user to select the samples and indicate in the system that these samples were received. The object must indicate and automatically create the pulp samples indicating the position where each one was generated.
Consult Drilling Dispatch to Preparation	Task in Sand that will show the information of the dispatch of the samples of the drilling that were sent to mechanical preparation.
Consult Pulp Samples	Task in Arena that will have the information of the pulp samples in a grid of data associated with the number of the physical dispatch received by the pilot plant

In the drilling stage, before drilling begins, the drill rod was marked to indicate the distance for sampling. The drilling rig was equipped with a cyclone to slow down the particle velocity, under it, a bag is placed to collect the samples.

The collected sample from the cyclone is carefully stored in a plastic bag, then it was identified with a sequential card with a barcode and tied. The Supervisor oversaw requesting a revision to a determined sample of the drilling (coarse sample), originating another sample and of noting the weights obtained in the balance for each cut sample. This data collection is done through the Acquire platform.

The samples were loaded daily onto the truck that will transport them to the sample plant, the following steps are followed:

SQM Supervisor delivers a dispatch guide with the drill holes and the total number of samples to be collected and mentions to the person in charge of the sample plant, the number of samples and the number of samples without recovery, if any. This dispatch guide is generated for Acquire platform.

Samples are loaded sequentially according to the drilling and unloaded in the same way.

Upon arrival at the plant, the corresponding permit must be requested from the area manager, who will provide an unloading guideline, which contemplates how the samples should be positioned on the pallets.

The pallets with samples are moved to the sample preparation area from their storage place to the place where the Cone Splitter is located.

During all stages of sample preparation, special care was taken to maintain the identification of the samples and to clean the equipment after use. The samples already packed and labeled were collected following the instructions for filling boxes of “caliche” samples, respecting the correlative order of the samples, the order in which they must be deposited in the box and the quantity of samples according to the capacity of the box.

The trays were labeled indicating the corresponding information and date (Figure 8-11) are then transferred to the storage place at Testigoteca (core Warehouse) Iris and Testigoteca TEA located at Nueva Victoria (Figure 8-12), either transitory or final, after being sent to the laboratory.

Figure 8-12. A) Samples Storage B) Drill Hole and Samples Labeling

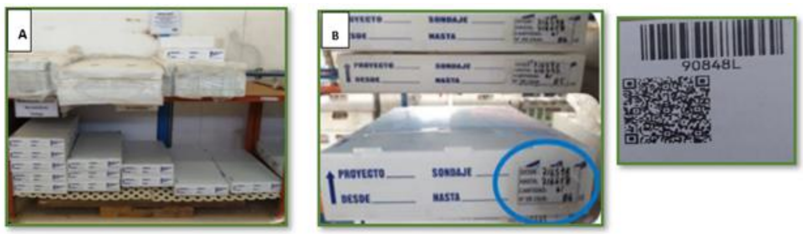


Figure 8-13. Iris – TEA Warehouse at Nueva Victoria

Assay samples were collected by appropriately qualified staff at the laboratories. The analysis results of the samples were reported by the specialty analyst to the LIMS software system, integrated to platform Acquire.

Automatically LIMS triggering an e-mail to the users and only to those who are authorized to send the information.

OPINION OF ADEQUACY

The competent person considers that in what corresponds to the preparation, analysis, safety of the samples and procedures used by SQM in Nueva Victoria complies with the appropriate standard without showing relevant deficiencies that may alter the obtaining of the results derived from the procedures.

9 DATA VERIFICATION

PROCEDURES

Verification by the QP focuses on drilling, sample collection, handling and quality control procedures, geological mapping of drill cores and cuttings, and analytical and quality assurance laboratory procedures. Based on the review of SQM's procedures and standards, the protocols are considered adequate to guarantee the quality of the data obtained from the drilling campaigns and laboratory analysis.

DATA MANAGEMENT

Using the drillings, the recognition of the deposit is carried out in depth and to this is used prospecting grids 400 x 400 m, 200 x 200 m, 100 x 100 m, 100T and 50 x 50 m. Depend on the size of drillhole grid, the Resources are estimated by different interpolations methods (for details see 1.3 Mineral Resources Statement).

The samples obtained from these reverse air drilling campaigns are sent to the internal laboratory of SQM who have quality control standards regarding its mechanical and chemical treatment. QA-QC analyzes are performed on control samples in all prospecting grid → (400 x 400 m, 200 x 200 m, 100 x 100; 100T and 50 x 50m). This QA-QC consists of the analysis of $NaNO_3$ and Iodine concentrations in duplicate vs. original (or primary) samples.

TECHNICAL PROCEDURES

The competent person indicates that in terms of the Chain of Custody (traceability of the place of origin of the samples), subsequent preparation and analysis and security of the samples, SQM applies procedures that ensure optimal obtaining of field and laboratory data; to ensure control and quality of results.

QUALITY CONTROL PROCEDURES

The competent person indicates that in SQM Quality Control ensures the monitoring of samples accurately from the preparation of the sample and the consequent chemical analysis through a protocol that includes regular analysis of duplicates and insertion of samples for quality control.

PRECISION EVALUATION

Regarding the Accuracy Assessment, the Competent Person indicates that the iodine and nitrate grades of the duplicate samples in the 400 x 400, 200 x 200, and 100 x 100 meshes have good correlation with the grades of the original samples; However, it is recommended to always maintain permanent control. In this process, to prevent and detect in time any anomaly that could happen.

ACCURACY EVALUATION

A QA-QC analysis of the campaign is carried out in the Nueva Victoria Sectors for standard/pattern samples, which were carried out and analyzed by the laboratory, the results obtained show that the variation of the analyzes with respect to the standards used by SQM show acceptable margins, with a maximum of ± 0.53% of $NaNO_3$ and 60 ppm of Iodine (Informe 20 F, 2021).

QUALIFIED PERSON'S OPINION OF DATA ADEQUACY

The Competent Person indicates that the methodologies used by SQM to estimate geological resources and reserves in New Victoria are adequate.

The 400 x 400 m drilling grid may imply continuity, average grade of mineralization with a moderate confidence level since there is no certainty that all or part of these resources will become mineral reserves after the application of the modifying factors.

The 200 x 200 m and 100 x 100 drilling grids generate geological information of greater detail being possible to define geological units, continuity, grades, and power. Therefore, at this stage of exploration, sectors for geometallurgical tests can be defined.

Therefore, at this stage of exploration, sectors for geometallurgical tests can be defined. To the extent that the exploration grid is sequentially reduced with drilling 100T and 50 x 50 m, the geological information is more robust, solid which allows a characterization of the mineral deposit with a significant level of confidence. They are called Measured Resources.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

Since 2009, further research has been developed through laboratory tests to continuously improve yield estimation and valuable element recovery such as iodine and nitrate. These efforts, focused on caliche chemical and physical characterization, made it possible to develop a set of strategies that provide a better prediction and recovery projection for each caliche mining area identified, which are and will be processed at Nueva Victoria's plant.

It should be noted that, before Nueva Victoria started operations in 2002, SQM nitrates & iodine explored options to expand and/or optimize iodine production through a trial plan developed at Pedro de Valdivia's process plant to establish an oxidative treatment of the concentrate. These tests demonstrated that it is possible to avoid flotation stage in the conventional process, iodine production process works well using an external oxidizer, and it is economically viable and less costly to build and operate. As such, extensive tests were completed with different iodine brines from different resources to confirm these results, as well as considering the oxidation stages applicable at Nueva Victoria Process Plant.

In 2016, given water scarcity in the north of Chile, industry investigated new sustainable sources of water for its processes. A caliche leaching test plan was performed with seawater, to determine its technical feasibility, positive and negative impacts or metallurgical recovery and performance equivalence. A pilot plant at the plant site demonstrated its feasibility of the leaching process. The historical development of testing has made it possible to differentiate the main categories of caliche types according to their composition and physical behavior. These tests are designed to optimize the process to guarantee compliance with the customer's product specifications and, on the other hand, to ensure that harmful elements can be kept below the established limits.

More than a decade of research on multiple systems has provided a foundation for leaching process, recovery, and production of iodine. This includes a review of trials which have contributed to the development and build-up of current operating procedures.

HISTORICAL DEVELOPMENT OF METALLURGICAL TESTS

In 2009, heap & ponds management created a working group that will be in charge to develop tests to continuously improve yield estimation and valuable elements recovery, such as iodine and nitrate, from heaps and evaporation ponds. In early February 2010, the first metallurgical test work program was presented at the Pilot Plant facility located at Iris sector. Its main objective is to provide, through pilot scale tests, all the necessary data to guide, simulate, strengthen, and generate enough knowledge to understand the phenomenology behind production processes in leaching heaps and evaporation ponds.

The initial work program was framed around the following topics:

Reviewing constructive aspects of heaps.

Study thermodynamic, kinetic, and hydraulic phenomena of the heap.

Designing a configuration in terms of performance and production level.

Work program activities are divided into specializations and the objectives of each activity and methodology followed are summarized in the following table.

Table 10-1. Methodologies of the Test Plan Initially Developed for the Study of Caliche Behavior.

Activity		Objective	Methodology
Heap physical aspects	Pile geometry and height	Optimum dimensions and the effect of height on performance	Mathematical methods and column leaching tests at different heights
	Granulometry	Impact of size and determination of maximum optimum	Leaching tests at three levels of granulometry
	Loading	Impact of loading shape and optimization of the operation	Column percolability with different size segregation in loading
	Wetting requirements	Determination of impact on yield due to wetting effect	Column tests, dry and wet ore
	Caliche characterization	Characterization by mining sector	Chemical analysis, XRD and treatability tests
Hydraulics	Impregnation rate, irrigation and irrigation system configuration	Establish optimums	Mathematical methods and industrial level tests
Kinetics	Species solubilities	Establish concentrations of interferents in iodine and nitrate leaching	Successive leaching tests
	Effect of irrigation configuration	Effect of type of lixiviant	Column tests
	Sequestering phases	Impact of clays on leaching	Stirred reactor tests
System configuration	Pile reworking study	Evaluate impact on yield	Column tests
Solar evaporation ponds	AFN / brine mixture study	Reduction of salt harvesting times	Stirred and tray reactor tests
Routine	Sample processing	Preparation and segregation of test samples	
	Treatability tests	Data on the behavior of caliche available in heaps according to the exploited sector	Column tests
	Quality control of irrigation elements and flowmeters	Review of irrigation assurance control on a homogeneous basis	

This first metallurgical test work plan results in the establishment of appropriate heap dimensions, maximum ROM size and heap irrigation configuration. In addition to giving way to studies of caliche solubilities and their behavior towards leaching. Diagram of chemical, physical, mineralogical, and metallurgical characterization tests applied to all company resources.

SQM, through its Research and Development area, has carried out the following tests at plant and/or pilot scale that have allowed improving the recovery process and product quality:

Iodide solution cleaning tests.

Iodide oxidation tests with Hydrogen and/or Chlorine in the Iodine Plant.

The cleaning test made it possible to establish two stages prior to the oxidation of solution filtration with an adjuvant and with activated carbon. In addition, it is defined that to intensify the cleaning work of this stage, it is necessary to add traces of sulfur dioxide to the iodide solution. Meanwhile, the iodide oxidation tests allowed incorporating the use of hydrogen peroxide and/or chlorine in adequate proportions to dispense with the iodine concentration stage by flotation, obtaining a pulp with a high content of iodine crystals.

Currently, the metallurgical tests performed are related to the physicochemical properties of the material and the behavior during leaching. The procedures associated with these tests are described below.

METALLURGICAL TESTING

The main objective of the tests developed is to be assessing different minerals' response to leaching. In the pilot plant-laboratory, test data collection for the characterization and recovery database of composites are generated. Tests detailed below have the following specific objectives:

Determine whether analyzed material is sufficiently amenable to concentration production by established separation and recovery methods in plant.

Optimize this process to guarantee a recovery that will be linked intrinsically to mineralogical and chemical characterization, as well as physical and granulometric characterization of mineral to be treated.

Determine deleterious elements, to establish mechanisms for operations to keep them below certain limits that guarantee a certain product quality.

SQM's analytical and pilot test laboratories perform the following chemical, mineralogical, and metallurgical tests:

Microscopy and chemical composition.

Physical properties: Tail Test, Borra test, Laboratory granulometry, Embedding tests, Permeability.

Leaching test.

Currently, SQM is conducting plant-scale tests to optimize heap leach operations through categorization of the mineral to be leached. Metallurgical studies are conducted on mining method called continuous mining (CM), which consists of breaking and extracting the “caliche mantle” material through a tractor with a cutting drum, which allows obtaining a smaller mineral with more homogeneous size distribution.

Preliminary leaching tests of this material under identical conditions to ROM material have resulted in higher recoveries of approximately 12% of the recovery in ROM heaps.

In order develop these tests, two different CM teams have been acquired and evaluated:

- Rolling system availability.
- Cutting system design.
- Sensitivity to rock conditions.
- Productivity variability.
- Consumption and replacement of components.

The 2023 mining plan aims to treat 29% of mineral caliche by CM to obtain, through quarry selection, a maximum recovery estimated at +12% in iodine and +6% in nitrate. At the operational level, recoveries will be monitored to establish annual sequential exploitation levels. Through this work it is hoped to determine an optimal proportion of CM mineral to be incorporated into ROM stockpiles to increase recovery.

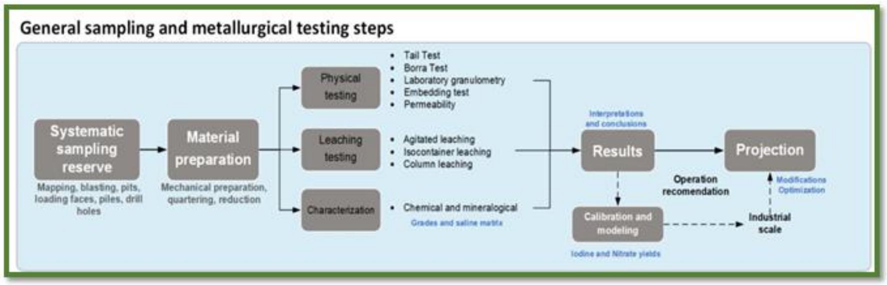
In the following sections, a description of sample preparation and characterization procedures, for metallurgical tests, and process and product monitoring/control activities of the operations through chemical analysis is given.

10.1.1 Sample preparation

Samples for metallurgical testing are obtained through a sampling campaign. The methods used are related to the different drilling methodologies used in the different campaigns to obtain core samples for analysis through a 100T-200 grid drilling campaign and diamond drilling (more details in section 7.3 Drilling Methods and Results). With the material sorted from the trial pits (calicatas), loading faces, piles, drill holes and diamond drill, composite samples are prepared to determine iodine and nitrate grades, and to determine physicochemical properties of the material to predict its behavior during leaching.

Samples are segregated according to a mechanical preparation guide, which aims to provide an effective guideline for minimum required mass and characteristic sizes for each test, to optimize the use of available material. This allows successful metallurgical testing, ensuring validity of results and reproducibility. The method of sampling and development of metallurgical tests on samples from Nueva Victoria property, for the projection of future mineral resources, consists in summary of the stages outlined in the Figure 10.1

Figure 10-1. General Stages of the Sampling Methodology and Development of Metallurgical Test at Nueva Victoria.



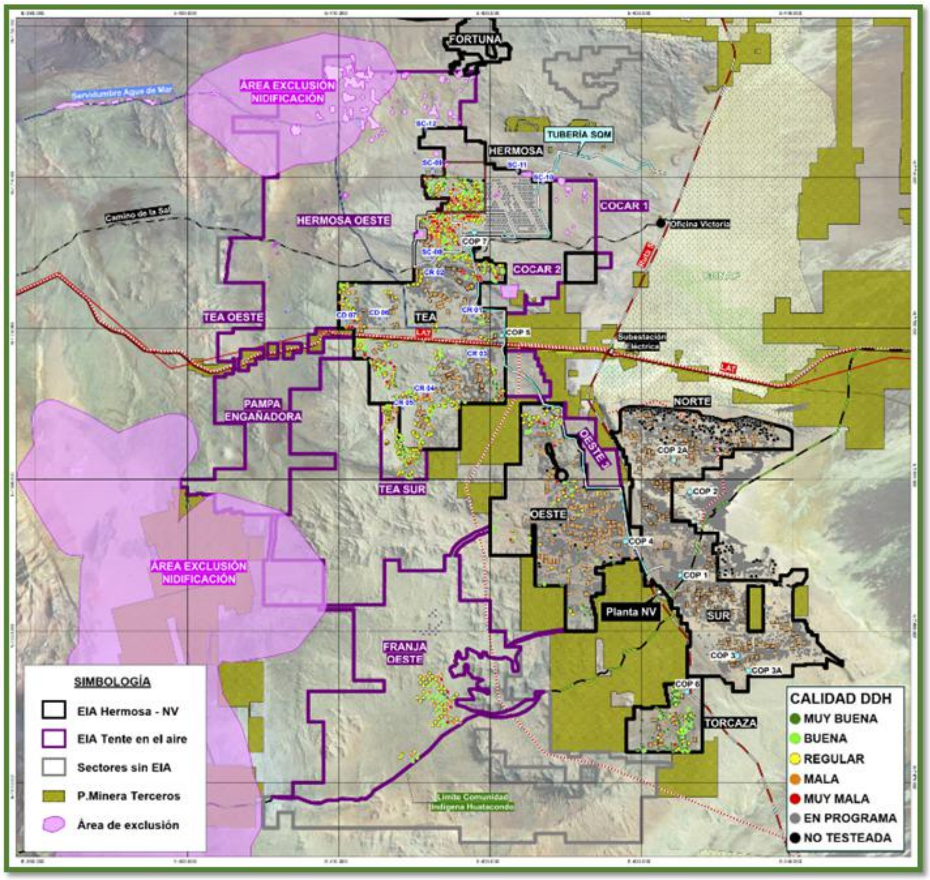
As for the development of metallurgical, characterization, leaching and physical properties tests, these are developed by teams of specialized professionals with extensive experience in the mining-geo-metallurgical field. The work program in metallurgical tests contemplates that the samples are sent to internal laboratories to perform the analysis and test work according to the following detail:

Analysis Laboratories located in Antofagasta provide chemical and mineralogical analysis.

Pilot Plant Laboratory, located in Iris- Nueva Victoria, for completion of the physical and leaching response tests.

Details of the names, locations and responsibilities of each laboratory involved in the development of the metallurgical tests are reported in section 10.4 Analytical and Testing Laboratories. The reports documenting the drilling programs provide detailed descriptions of sampling and sample preparation methodologies, analytical procedures meeting current industry standards. Quality control is implemented at all stages to ensure and verify that the collection process occurs at each stage successfully and is representative. To establish the representativeness of the samples, a map of a diamond drilling campaign in the NV sector is shown below to estimate the physical and chemical properties of the caliche of the resource to be exploited (Figure 10-2).

Figure 10-2. Diamond Drilling Campaign Map for Composite Samples from the NV Sector for Metallurgical Testing



10.1.2 Caliche Mineralogical and Chemical Characterization

As part of SQM nitrate test work, mineralogical tests were conducted on composite samples. To develop its mineralogical characteristics and its alterations, a study of the elemental composition is conducted by X-Ray Diffraction (XRD). A particle mineral analysis (PMA) to determine mineral content of the sample is carried out.

Caliche mineralogical characterization are done for the components Nitrate, Chloride Iodate, Sulfate and Silicate.

Additionally, caliche chemical characterization in iodine, nitrate and Na_2SO_4 (%), Ca (%), K (%), Mg (%), $KClO_4$ (%), NaCl (%), Na (%), Na (%), H_3BO_3 (%), and SO_4 were obtained from chemical analyses obtained from an internal laboratory of the company. The analysis methods are shown in Table 10-2. More details on SQM's in-house and staff-operated laboratories can be found in the section 10.4 Analytical and Testing Laboratories.

The protocols used for each of the methods are properly documented with respect to materials, equipment, procedures, and control measures. Details of the procedure used to calculate iodine and nitrate grades are provided in Section 10.2.3

Table 10-2. Applied Methods for the Characterization of Caliche or Composite.

Parameter	Unit	Method
Iodine grade	ppm	Volumetric redox
Nitrate grade	%	UV-Vis
Na_2SO_4	%	Gravimetric / ICP
Ca	%	Potentiometric / Direct Aspiration – AA or ICP Finish
Mg	%	Potentiometric / Direct Aspiration – AA or ICP Finish
K	%	Direct Aspiration – AA or ICP Finish
SO_4	%	Gravimetric / ICP
$KclO_4$	%	Potentiometric / Direct Aspiration – AA or ICP Finish
NaCl	%	Volumetric
Na	%	Direct Aspiration – AA or ICP Finish
H_3BO_3	%	Volumetric or ICP Finish

In-house analytical laboratories operated by company personnel are responsible for the chemical and mineralogical analysis of samples. These laboratories are located in the city of Antofagasta and correspond to the following four sub-facilities:

Caliche-Iodine Laboratory

Research and Development Laboratory

Quality Control Laboratory

SEM and XRD Laboratory

Results of the chemical and mineralogical characterization reported by the company are conclusive on the following points:

The most soluble part of the saline matrix is composed of sulfates, nitrates and chlorides.

There are differences in the ion compositions present in salt matrix (SM).

Anhydrite, Polyhalita and Glauberite, and less soluble minerals, have calcium sulfate associations.

From a chemical-salt point of view, this deposit is favorable in terms of the extraction process, as it contains an average of 49% of soluble salts, high calcium content (>2.5%), and good concentrations of chlorides and sulfates (about 11% and 13% respectively).

Being a mostly semi-soft deposit CM methods can be applied in almost all the deposit. The geomechanical characteristic of the deposit together with a low clastic content and low abrasiveness (proven by calicatas) allows low mining costs applying CM technology.

10.1.3 Caliche Nitrate and Iodine Grade Determination

Composite samples (material sorted from the trial pits (calicatas), loading faces, piles, drill holes and diamond piles) are analyzed by iodine and nitrate grades. The analyses are conducted by Caliche and Iodine laboratory located in the city of Antofagasta. Facilities for iodine and nitrate analysis have qualified under ISO- 9001:2015 for which TÜV Rheinland provides quality management system certification. The latest recertification process was approved in November 2020 and is valid until March 15, 2023.

10.1.3.1 Iodine determination

There are two methods to determine iodine in caliche, redox volumetry and XRF. Redox volumetry is based on titration of an exactly known concentration solution, called standard solution, which is gradually added to another solution of unknown concentration, until chemical reaction between both solutions is complete (equivalence point). Iodine determination by XRF uses XRF Spectro ASOMA equipment, in which a pressed mineral sample is placed in a reading cell. This year it was possible to replace the team with the Rigaku NEX QC, which allows to analyze six samples, A silicon drift detector (SDD) affords extremely high-count rate capability with excellent spectral resolution. This enables NEX QC+ to deliver the highest precision analytical results in the shortest possible measurement times. QA controls consist of equipment status checks, sample reagent blanks, titrant concentration checks, repeat analysis for a standard with sample set to confirm its value.

Figure 10.3. Rigaku NEX QC series of EDXRF Spectrometers

10.1.3.2 Nitrate determination

Nitrate grade in caliches is determined by UV-visible molecular absorption spectroscopy. This technique allows to quantify parameters in solution, based on their absorption at a certain wavelength of the UV-visible spectrum (between 100 and 800 nm).

This determination uses a Molecular Absorption Spectrophotometer POE-011-01, or POE-17-01, in which a glass test tube containing a filtered solution obtained by leaching with filtered distilled water is used. Results obtained are expressed in percent nitrate.

QA criteria and result validity are achieved through:

Prior equipment verification.

Performing comparative nitrate analysis once a shift, by contrasting readings of the same samples with other UV-visible equipment and checking readings in Kjeldahl method distillation equipment, for nitrogen determination.

Conducting standard and QC sample input every 10 samples.

Although the certification is specific to iodine and nitrate grade determination, this laboratory is specialized in chemical and mineralogical analysis of mineral resources, with long-standing experience in this field. It is the QP's opinion that quality control and analytical procedures used at the Antofagasta Caliches and Iodine laboratory are of high quality.

Figure 10.3. UDK 169 with AutoKjel Autosampler - Automatic Kjeldahl Nitrogen Protein Analyzer

10.1.4 Caliche Physical Properties

To measure, identify, and describe mineral physical tests of mineral properties are developed to predict how it will react under certain treatment conditions. The tests performed are summarized in Table 10-3. During the site visit it was possible to verify the development of embedding, sedimentation, and compaction tests in the Iris Pilot Plant Laboratory, which are shown in Figure 10-3.

Table 10-3. Determination of Physical Properties of Caliche Minerals.

Test	Parameter	Procedure	Objective	Impact
Tails Test	Sedimentation and compaction	Sedimentation test, measuring the clearance and riprap cake every hour for a period of about 12 hours	Obtain the rate of sedimentation and compaction of fines	Evidence of crown instability and mid generation. Irrigation rate
Borra test	% Of fine material	The retained material is measured between the -#35 #+100 and #-100 after a flocculation and decantation process. Flocculation and decantation of ore	To obtain the amount of ore flocculation and decantation process	% Of fine that could delay irrigation. Irrigation rate. Canalizations.
Size distribution	% Of microfine	Standard test of granulometry, the percentage under 200 mesh is given	Obtain % microfine	% Water retention and yield losses
Permeability	K (cm/h)	Using constant load permeameter and Darcy's law	To measure the degree of permeability of ore	Decrease in extraction kinetics of extraction
Embedded	alpha	Wettability measurement procedure of rock	To measure the degree of wettability of the ore	Variability in impregnation times

Figure 10-5. Embedding, Compaction and Sedimentation Tests Performed in the Iris Pilot Plant Laboratory.

Table 10-4 provides a summary of physical test results comparing the conditions of TEA and another project.

Table 10-4 Comparative Results of Physical Tests for Pampa Orcoma and TEA Exploitation Project.

Sector	Sedimentation	Compactation	% Fines	#-200	Alpha
TEA	0.024	7.54	31.86	10.57	2.37
ORCOMA	0.025	10.05	32.98	12.29	2.29

According to the results, it is possible to highlight the following points:

Sedimentation: Both have medium sedimentation velocity, which implies the need for impregnation and prolonged resting for stabilization.

Compaction: Orcoma has a good compaction, which indicates a greater uniformity in the porous bed, which allows reaching high irrigation rates and therefore better kinetics.

Fines: Both sectors present high percentage of fines, this implies that the best impregnant to use should be a solution other than water. The negative impact of this condition could be increased depending on the type of fine material (e.g., clays) generating water pockets and channeling.

Material #-200: Corresponds to the microfine and are the ones that give rise to channeling and exhibit very high value in both sectors.

Parameter Alpha: At medium levels, these imply acceptable embedding speed which can be improved with a slow controlled impregnation.

As the physical properties measured are directly related to the irrigation strategy, the conclusion is that both caliches should be treated in a similar way considering a standard impregnation stage of mixed drip and sprinkler irrigation.

10.1.5 Agitated Leaching Tests

Leaching tests are performed at the company's in-house laboratory facilities located at the Iris Pilot Plant. The following is a brief description of the agitated and successive leaching test procedure.

10.1.5.1 Leaching in Stirred Reactors

Leaching experiments are conducted at atmospheric pressure and temperature in a glass reactor without baffles. A propeller agitator at 400 RPM was used to agitate leach suspension. In short, all the experiments were executed with:

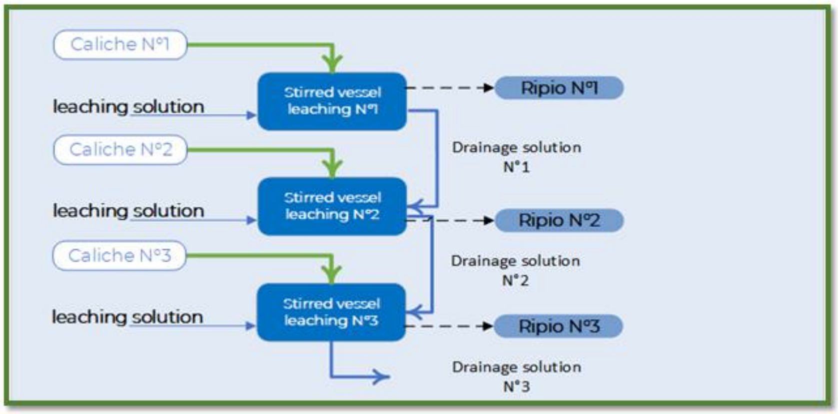
- Ambient conditions.
- Caliche sample particle size 100% mesh -65# mesh.
- Caliche mass 500 g.
- L/S ratio 2:1.
- Leaching time 2 h.
- Three contact leaching including use of drainage solution.

To start up the leaching experiment, a reactor was initially filled with distilled water and then the solution is gently agitated. After a few minutes, PH and ORP values were set, caliche concentrate added to the solution and agitation increased to the final rate.

Once finished, the product was filtered, and the brine solution analyzed by checking the extraction of analytes and minerals by contact with the leaching agent, consumption per unit and iodine extraction response.

Successive leaching's are complementary to stirred vessel leaching and performed in a stirred vessel with the same parameters explained above. However, it contemplates leaching three caliche samples successively with the resulting drainage solution of each stage. The objective of this test is to enrich this solution of an element of interest such as iodine and nitrates to evaluate heap performance as this solution percolates through the heap. The representative scheme of successive leaching in stirred vessel reactors is shown in Figure 10-6.

Figure 10-6. Successive Leach Test Development Procedure



The extraction of each analyte and minerals per contact is analyzed. These results reported by the company are conclusive on the following points:

Higher quantity of soluble salts, lower is the extraction.

Higher proportion of Calcium in Salt Matrix results in higher extraction.

Physical and chemical quality for Leaching is determined by a Soluble Salts content of less than 50%.

For a caliche of TEA sector, the chemical characterization and leaching results show in Table 10-5, where an average salt matrix of 63.7% soluble salts and iodine yield of 56.4%.

Table 10-5 Chemical Characterization of Samples Obtained from TEA and Successive Leach Test Results.

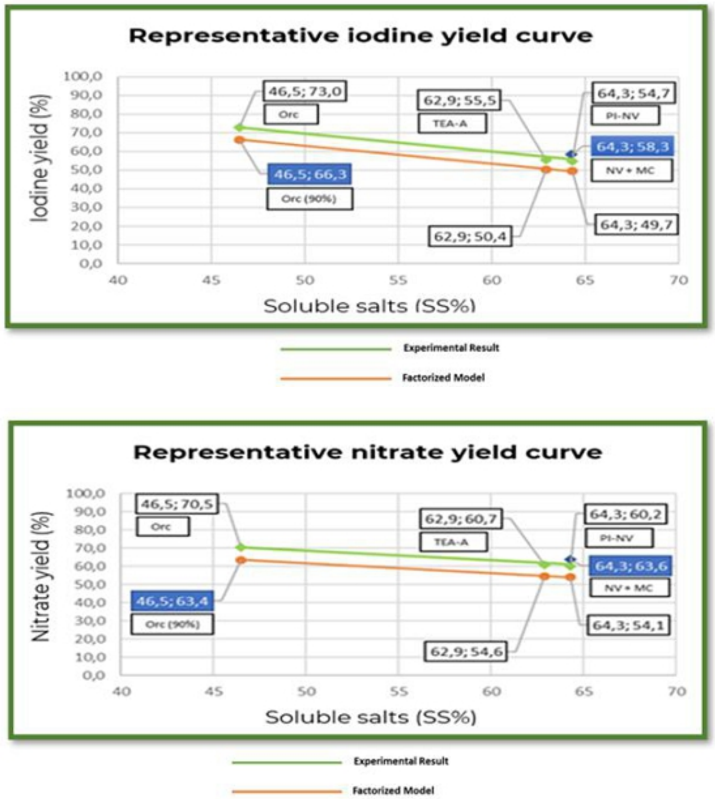
Sectors	Mesh	Recoveries Proyected			Elements								
		Mton	Iodine (ppm)	$NaNO_3$	Na_2SO_4	Ca	Mg	k	SO_4 ap	$KClO_4$	NaCl	Na	H_3BO_3
Hermosa	100-100T	155	408	6.7	17.3	1.82	0.95	0.84	10.84	0.04	12.6	8.13	0.23
TEA Norte	100T	62	428	5.8	18.4	2.21	1	0.85	10.6	0.08	14.5	9.45	0.4
TEA Sur	200	22	412	4.7	21	3.02	1.1	0.81	10.57	0.02	14.2	7.97	0.39
TEA Oeste	2000	75	407	5.4	16.6	2.31	0.97	0.69	8.44	0.05	16.7	8.87	0.57
Average		314	412	6.1	17.6	2.1	0.97	0.8	10.2	0.05	14.1	8.56	0.36

The following graphs, included in Figure 10-7, show the results of the agitated leaching tests of two resources from TEA and Pampa Orcoma. The graphs represent the Nitrate and Iodine yield achieved as a function of soluble salt content.

In the graphs, the green line corresponds to the experimental yield result, while the orange line indicates a modeling result of the Pampa Orcoma yield factored at 90%. The yield equivalent to 90% of what the model indicates is 66.3% for Iodine and 63.4% for Nitrate. These factored yields are conservatively used for the economic evaluation of the project.

The green line, which corresponds to the experimental results, shows that an ore from Pampa Orcoma with a content of soluble salts of 46.5% has a yield of 73% in iodine and 70.5% in nitrate, while an ore from TEA, with a content of 62.9% of soluble salts, has a yield of 55.5% in iodine and 60.7% in nitrate. Both resources show a difference in Nitrate yield of 70.5% vs 60.7% and Iodine yield, 73% vs 55.5%. Nitrate and iodine yield difference is the 9% and 17%, respectively.

Figure 10-7. Nitrate and Iodine yield Obtained by Successive Agitated Leaching Test.



10.1.6 Column Leach Test Using Sea Water

Water availability is limited, being a critical issue for the mining industries and, therefore, other leaching agents such as seawater can be a viable alternative. Therefore, experimental studies of caliche leaching in mini columns were conducted to evaluate seawater's effect.

This study aims to analyze seawater's effect on caliche leaching from different sectors of nitrate-iodine mining properties, using seawater sampled in Mejillones Bay at 100 m offshore and below 15 m deep.

The types of tests executed are in duplicate under the following impregnation-irrigation strategy and conditions:

Water Impregnation - Irrigation with Water (MC 1-MC2).

Water Impregnation - Irrigation with 60% v/v Water - 40% v/v with a recirculated weakly acidic water (AFA). (MC 3-MC 4).

Seawater Impregnation - Irrigation with Seawater (MC 5-MC 6).

Seawater Impregnation - Irrigation with Mixed 60% v/v Seawater - 40% v/v AFA (MC 7-MC 8)

The test development conditions are indicated in Table 10-6.

Composition determined by granulometry of the material disposed in the columns.

Table 10-6 Conditions for Leaching Experiments with Seawater.

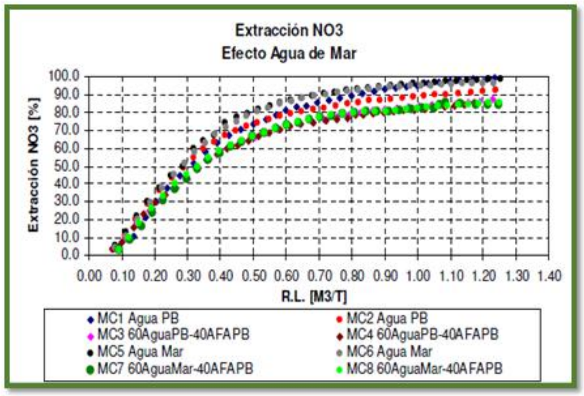
Parameter	Detaille
Mass	3,031.3 g
Granulometry	1" - 3/4" - 1/2" - 1/4" - 20" mesh
Test Duration	7 days
Total Impregnation	19 hours in watering/rest schedule
Continuous Irrigation	1 h/2 h-1 h/1 h/1h h-2 h/1 h
Irrigation Rate Flow-Flow	5 days and 20 h

The results of the experiments show that highly soluble minerals such as nitrate and iodate are rapidly leached with seawater without much difference with respect to the raw water method.

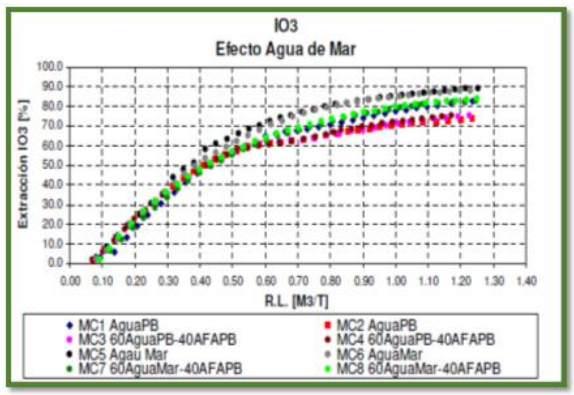
Regarding nitrate and iodine extraction, a higher NO_3 extraction, in Figure 10-8, is observed when leaching with seawater as well as a higher IO_3 extraction is observed when leaching with seawater (MC5 and MC6 curves versus MC1 and MC2 curves).

In addition to the above, when comparing the extractions achieved in iodine leaching by water/AFA and seawater/AFA, curves MC 3, and MC 4 versus MC 7 and MC 8, the seawater/AFA mixture is better (MC 7 and MC 8). While, for nitrate, there is no appreciable difference in increase when using seawater as a mixture and extraction is like that of iodine.

Figure 10-8. Results of Nitrate and Iodine Extraction by Seawater Leaching.



a) Nitrate extraction with seawater



b) Iodine extraction with seawater

In the future heap behavior will be studies through column leaching tests using seawater, including different irrigation rates and bed heights in the column, and analyzing the experimental concentrations of each species.

10.1.7 Laboratory Control Procedures

Currently, there is a quality control system in place to monitor iodine production operations, which consists of monitoring processes starting with inlet brine characterization, followed by sampling and characterization of the cutting and oxidation brine, as well as the prill product obtained. From the product obtained from the iodine prill plant, a series of analyses are conducted to quantify purity, chloride/bromine ratio, sulfate, mercury, residues, and color index.

The analyses, on liquid and solid samples, are performed in the laboratory facilities located in the city of Antofagasta, Analysis laboratory, involving two installations:

Caliche-Iodine Laboratory: Determination of iodine and nitrate in caliches.

Research and Development Laboratory: Facility in charge of performing determination by AAS, ICP-OES, potentiometry, conventional titration, solution density.

More details on SQM's in-house and staff-operated laboratories can be found in the section 10.4 Analytical and Testing Laboratories.

Table 10-7 shows the basic set of analyses requested from laboratories and the methodologies used for their determination.

Table 10-7 List of Requested Analyses for Caliche Leach Brines and Iodine Prill

Iodine Solutions

Parameter	Method
Iodine grade	Volumetric redox
Nitrate grade	UV-Vis
pH	Potentiometric
Acidity	Volumetric acid-base
Alkalinity	Volumetric acid-base
H3BO3	Volumetric or ICP Finish
Na2SO4	Gravimetric / ICP
Ca	Potentiometric / Direct Aspiration-AA or ICP Finish
Mg	Potentiometric / Direct Aspiration-AA or ICP Finish
K	Direct Aspiration-AA or ICP Finish
SO4	Gravimetric / ICP
KClO4	Potentiometric
NaCl	Volumetric
Na	Direct Aspiration-AA or ICP Finish

Iodine Prill

Parameter	Method
Purity or iodine count	Potentiometric
Bromide and chloride	Volumetric
Non-volatile material (residue)	Gravimetric
Sulfate	Turbidimetry
Mercury	Spectrophotometry
Coloration Index	Colorimetric

SQM's nitrate and iodine processing plants have been in production for many years and metallurgical requirements for processing and recovering the nitrate from evaporation ponds from iodine process remaining solution are well known. Consequently, no new metallurgical studies related to evaporation studies have recently been carried out. However, once pond systems are in operation, sampling and assay procedures for evaporation tests are as follows:

Brine sample collection is conducted on a periodic basis to measure brine properties, such as chemical analysis, density, brine activity, etc. Samples are taken by an internal company laboratory using the same methods and quality control procedures as those applied to other brine samples.

Precipitated salts are collected from ponds for chemical analysis to evaluate evaporation pathways, brine evolution, and physical and chemical properties of the salts.

SAMPLES REPRESENTATIVENESS

The company has established Quality Assurance/Quality Control (QA/QC) measures to ensure the reliability and accuracy of sampling, preparation, and assays, as well as the results obtained from assays. These measures include field procedures and checks that cover aspects such as monitoring to detect and correct any errors during drilling, prospecting, sampling, and assaying, as well as data management and database integrity. This is done to ensure that the data generated are reliable and can be used in both resource estimation and prediction of recovery estimates.

According to the sampling protocol, the samples, once logged by the technical staff in charge of the campaign, are delivered from the drilling site to a secure and private facility. Analytical samples are prepared and assayed at the in-house " Pilot Plant Laboratory" located at the Nueva Victoria site and Iris sector. The protocol ensures the correct entry in the database by tracking the samples from their sampling or collection points, identifying them with an ID, and recording what has been done for the samples delivered/received. The set of procedures and instructions for traceability corresponds to a document called "Caliche AR Sample Preparation Procedure".

The company applies a quality control protocol established in the laboratory to receive caliche samples from all the areas developed according to the campaign, preparing the dispatches together with the documentation for sending the samples, preparing, and inserting the quality controls, which will be the verification of the precision and accuracy of the results. The LIMS data management system is used to randomly order the standards and duplicates in the corresponding request. By chemical species analysis, an insertion rate of standard or standard QA/QC samples and duplicates is established.

The following criteria are established for the handling of results:

- Numbers of samples that are above and below the lower detection limits.
- Differences of values in duplicates are evaluated. For example, when comparing duplicates of nitrate and iodine grades, a maximum difference, calculated in absolute value, of 0.4% for $NaNO_3$ and 0.014% for iodine is accepted.
- For standards measured, results with a tolerance of +/- 2 standard deviations from the certified value are accepted.

In the case of any deviation, the laboratory manager reviews and requests check of the samples, in case the duplicate or standard is non-compliant.

As for physical characterization and leaching tests, all tests are developed in duplicate. Determination results are accepted with a difference of values in the duplicates of 2%.

Given the QA/QC controls and documentation described above the QP considers that the test samples are representative of the different types and styles of mineralization and of the mineral deposit. Sampling for operations control is representative of caliche as they are obtained directly from the areas being mined or scheduled for mining. The caliche analysis and characterization tests are appropriate for a good planning of operations based on a recovery estimation.

ANALYTICAL AND TESTING LABORATORIES

The metallurgical testing program directs samples to be sent to internal laboratories in charge of analysis and testing:

- Analysis laboratory located in Antofagasta, in charge of chemical and mineralogical analysis and composed of four laboratories (see Table 10-8).
- Pilot Plant Laboratory located at Iris- Nueva Victoria responsible for sample reception and physical and leaching response tests.

The following table details the available facilities and the analyses performed in each one of them.

Table 10-8 List of Installations Available for Analysis.

Laboratory	Location	Analyses
Caliche-Iodine Laboratory	Antofagasta	Determination of Iodine and Nitrate in caliches, probing
Research and Development Laboratory	Antofagasta	AAS, ICP-OES, potentiometry, conventional titration, solution density
Quality Control Laboratory	Antofagasta	Polarized light microscopy, particle size distribution
SEM and XRD Laboratory	Antofagasta	SEM and XRD
Pilot Plant Laboratory	Nueva Victoria	Physical characterization and ore leaching tests

Iodine and nitrate testing facilities available at Caliche and Iodine Laboratories (LCY) in Antofagasta are certified under ISO-9001:2015. Certification was granted by TÜV Rheinland and is valid from 2020-2023.

It should be noted that part of the exploration efforts is focused on possible gold and copper metallic mineralization underneath the caliche. Therefore, samples are sent to external analytical laboratories that are independent from SQM and accredited and/or certified by the International Standards Organization (ISO):

Andes Analytical Assay (AAA) (ISO 9001 Certification).

ALS Global Chile (ISO/IEC 17025).

Centro de Investigación Minera y Metalúrgica (CIMM) (ISO/IEC 17025).

TESTING AND RELEVANT RESULTS

10.1.8 Metallurgical Recovery Estimation

Caliche characterization results are contrasted with metallurgical results to formulate relationships between elemental concentrations and recovery rates of the elements of interest or valuable elements and reagent consumption.

The relationships between reported analyses and recoveries achieved are as follows:

It is possible to establish an impact regarding recovery based on the type of salt matrix and the effect of salts in the leaching solution. With higher amounts of soluble salts, extraction is lower while higher calcium in SM results in higher extraction.

Caliches with better recovery performance tend to decant faster (speed) and compact better.

The higher presence of fines hinders bed percolation, compromising the ability to leach and ultrafine that could delay irrigation or cause areas to avoid being irrigated.

The higher hydraulic conductivity or permeability coefficient, better the leachability behavior of the bed.

For metallurgical recovery estimation, the formulated model contains the following elements:

Chemical-mineralogical composition.

Yield.

Physical characteristics: sedimentation velocity, compaction, percentage of fines and ultrafines, uniformity coefficient, and wetting.

The metallurgical analysis is focused on determining the relationships associated with these variables, since the relationships can be applied to the blocks to determine deposit results. From a chemical and yield point of view, a relationship is established between unit consumption (UC, amount of water) or total irrigation salts (salt concentration, g/L) and iodine extraction. The best subset of the regressions was used to determine the optimal linear relationships between these predictors and metallurgical results. Thus, iodine and nitrate recovery equations are represented by the following formulas and Figure 10-9:

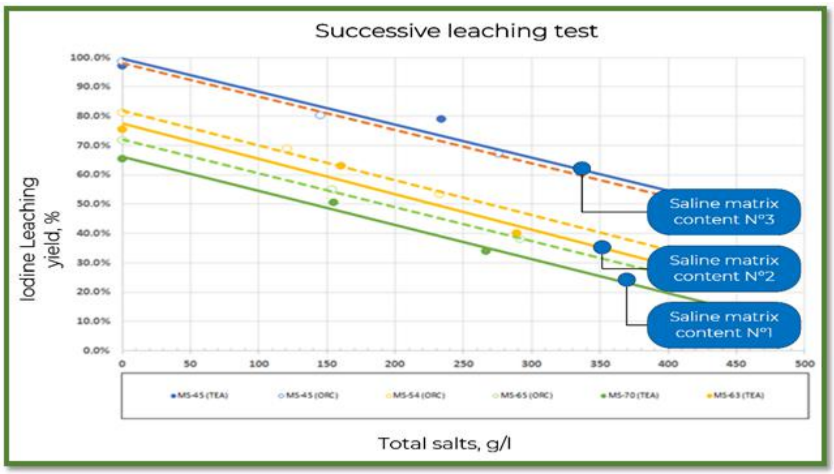
$$\textit{Iodine yield} = A * \left[\textit{total salts}\left(\frac{g}{l}\right)\right] + B_n \;;$$

$$\textit{where}:\; B_n = f(\%\textit{soluble salts}) \textit{ and } A = \textit{constant}$$

$$\textit{Nitrate yield} = C + D * \left[\textit{total salts}\left(\frac{g}{l}\right)\right] + F_n;$$

$$\textit{where}:\; F_n = g(\%\textit{soluble salts } \%\textit{Nitrate}) \textit{ and } C, D = \textit{constants}$$

Figure 10-9. Iodine Recovery as a Function of total Salts Content.



The graph of Figure 10-9 compares iodine yield results for samples from two SQM resources, TEA and Pampa Orcoma (abbreviated as ORC), as a function of total salts. The mineral samples (MS) are differentiated by their percentage soluble salt content, so that sample MS-45 (TEA), for example, corresponds to a mineral sample from the TEA sector characterized by 45% soluble salts. Following this logic, MS-45 (ORC), corresponds to a mineral sample from Pampa Orcoma, which has a soluble salt content of 45%. As can be seen, an output matrix content of 65% implies a lower recovery compared to an ore content of 45%.

In conclusion, the metallurgical tests, as previously stated, have allowed establishing baseline relationships between caliche characteristics and recovery. In the case of iodine, a relationship is established between unit consumption and soluble salt content, while for nitrate, a relationship is established depending on the grades of nitrate, unit consumption and the salt matrix. Relationships that allow estimating the yield at industrial scale.

10.1.9 Irrigation Strategy Selection

In terms of physical properties, the metallurgical analysis allows to determine caliche classification as unstable, very unstable, stable, and very stable, which gives rise to an irrigation strategy in the impregnation stage. As a result, a parameter impact ranking is established in caliche classification, in the order indicated below (from higher to lower impact):

1. Compaction degree (C).

2. Sedimentation velocity (S).

3. Fines and ultrafines percentage (%f; percent passing #200) with wetting degree (α).

4. Uniformity degree (Cu).

The weighting establishes a value to be placed on a scale of selection depending on the type of impregnation for the highest yield (see Figure 10-10):

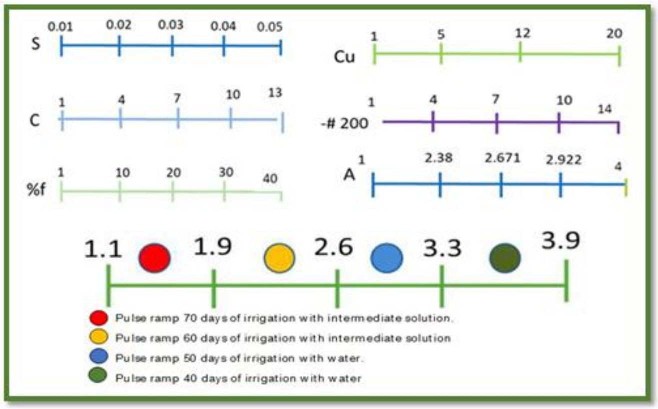
Scale 1.1 to 1.9; pulse ramp 70 days of irrigation with intermediate solution.

Scale 1.9 to 2.6; pulse ramp 60 days of irrigation with intermediate solution.

Scale 2.6 to 3.3; pulse ramp 50 days of irrigation with water.

Scale 3.3 to 3.9; pulse ramp 40 days of irrigation with water.

Figure 10-10. Parameter Scales and Irrigation Strategy in the Impregnation Stage.



10.1.10 Industrial Scale Yield Estimation

All the knowledge generated from the metallurgical tests carried out, is translated into the execution of a procedure for the estimation of the industrial scale performance of the pile. Heap yield estimation and irrigation strategy selection procedure is as follows:

A review of the actual heap Salt Matrix was compared to results obtained from diamond drill hole samples from the different mining polygons. The correlation factor between the two is obtained, which allows determining, from the tests applied to diamond drill hole samples, how the heap performs in a more precise way.

With the salt matrix value, a yield per exploitation polygon is estimated and then, through a percentage contribution of each polygon's material to heap construction, a heap yield is estimated.

Based on percentage physical quality results for each polygon, i.e., C m/min, compaction, % fine material, Alpha, #-200, an irrigation strategy is selected for each heap.

For example, for Pile 583, the physical test showed that the pile tends to generate mud in the crown and was instable. A 60-day wetting was recommended to avoid generating turbidity. The recommendation was to irrigate at design rate.

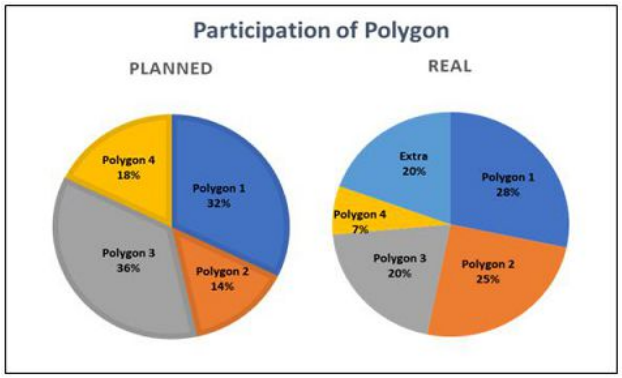
The real composition for Pile 583, determined by the diamond drilling campaign by polygon is shown in the Table 10-9 in which some differences can be observed.

Table 10-9 Comparison of the Composition Determined for the 583 Heap Leaching Pile in Operation at Nueva Victoria.

Type	Real vs. Diamond Salts Matrix										
	Iodine grade (ppm)	Nitrate grade (%)	Na2SO4	Ca	Mg	K	KClO4	NaCl	Na	H3BO3	Saline Soluble
Sample	400	4.0	17.9	2.0	1.3	0.5	0.1	10.1	4.3	0.3	57.8
Real	424	4.2	16.4	1.9	1.2	0.6	1.4	10.5	4.6	0.3	58.3

Through the established methodology, composition and physical properties, the resulting 583 pile yield estimate is 54.5%. The estimation scheme is as shown in Figure 10- .

Figure 10-11. Irrigation Strategy Selection

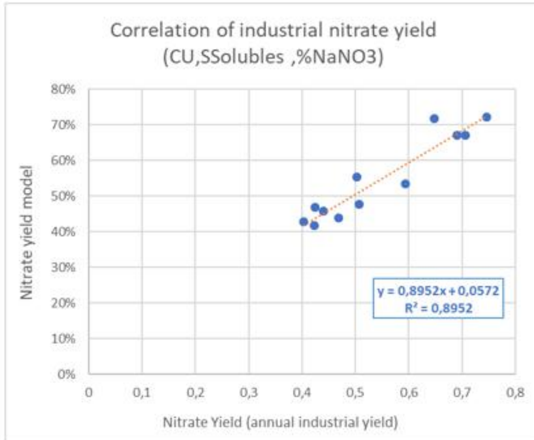


Following the example and in relation to the observed yield values contrasted with the values predicted by the model, the following graphs shows the annual yield of Nueva Victoria plant, both for iodine and nitrate, for the period 2008-2020.

The annual industrial throughput values with the values predicted by the model are shown in the Figure 10-12 in which a good degree of correlation is observed.

The annual industrial throughput values with the values predicted by the model are shown in the following figures and in which a good degree of correlation is observed.

Figure 10-12. Nitrate and Iodine Yield Estimation and Industrial Correlation for the period 2008-2022.



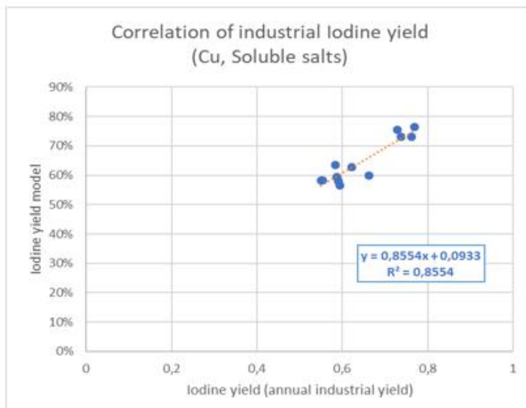
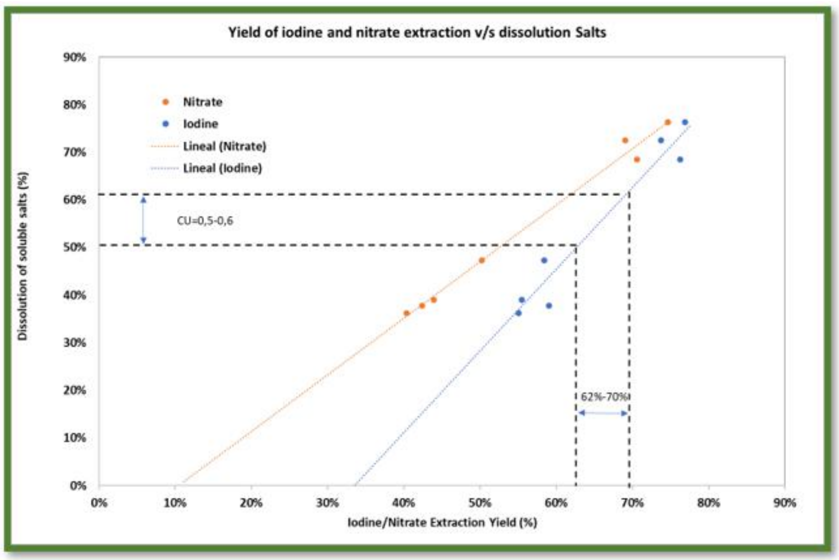


Table 10-10 Comparison of Industrial Yield with the Values Predicted by the Model.

Parameter	Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Iodine Grade	ppm	465	461	466	459	456	456	460	459	460	448
Nitrate Grade	%	5.2%	4.5%	5.1%	5.8%	6.2%	6.2%	6.4%	6.2%	5.1%	5.1%
Cu water (unit consumption)	m3/t	0.41	0.41	0.54	0.54	0.6	0.58	0.39	0.39	0.41	0.49
Caliche SS	%	57.7%	54.6%	52.1%	54.0%	55.3%	56.8%	57.6%	57.5%	58.9%	59.5%
Industrial Yield											
Industrial Iodine Yield	%	66.2%	62.2%	73.0%	73.7%	76.9%	76.3%	59.0%	55.0%	55.5%	58.4%
Industrial Iodine Yield Correlation	%	60.0%	62.7%	75.4%	73.0%	76.4%	73.1%	57.9%	58.2%	58.2%	63.5%
Model Yield											
Industrial Nitrate Yield	%	50.80%	59.40%	64.80%	69.00%	74.60%	70.60%	42.40%	40.30%	44.00%	50.20%
Industrial Nitrate Yield Correlation	%	51.10%	55.10%	69.10%	67.90%	74.00%	68.90%	42.30%	42.30%	46.50%	52.40%

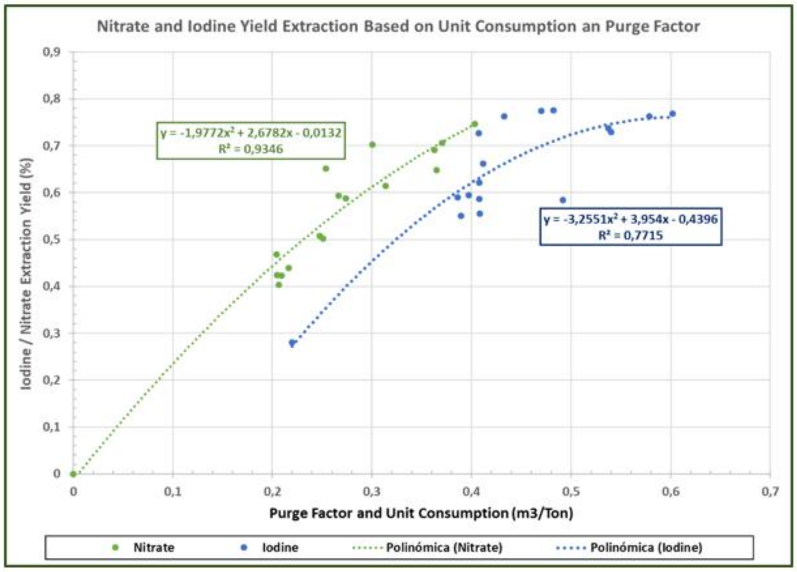
Complementary analysis has been carried out on the yield results, establishing that the CU is the determining factor for the increase in yield. The yield improvement is because there is an increase in the dissolution of salts due to the availability of more fresh water in the leaching process, reaching values of 70%. That is historically reflected in the years 2014 to 2017, for an average salt matrix material of 54.7%. The unit consumption for that period was in the range of 0.54-0.60 m^3/ton, resulting in yields of 73-77%. This is graphically reflected in Figure 10-13, which correlates the degree of salt dissolution and the yield achieved:

Figure 10-13. Nitrate and Iodine Yield Extraction and Dissolutions of Salts.



Consequently, an increase in prill iodine production will be possible by making improvements at the operational level of the irrigation solutions, so that the replacement of recirculated water by fresh seawater in the process occurs. From the graph it is possible to infer that a salt dilution in the range of 50-60% would give way to a real increase in iodine yield of 60-70% by the exchange of seawater in the irrigation.

Figure 10-14. Nitrate and Iodine Yield Extraction based on Unit Consumption and Purge Factor.



From the graph it can be inferred the unit consumption in the range of 0.45-0.55- m^3/t would lead to a real increase in Iodine Yield of 64-75%. In the case of Nitrate Yield, the parameter with the highest incidence in the recovery calculation is the purge factor (PF), followed by the content of Soluble Salts and the Nitrate grade. For the Iodine Yield, the parameter with the greatest incidence in the calculation of its recovery is the unit consumption of water (CU), followed by the content of Soluble Salts and the grade of Iodine.

Purge Factor: Corresponds to the purging of AFA solution to pools by mass of treated caliche.

Unit Consumption: Corresponds to fresh water to leachate by mass of treated caliche.

10.1.11 Piloting Campaigns

The reserve pilots for industrial exploitation, carried out from 2014 for heaps 2015 onwards, until 2018, consist of tests developed so that the resulting complete piloting to projection process is:

- Isocontainer leaching.
- Simulation of Isocontainer.
- Parameter scaling from Isocontainer to heap.
- Correlation pit-stack from the loading polygons.
- "Weighting" of simulation parameters: grades, granulometry, drainage curve, iodine adjustment factor.
- Pile simulation according to the weighted parameters.

The company's piling campaigns have been:

- Isocontainer 2015, for piles 2016.
- 2016-2017 pilot campaigns
- 2017-2018 pilot campaign
- 2019 – 2020 pilot campaign
- 2020 – 2021 pilot campaign

The Isocontainer are plastic receptacles that are loaded in such a way as to replicate the segregation presented by industrial piles because of their loading method, and therefore the material is stacked in layers inside the reactor, as illustrated Figure 10-15.

Figure 10-15. Loaded Isocontainer and Distribution of Material by Particle Size.

a) Isocontainer Test

b) Isocontainer Loading Diagram

The tests were carried out with parameters corresponding to those of the Nueva Victoria industrial process on the test date, using seawater obtained from Caleta Buena, the point foreseen for future extraction. The test development conditions are as indicated in Table 10-11.

Table 10-11 Condition for Leaching Experiments in Isocontainer.

Parameter	Detaille
Mass	1,500 kg
Granulometry	+12" -(-12"+6")-(-6"+2")-(-2")
Test Duration	25.8 days
Impregnation	0.05 m3/t 1 L/h/m2
Irrigation	Water - SI - Mixed - Washing

In the final campaigns (2017-2018), seeking a faster turnaround time, Isocontainer results were used directly, weighting them according to the shaft trial pits-pile correlation (empirical actor of 0.97 to estimate projection to pile). The operation of the piles was carried out at two irrigation rates (TR), 1.5 and 2 liters per hour square meter (L/h-m^2) and unit water consumption (CU) of 0.53 m^3/ton.

For the last pilot campaign carried out, the working conditions of the test were the following four:

Pilot Trial pits (calicatas) TEA Norte, CU 0.53 m^3/ton, TR 2 L/h-m^2, Leaching Ratio (RL) 0.9 m^3/ton.

Pilot Trial pits (calicatas) TEA Sur, CU 0.53 m^3/ton, TR 2 L/h-m^2, RL 0.9 m^3/ton.

Trial pits (calicatas) TEA Sur, CU 0.53 m^3/ton, TR 1.5 L/h-m^2, RL 0.9 m^3/ton.

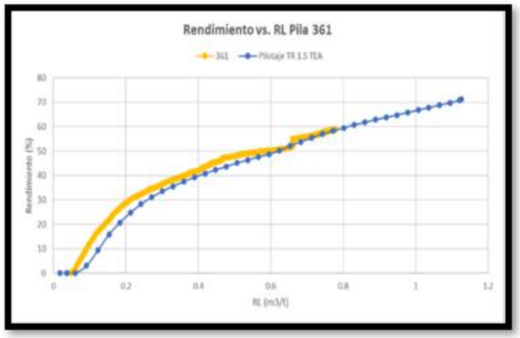
Trial pits (calicatas) NVO, CU 0.53 m^3/ton, TR 1.5 L/h-m^2, RL 0.9 m^3/ton.

The test results of piques vs. industrial piles correspond, in process conditions close to those tested. TEA-North and TEA-South, under TR 2 L/h-m^2 conditions, obtain an average I2 extraction of 69% and 65%, respectively. The TEA-South ponds treated at TR 1.5 L/h-m^2 obtained a better iodine recovery of 67%.

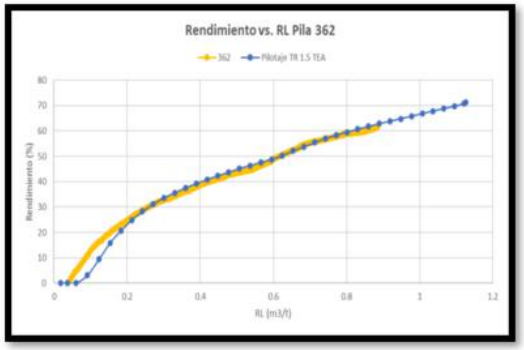
The results have shown that the decrease in TR will have an effect of concentrating more of the solution going down the bed, and therefore cause a higher yield vs. RL. This has been demonstrated at the Isocontainer level, and can also be seen at the stack level, in cases where there is no change of solution, but only of rate.

Having defined the appropriate irrigation rate of 1.5 L/h-m^2, the following projections, Figure 10-16, show the contrast of the actual pile and pilot recovery results. Through the graphs, it can be established that the tests have reflected the industrial performance in a good way, taking into consideration that an average behavior curve has been made for the piles at Isocontainer scale.

Figure 10-16. Pile Curve 361 and 362 vs Average Pilot Curve for TR 1.5 L/h-m^3 TEA Pilot Campaign.



a) Iodine Yield contrast curve of 362 Pile



b) Iodine Yield contrast curve of 362 Pile

The relevant results of the campaigns conducted are conclusive in the following aspects:

Lower values of 0.5 m^3/ton, which will have a negative impact on actual vs projected yield. Likewise, TR increasing from values of 1.5 to 2 L/h-m^2, will also have a negative impact on actual vs. projected yield.

Caliches of the same composition and grain size can have drastically different behaviors based on irrigation rate alone.

Harder/compact and higher salt content caliches will be more sensitive to irrigation rate.

Between two caliches of equal composition, the one with larger grain size will also be more sensitive to rate increase, since there are fewer exposed surface areas.

It is recommended to lower the operational TR for more refractory caliches such as TEA and control the particle size to provide yield benefit.

SIGNIFICANT RISK FACTORS

Elements detrimental to recovery or to the quality of the product obtained pose a risk. Insoluble material and elements such as magnesium (magnesium sulfate or Epsom salt) and perchlorate in the raw material also poses a negative impact to the process. In this regard, this report has provided information on tests carried out on the process input and output flows, such as brine and finished products of iodine, potassium nitrate and sodium nitrate, for these elements, thus showing the company's constant concern to improve the operation and obtain the best product.

Plant control systems analyze grades and ensure that they comply with required threshold values and will not affect the concentration of valuable species in the brine or impact plant performance. Therefore, processing factors or deleterious elements that may have a significant impact on the potential economic extraction are controlled. For example, brines are monitored and those that are loaded with 2-2.5 g/L of Epsom salt are purged to waste ponds.

Along with the above, the company is also interested in developing or incorporating a new stage, process and/or technology that can mitigate the impact of known factors. This is achieved with constant focus on continuous improvement of the processes.

QUALIFIED PERSON´S OPINION

10.1.12 Physical and chemical characterization

Mineralogical and chemical characterization results, as well as physical and granulometric characterization of the mineral to be treated, which are obtained from the tests performed, allow to continuously evaluate different processing routes, both in initial conceptual stages of the project and during established processes, in order to ensure that such process is valid and up to date, and/or also to review optimal alternatives to recover valuable elements based on the nature of the resource. Additionally, analytical methodologies determine deleterious elements, to establish mechanisms in operations so that these can be kept below the limits to ensure a certain product quality.

10.1.13 Chemical – Metallurgical Tests

Metallurgical test work performed in laboratories and pilot plants are adequate to establish proper processing routes for caliche resources.

Testing program has evidenced adequate scalability of separation and recovery methods established in plant to produce iodine and nitrate salts. It has been possible to generate a model that can assist with an operational plan for the initial irrigation stage to improve iodine and nitrate recovery in leaching.

Samples used to generate metallurgical data are sufficiently representative to support estimates of planning performance and are suitable in terms of estimating recovery from the Mineral Resources.

10.1.14 Innovation and Development

The company has a research and development team that has demonstrated important advances regarding development of new processes and products to maximize returns from exploited resources.

Research is developed by three different units covering topics, such as chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of finished products. These address raw material characterization, operations traceability, and finished product.

11 MINERAL RESOURCE ESTIMATE

KEY ASSUMPTIONS, PARAMETERS AND METHODS

This sub-section contains forward-looking information related to density a grade for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecast 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 resource estimation process is different depending on the drill hole spacing grid available in each sector:

Measured Mineral Resources: Sectors with a Block Model, with a drill hole spacing grid of 50 x 50 m or 100T were estimated with a full 3D block model using Ordinary kriging, which contains variables, such as Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc. For Nueva Victoria all sectors defined Measured Resources have an available Block Model.

Indicated Mineral Resources: Sectors with a Block Model; with a drill hole spacing grid of 100 x 100 m and 200 x 200 m were estimated with a full 3D block model using Inverse Distance Weighted (IDW) which contains variables, such as Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc. For Nueva Victoria all sectors defined Indicated Resources have an available Block Model.

Inferred Mineral Resources: Sectors with a drill hole spacing grid greater than 200 x 200 m up to 400 x 400m were estimated in 2D using the Polygon Method. This Inferred Resources do not have block model. the output are polygons which are then transformed to tonnage by multiplying by the area, thickness, and density.

11.1.1 Sample Database

The 2022 Nueva Victoria Model included the estimate of Iodine and Nitrate, and in the case of smaller grids Measured Mineral Resources includes soluble Salts, elements, lithology, and hardness parameters.

Table 11-1 summarizes the basis statistics of Iodine and Nitrate for Nueva Victoria.

Table 11-1. Basic Sample Statistics for Iodine and Nitrate in Nueva Victoria

Variable	Number of Samples	Minimum	Maximum	Mean	Std. Dev.	Variance	CV	Kurtosis
Iodine	67,153	3.0	2272	376.28	320.31	102,599.6	0.85	9.15
Nitrate	67,153	0.1	21.2	5.28	3.79	14.33	0.72	4.5

11.1.2 Geological Domains and Modeling

For the estimation of each block within a geological unit (UG) only the composite grades, elements and hardness parameters found in that domain are used (Hard contact between UG). The main UG are described as:

Overburden, Cover (UG 1).

Mineralized mantle, Caliche (UG 2).

Underlying (UG 3).

11.1.3 Assay Compositing

Considering that all the sample have the same length (0.5 m) and the block height is also 0.5 m, SQM did not composite the sample database and used directly in the estimation process.

11.1.4 Evaluation of Outlier Grades, Cut-offs, and Grade Capping

Definition and control of outliers is a common industry practice that is necessary and useful to prevent potential overestimation of volumes and grades. SQM has not established detection limits (upper limit) in the determined grades of Iodine and Nitrates in the analyzed samples. The distribution of grades for both Iodine and Nitrates within the deposit were such that not samples were judged to be extreme, so no sample restrictions were used in the estimation process.

11.1.5 Specific Gravity (SG)

There are no available SG samples in the database. SQM have been using a historic value of 2.1 (g/cc) for the calculations of tonnage, SQM performed a series of analyses for different DDH drill holes measuring the specific gravity in Nueva Victoria. Table 11-2 shows the analyzed drill holes, the specific gravity, and the geological unit (UG), these results justified the historical value used by SQM.

Table 11-2. Specific Gravity Samples in Nueva Victoria

Drill Hole	Specific Gravity (g/cc)	UG
567L	2.15	2
1941L	2.22	2
117L	2.28	2
2316L	1.84	1
1684L	2.14	2
2695L	2.23	2
CL-10	2.25	2
AI-06	2.07	2
1032L	2.23	2
MB-18-4	2.12	2
MB-12-29	1.96	1
2995L	2.05	2
Average	**2.13**	

11.1.6 Block Model Mineral Resource Evaluation

As mentioned before, sectors with a drill hole spacing grid of 50 x 50 m or 100T m were estimated with a full 3D block model using Ordinary Kriging and the sector with a drill hole grid greater than 100T m and up to 200 x 200 m were estimated using Inverse Distance Weighted also using block model, for interpolation of Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc. For Nueva Victoria all sectors defined Measured and Indicated Resources have an available Block Model.

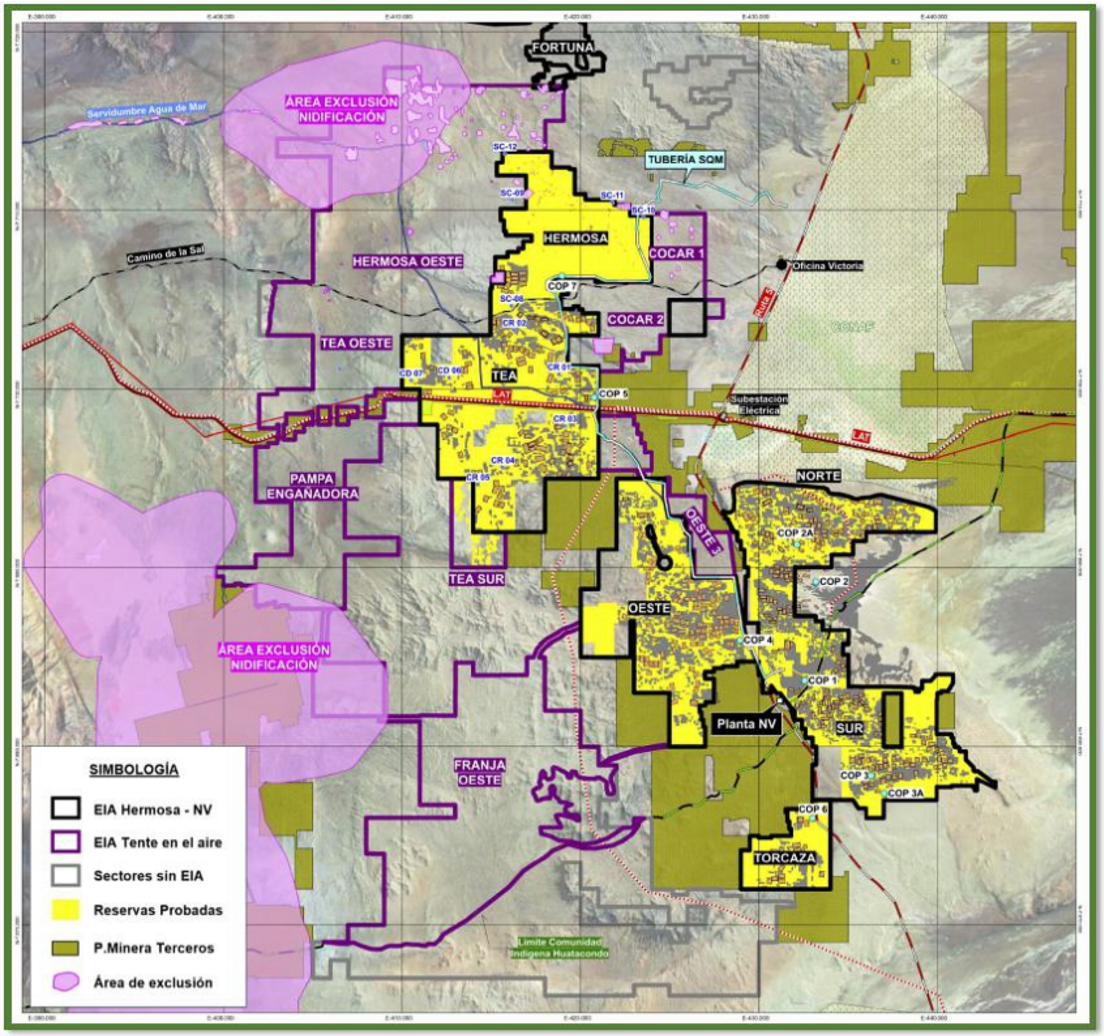
Block Model Parameters and Domaining Table 11-3 shows the definition for the block model built in Datamine Studio 3. The block size is 25 x 25 x 0.5 m in all sectors.

Table 11-3. Block Model Dimensions

Sector	Parameters	East	North	Elevation
Norte	Origin (m)	428,425	7,689,400	951
	Range (m)	10,700	5,450	153
	Final (m)	439,125	7,694,850	1,104
	Block Size	25	25	0,5
	N° of Blocks	428	218	306
TEA	Origin (m)	409,950	7,691,975	989
	Range (m)	11,075	13,050	292
	Final (m)	421,025	7,705,025	1,191
	Block Size	25	25	0.5
	N° of Blocks	443	522	404
Hermosa	Origin (m)	414,950	7,704,175	1,066
	Range (m)	9,100	9,050	179
	Final (m)	424,050	7,713,225	1,245
	Block Size	25	25	0.5
	N° of Blocks	364	362	358
Torcaza	Origin (m)	412,450	7,694,150	1,016
	Range (m)	8,600	10,950	175
	Final (m)	421,050	7,705,100	1,191
	Block Size	25	25	0.5
	N° of Blocks	344	438	350

Figure 11-1 illustrates a plan view of the sectors with a block model inside Nueva Victoria

Figure 11-1. Block Model Location in Nueva Victoria.



Although there are overlaps between the boundaries of the Nueva Victoria Block Models, there is no duplication of blocks for the estimation of Mineral Resources, each of these models has the boundary of the other zones given by the different databases of each zone.

11.1.6.1 Variography

Experimental variogram where constructed using all the drill hole samples independent of the UG. The variogram is modeled and adjusted, obtaining parameters such as structure range and sill, nugget effect and the main direction of mineralization. Experimental variograms were calculated and modeled for Iodine and used in the estimation of both Iodine and Nitrate.

Table 11-4 describes the variogram models for Iodine used in each zone for the estimation of Iodine and Nitrate.

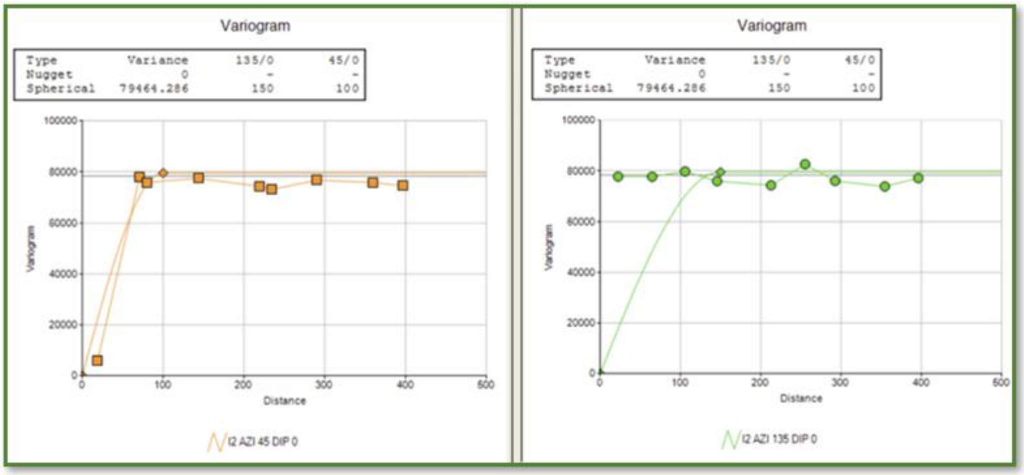
Table 11-4. Variogram Models for Iodine and Nitrate in Nueva Victoria

Sector	Variable	Rotation			Nugget Effect	Range 1			Sill 1
		Z	Y	X		Z	Y	X	
Norte	Iodine	0	0	0	6,943.3	0.5	80	80	46,577.1
TEA		45	0	0	18,928.5	0.5	100	150	79,464.0
Hermosa		45	0	0	20,714.3	0.5	160	145	59,523.0
Torcaza		0	0	0	39,821.0	0.5	80	80	50,350.7
Sector	**Variable**	**Rotation**			**Nugget Effect**	**Range 1**			**Sill 1**
		Z	**Y**	**X**		**Z**	**Y**	**X**	
Norte	Nitrate	0	0	0	6.4	0.5	80	80	10.2
TEA		45	0	0	9.0	0.5	100	150	14.0
Hermosa		45	0	0	9.2	0.5	160	145	14.3
Torcaza		0	0	0	7.2	0.5	80	80	9.8

The nugget effect varies between 6% and 39% of the total sill, this suggests different behavior of Iodine between each zone. The total ranges are around 80 m to a maximum of 150 m. These variogram ranges are in line with the SQM´s definition of Measured Mineral Resources, namely estimates blocks using a drill hole grid of 50 x 50 m or 100T. (Block model evaluation).

The QP performed and independent analysis to confirm the variogram models used by SQM, in general, obtains similar nugget effect, total sill and variogram ranges to those used by SQM.

Figure 11-2. Variogram Models for Iodine and Nitrate in Nueva Victoria.



11.1.6.2 Interpolation and Extrapolation Parameters

The estimation of Iodine and Nitrate grades for Nueva Victoria has been conducted using Ordinary Kriging (KO) in one pass for each UG. SQM used cross-validation to determine the estimation parameters such as search radius, minimum and maximum number of samples used, etc. In the cross-validation approach, the validation is performed on the data by removing each observation and using the remaining to predict the value of remove sample. In the case of stationary processes, it would allow to diagnose whether the variogram model and other search parameter adequately describes the spatial dependence of the data.

The Block model is intercepted with the geological model to flag the geological units used in the estimation process.

The KO plan included the following criteria and restrictions:

- No capping used in the estimation process.
- Hard contacts have been implemented between all UG.
- No octant restrictions have been used for any UG.
- No samples per drill hole restrictions have been implemented for any UG.

Table 11-5 summarizes the orientation, radii of searches implemented and the scheme of samples selection for each GU and sector. Search ellipsoid radio were chosen based on the variogram ranges.

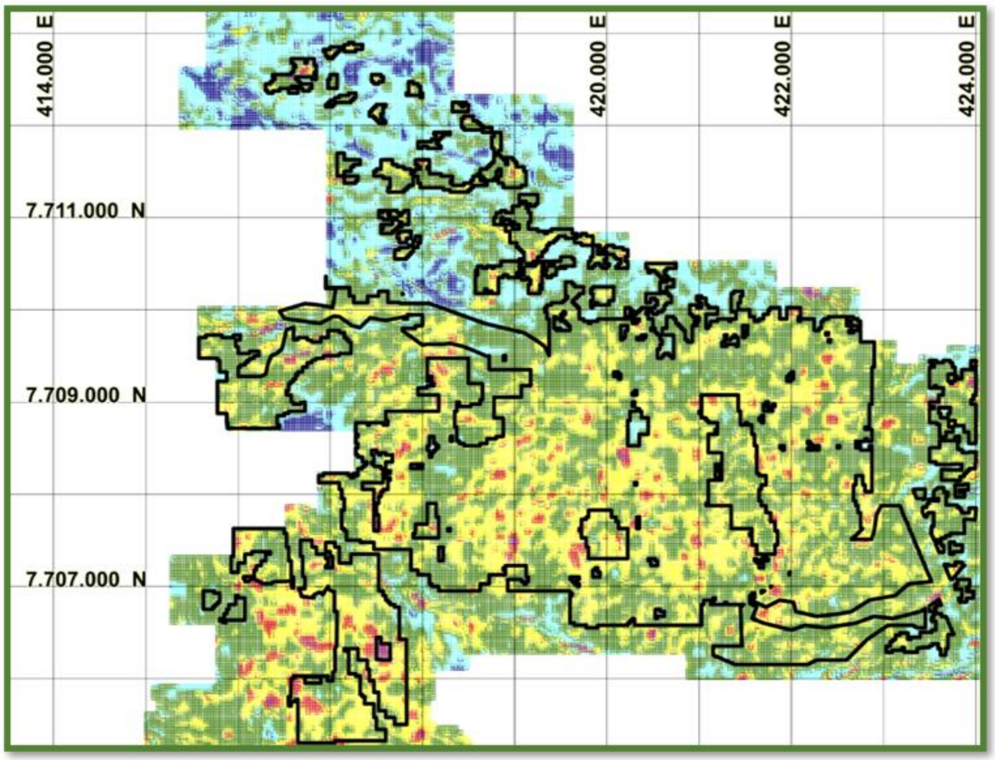
Table 11-5. Sample Selection for each sector.

Sector	Variable	Rotation			Nugget Effect	Range 1			Samples	
		Z	Y	X		Z	Y	X	Minimum	Maximum
Norte	Iodine / Nitrate	0	0	0	6.4	0.5	80	80	3	20
TEA		45	0	0	9.0	0.5	100	150	3	20
Hermosa		45	0	0	9.2	0.5	160	145	3	20
Torcaza		0	0	0	7.2	0.5	80	80	3	20

After the estimation is done, a vertical reblocking was performed transforming the 3D block model in a 2D grid of points (coordinates X and Y) with the mean grades of all estimated variables. When the 2D grid points are available, operational and mine planning parameters are applied to determine tonnage/grade curves according to a 300 ppm cut-off grades for Iodine. Finally, GIS software (Arcview and Mapinfo) is used to draw the polygons, limiting the estimated Mineral Resources with economic potential.

An example of this methodology is shown in Figure 11-3 for Hermosa. The black line defines polygons above the cutoff grade and that comply with several operational conditions (at least 50 x 50 m, not isolated polygons, no infrastructure nearby, etc.).

Figure 11-3. Plan View of the Polygons Bordering The Mineral Resources Hermosa



11.1.6.3 Block Model Validation

A validation of the block model was carried out to assess the performance of the KO and the conformity of input values. The block model validation considers:

Statistical comparison between estimated blocks and samples grades of drill holes.

Global and local comparison between estimated blocks and samples through each direction (East, North and elevation) performing the following test: Anisotropy analysis, Search Neighborhood, Similarity analysis, Seasonality Analysis, Multivariate comparison, cumulative Distribution Function, Trend analysis Near Neighbor (NN).

Visual validation to check if the lock model matches the sample data.

11.1.7 Global Statistics

The QP carried out a statistical validation between sample grades and estimated blocks. Global statistics of mean grades for the samples can be influenced by several factors, such as sample density, grouping, and, to a greater extent, the presence of high grades that have been restricted in the estimation plan.

Consequently, global statistics of samples grades were calculated using the Nearest-Neighbor (NN) method with search ranges like the one used in the estimation. A summary of this comparison is shown in Table 11-6 and Table 11-7 for Iodine and Nitrate respectively, where the negative values indicate a negative difference between block mean grades in relation to composite mean grades, and vice-versa. In general, differences under 5% are satisfactory, and differences above 10% require attention. The result of the estimate shows that relative differences are found within acceptable limits.

Table 11-6. Global Statistics comparison for Iodine

Sector	# Data		Minimun		Maximun		Mean		Difference	Std. Dev	
	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN		Blocks	NN
Norte	437,603	125,226	50	50	2,000	2,000	363	360	-2.99	158	245
TEA	1,230,674	152,279	50	50	2,000	2,000	308	305	-2.19	166	244
Hermosa	919,383	93,254	50	50	2,000	2,000	355	351	-3.4	165	262
Torcaza	289,242	53,478	50	50	2,000	2,000	262	259	-2.9	161	249

Table 11-7. Global Statistics comparison for Nitrate

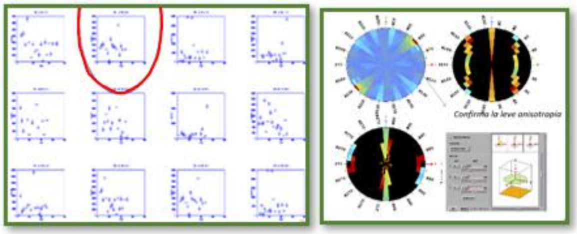
Sector	# Data		Minimun		Maximun		Mean		Difference	Std. Dev	
	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN		Blocks	NN
Norte	437,603	125,226	1	1	20	20	3.76	3.83	0.07	2.14	3.25
TEA	1,230,674	152,279	1	1	20	20	5.03	5.09	0.06	2.81	4.03
Hermosa	919,383	93,254	1	1	20	20	5.73	5.81	0.08	2.03	3.91
Torcaza	289,242	53,478	1	1	20	20	3.43	3.45	0.02	2.37	3.65

11.1.7.1 Swath Plots

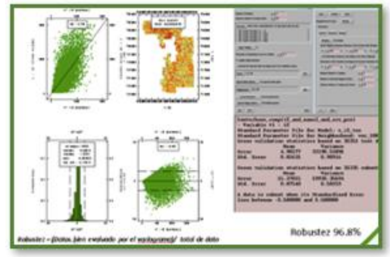
To evaluate how robust block grades are in relation to data, the following tests were performed to validate the robustness of the generated model (Anisotropy analysis, Search Neighborhood, Similarity analysis, Seasonality Analysis, Multivariate comparison, cumulative Distribution Function, Trend analysis Near Neighbor NN). From Figure 11-4 to Figure 11-7 provides a summary of plots for each variable for TEA. In general, results indicate that estimates reasonably follow trends found in the deposit's grades at a local and global scale without observing an excessive degree of smoothing.

Figure 11-4. Swath Plots for Iodine TEA

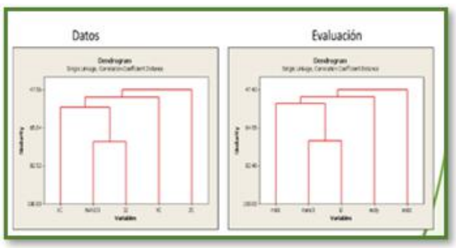
Anisotropy Analysis



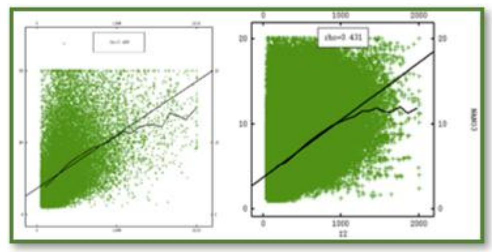
Cross Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

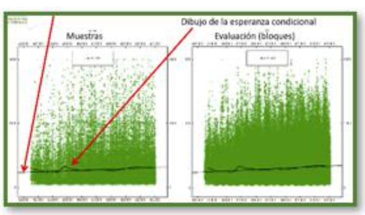


Multivariate Comparison

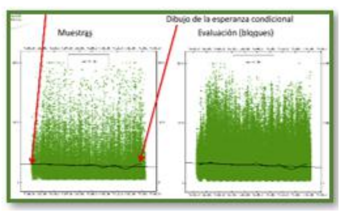


Seasonality Analysis

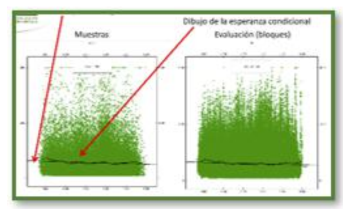
Direction E-W



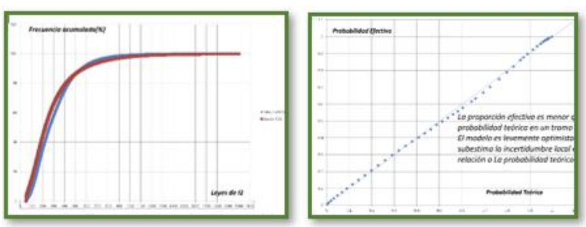
Direction N-S



Elevation



Cumulative Distribution Function



Cross Validation Variogram Used

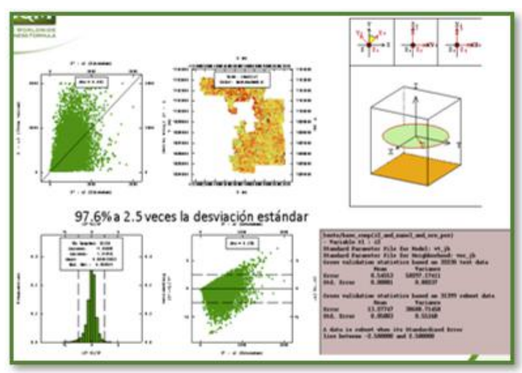
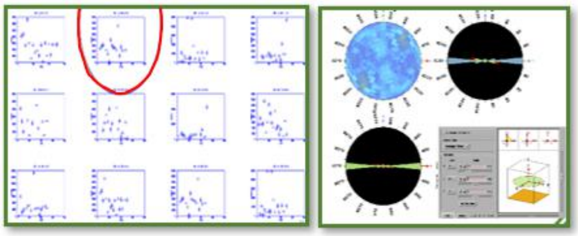
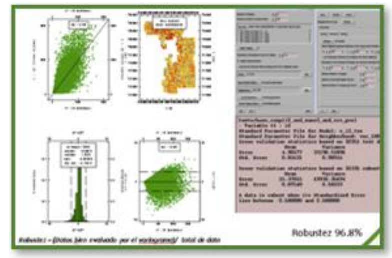


Figure 11-5. Swath Plots for Nitrate TEA

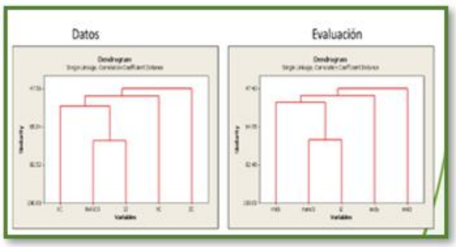
Anisotropy Analysis



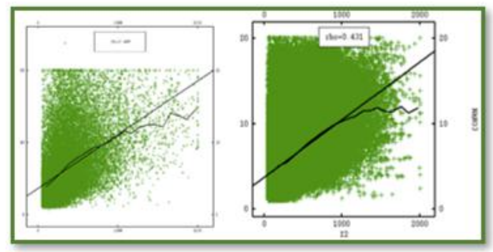
Cross Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

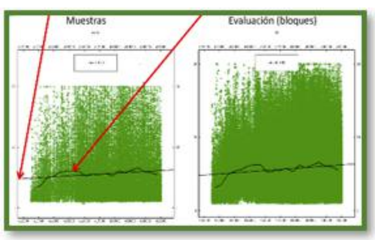


Multivariate Comparison

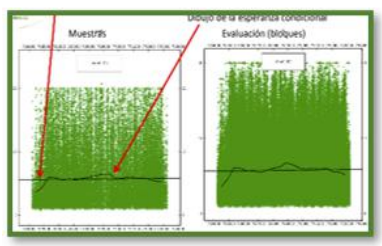


Seasonality Analysis

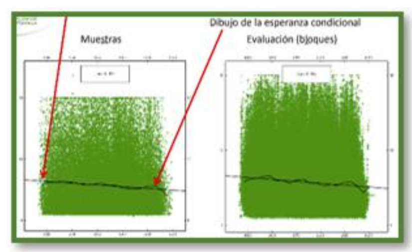
Direction E-W



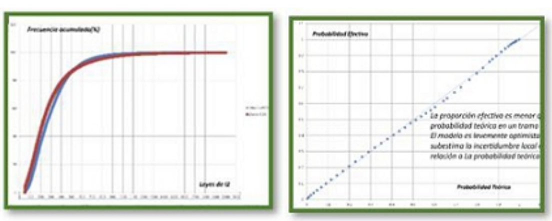
Direction N-S



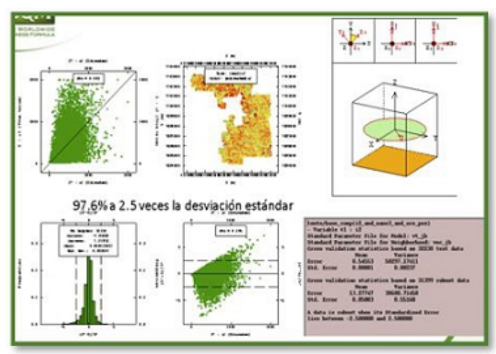
Elevation



Cumulative Distribution Function



Cross Validation Variogram Used



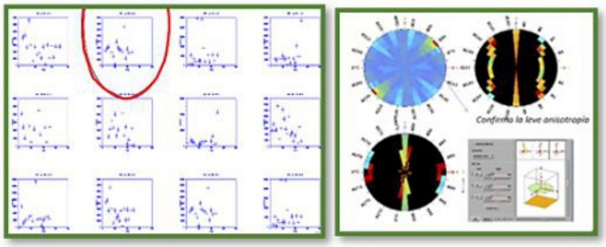
Commentaries

From the analysis carried out, the following is concluded:

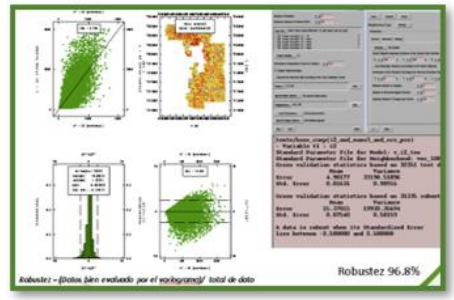
- There is a slight anisotropy.
- Vary the search ellipse, between 120 and 300 m provides very little to cross-validation, this mainly being a spatial structure where the first structure (which is the one that contributes the most to the variance) is of short scope and the second contributes very little to the total variance of the variogram its effect is minimal.
- There is an improvement in search levels of the order of 160 m mainly in the effect this has on standardized error.
- The similarity levels of the model respect the levels of similarity present in the samples of the drilling at a high level, this happens for both Iodine and Nitrate.
- The correlation indices present in the original data between Iodine and Nitrate, are keep in the block model.
- The model presents a slight optimism and underestimates in a very uninfluential way local uncertainty, both at the data level and at the distribution function level Theoretical.
- The average of the analyzed region presents, at the level of samples, an average value of iodine of 305 ppm and at block level 308 ppm.
- The average of the analyzed region presents, at level of samples an average nitrate of 5.03% and at block level 5.09%.
- The cross-validation is of good quality with a high degree of robustness.
- The model accurately represents the grades of the deposit in blocks of 25 x 25 x 0.5 both in Iodine and Nitrate. Presenting a slight optimism and very little influential underestimation of Local uncertainty.

Figure 11-6. Swath Plots for Iodine Hermosa

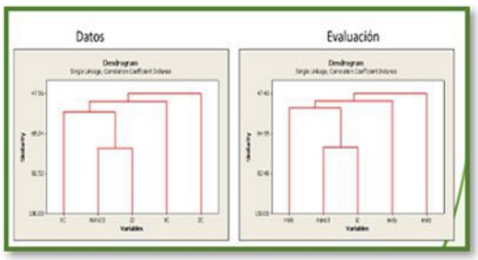
Anisotropy Analysis Cross



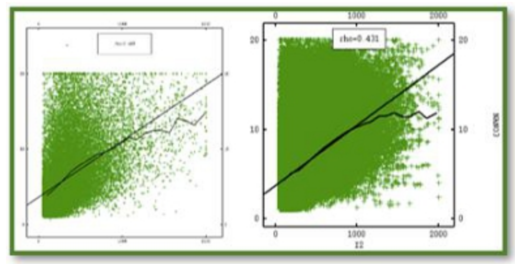
Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

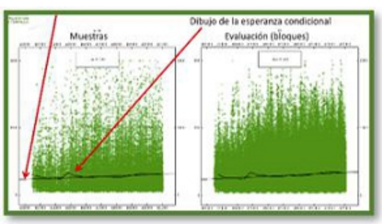


Multivariate Comparison

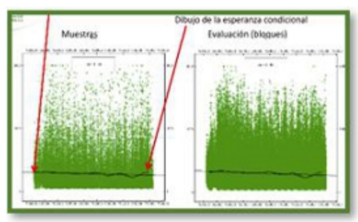


Seasonality Analysis

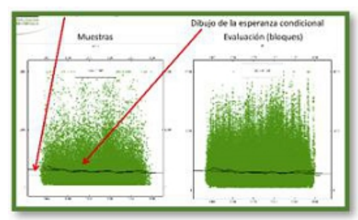
Direction E-W



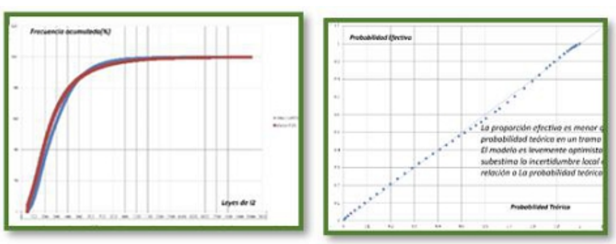
Direction N-S



Elevation



Cumulative Distribution Function



Cross Validation Variogram Used

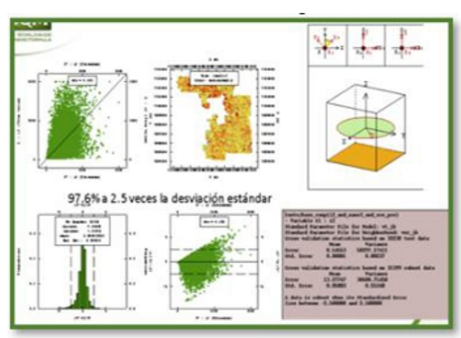
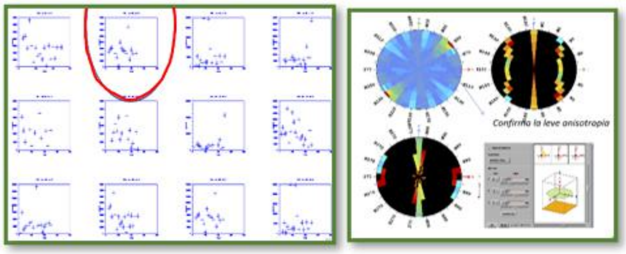
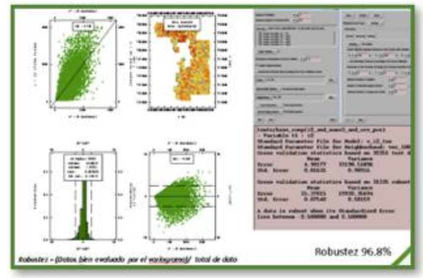


Figure 11-7. Swath Plots for Nitrate Hermosa

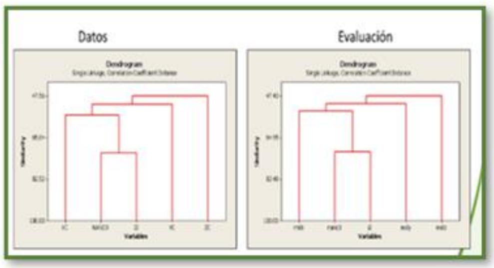
Anisotropy Analysis



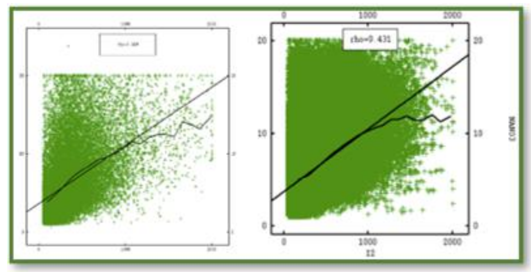
Cross Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

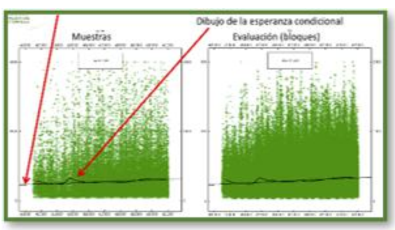


Multivariate Comparison

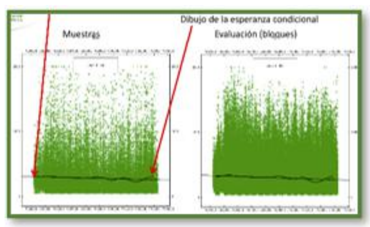


Seasonality Analysis

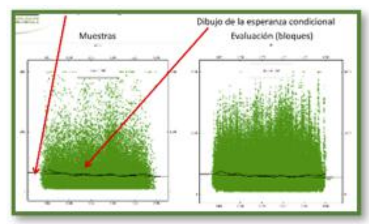
Direction E-W



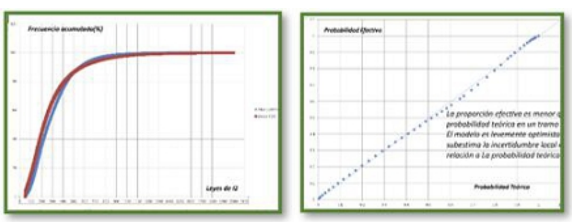
Direction N-S



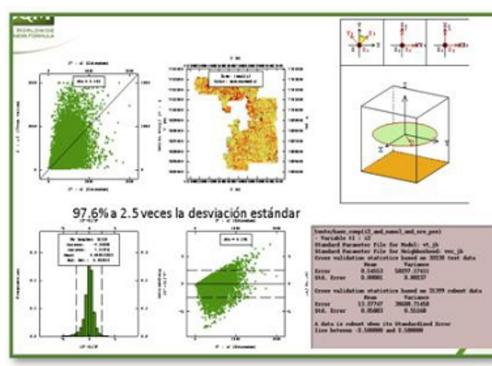
Elevation



Cumulative Distribution Function



Cross Validation Variogram Used



Commentaries

From the analysis carried out, the following is concluded:

There is a slight anisotropy.

Vary the search ellipse, between 120 and 300 meters provides very little to cross-validation, this mainly being a spatial structure where the first structure (which is the one that contributes the most to the variance) is of short scope and the second contributes very little to the total variance of the variogram its effect is minimal.

There is an improvement in search levels of the order of 160 meters mainly in the effect this has on standardized error.

The similarity levels of the model respect the levels of similarity present in the samples of the drilling at a high level, this happens for both Iodine and Nitrate.

The correlation indices present in the original data between Iodine and Nitrate, are keep in the block model.

The model presents a slight optimism and underestimates in a very uninfluential way local uncertainty, both at the data level and at the distribution function level Theoretical.

The average of the analyzed region presents, at the level of samples, an average value of iodine of 351 ppm and at block level 355 ppm.

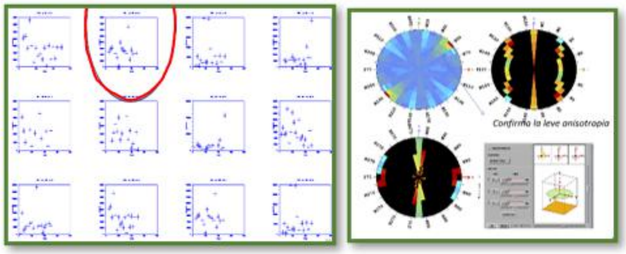
The average of the analyzed region presents, at level of samples an average nitrate of 5.81% and at block level 5.73%.

The cross-validation is of good quality with a high degree of robustness.

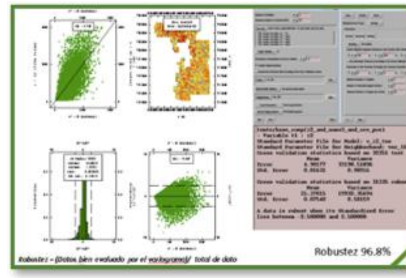
The model accurately represents the grades of the deposit in blocks of 25 x 25 x 0.5 both in Iodine and Nitrate. Presenting a slight optimism and very little influential underestimation of Local uncertainty.

Figure 11-8. Swath Plots for Iodine Torcaza

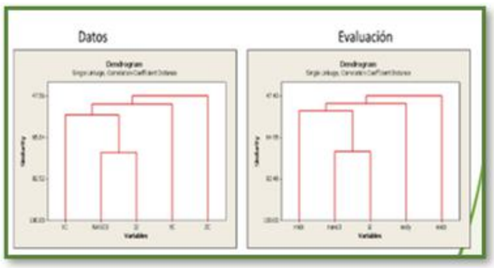
Anisotropy Analysis



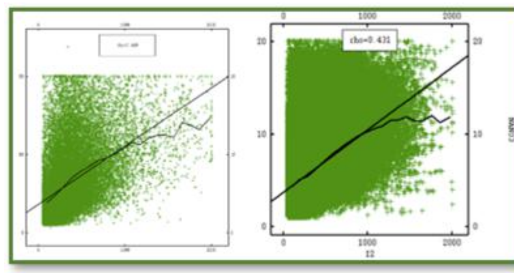
Cross Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

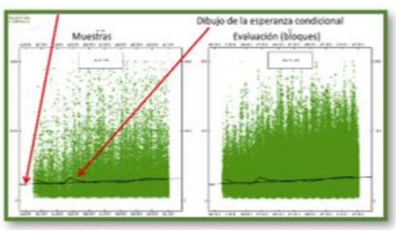


Multivariate Comparison

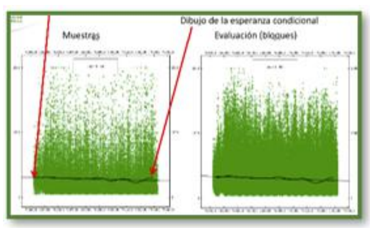


Seasonality Analysis

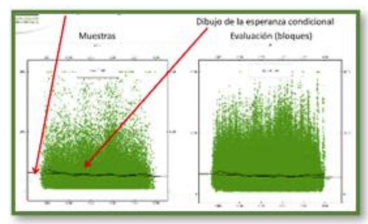
Direction E-W



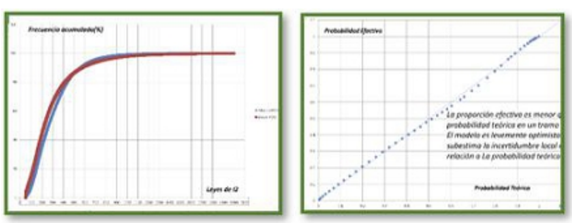
Direction N-S



Elevation



Cumulative Distribution Function



Cross Validation Variogram Used

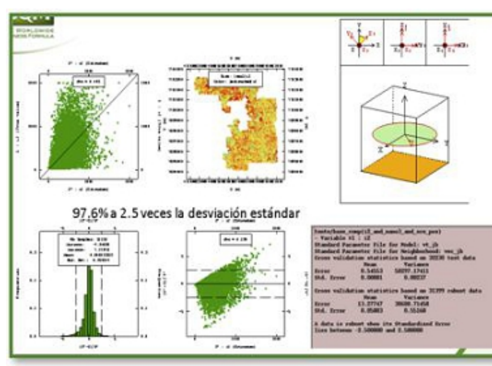
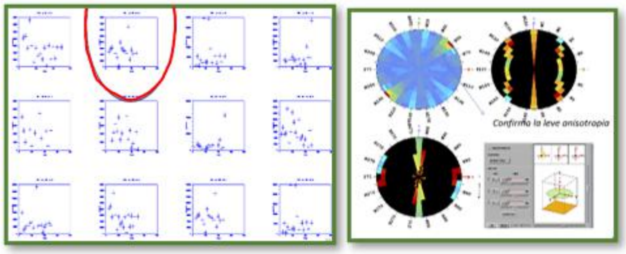
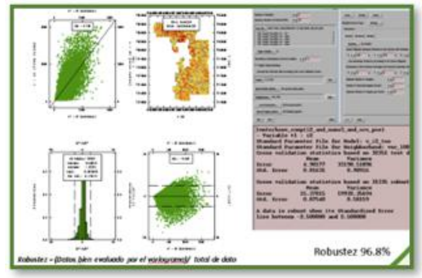


Figure 11-9. Swath Plots for Nitrate Torcaza

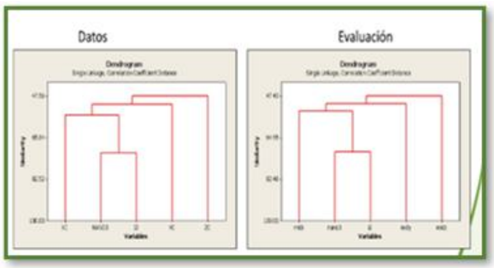
Anisotropy Analysis



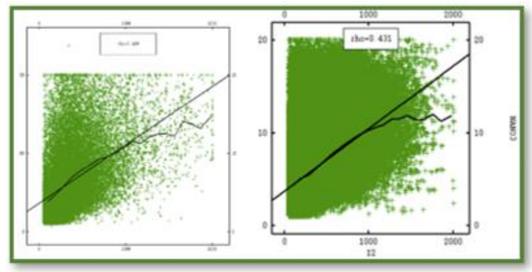
Cross Validation Neighborhood Search



Analysis Similarity Model Data with Dendrograms

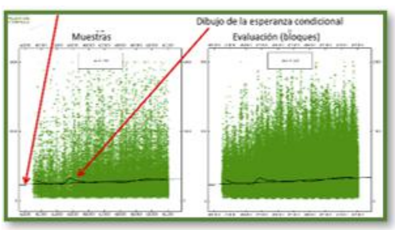


Multivariate Comparison

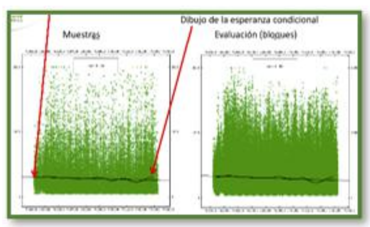


Seasonality Analysis

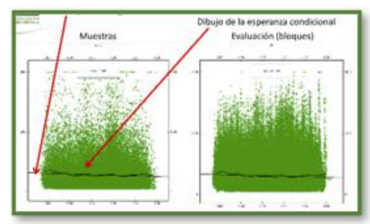
Direction E-W



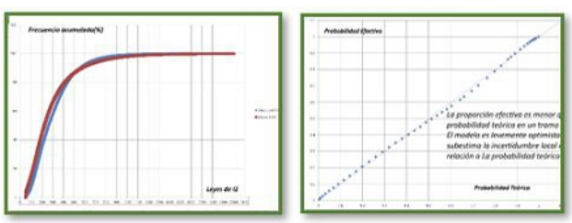
Direction N-S



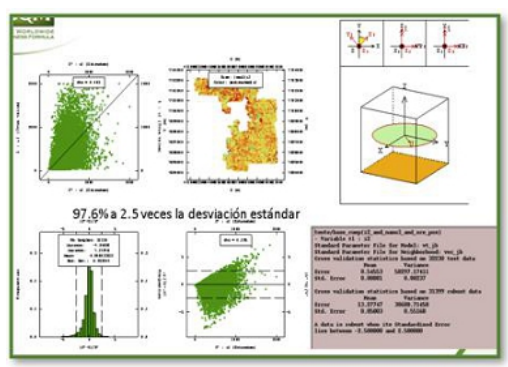
Elevation



Cumulative Distribution Function



Cross Validation Variogram Used



Commentaries

From the analysis carried out, the following is concluded:

- There is a slight anisotropy.
- Vary the search ellipse, between 120 and 300 m provides very little to cross-validation, this mainly being a spatial structure where the first structure (which is the one that contributes the most to the variance) is of short scope and the second contributes very little to the total variance of the variogram its effect is minimal.
- There is an improvement in search levels of the order of 160 m mainly in the effect this has on standardized error.
- The similarity levels of the model respect the levels of similarity present in the samples of the drilling at a high level, this happens for both Iodine and Nitrate.
- The correlation indices present in the original data between Iodine and Nitrate, are keep in the block model.
- The model presents a slight optimism and underestimates in a very uninfluential way local uncertainty, both at the data level and at the distribution function level Theoretical.
- The average of the analyzed region presents, at the level of samples, an average value of iodine of 259 ppm and at block level 262 ppm.
- The average of the analyzed region presents, at level of samples an average nitrate of 3.45% and at block level 3.43%.
- The cross-validation is of good quality with a high degree of robustness.
- The model accurately represents the grades of the deposit in blocks of 25 x 25 x 0.5 both in Iodine and Nitrate. Presenting a slight optimism and very little influential underestimation of Local uncertainty

11.1.7.2 Visual Validation

To visually validate the Iodine a Nitrate estimation, the QP completed a review of a set of cross-sectional a plant view. The validation shows a suitable representation of samples in blocks. Locally, the blocks match the estimation samples both in cross-section and plant view. In general, there is an adequate match between composite data block model data for Iodine and Nitrates grades. High grades areas are suitably represented, and high-grade samples exhibit suitable control.

Figure 11- to Figure 11- present a series of horizontal plant views with the estimated model and the samples for Nitrate and Iodine in TEA, Hermosa and Torcaza.

Figure 11-10. Visual Validation of Nitrate Estimation, Plan View TEA

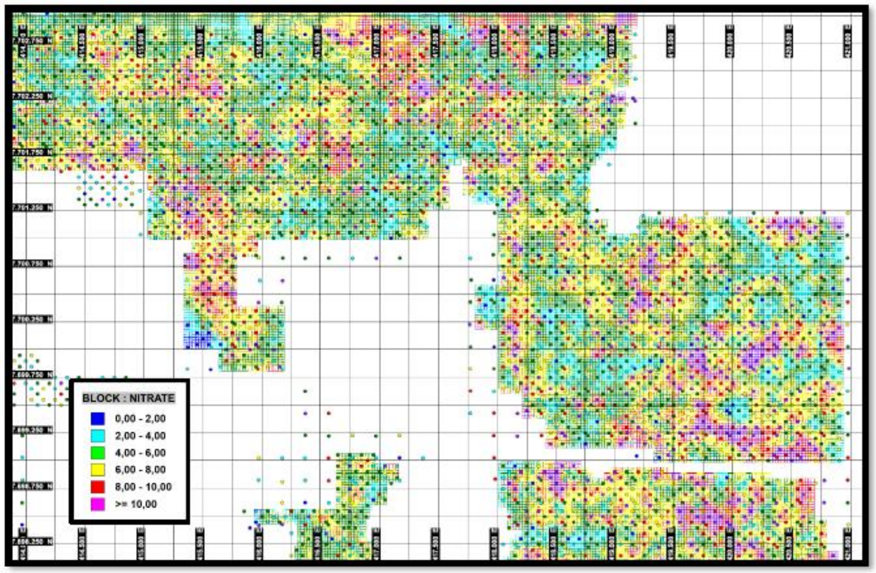


Figure 11-11. Visual Validation of Iodine a Estimation, Plan View Hermosa

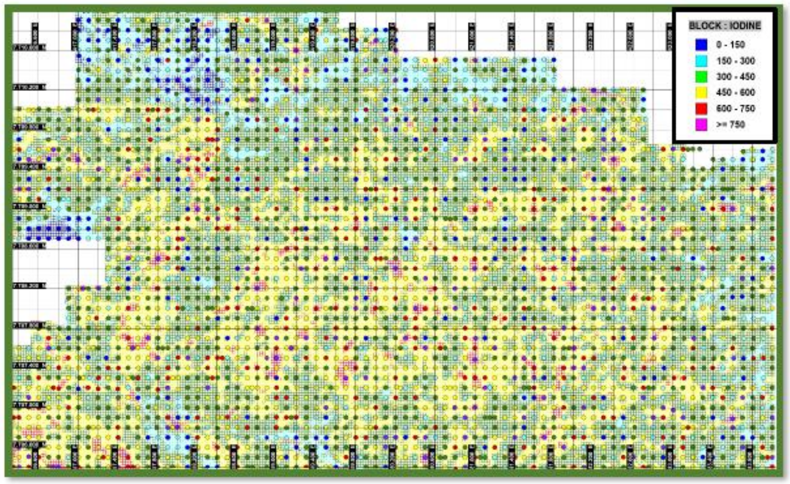
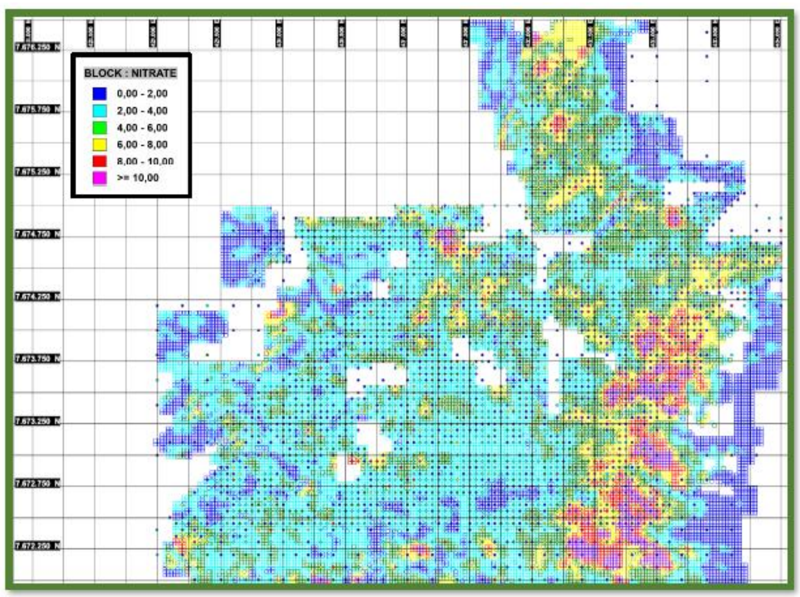


Figure 11-12. Visual Validation of Nitrate Estimation, Plan View Torcaza



11.1.7 Polygon Mineral Resource Evaluation

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.

For the sectors with a drill hole spacing grid greater than 200 x 200 m up to 400 x 400 m, the Mineral Resource evaluation was performed at the Polygon Method. Table 11-10 shows the parameters used to define the polygon with economic potential in Nueva Victoria.

Table 11-8. Economic and Operational Parameters Used to Define Economic Intervals for each Drill Hole in Nueva Victoria

Parameter	Value
Mantle thickness	More than 2.0 m
Cover thickness	Less than 1.0 m
Waste/Mineral Ratio	Less than 0.5
Nitrate Cut-off grade	3.0%
Iodine Cut-off grade	300 ppm

These parameters are the inputs that calculates for each polygon the economic potential which then are converted to tonnage using the multiplication of polygon area, thickness, and density (2.1 g/cc).

After the calculated and selected all the economic polygons SQM used the same methodology used in the block model evaluation to define polygons with material above cut-off grade and that comply with operational conditions.

MINERAL RESOURCE ESTIMATE

This sub-section contains forward-looking information related to Mineral Resources estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecast 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 a grade interpretations and controls and assumptions and forecast associated with establishing the prospect for economic extraction.

Table 11-9. summarizes The Mineral Resources estimate, exclusive of reserves, for nitrate and iodine in Nueva Victoria.

Table 11-9. Mineral Resource Estimate, Exclusive of Mineral Reserves, as December 31, 2022

Inferred Resource			
Nueva Victoria	**Tonnage (Mt)**	**Nitrate (%)**	**Iodine (ppm)**
Cocar	5.1	8.3	221
Los Angeles	9.3	9.0	331
Hermosa Oeste	15.5	4.7	387
TEA Oeste	1.2	4.0	397
Total	**31.1**	**6.5**	**343**

Notes:

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

(b) Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported LOM was subtracted from the Mineral Resources inclusive of Mineral Reserves.

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

(d) The units “Mt”; %, and “ppm” refer to million tons, weight percent, and parts per million respectively.

(e) The Mineral Resource estimate considers a nitrate cut-off grade of 3.0 %, based on accumulated cut-off nitrate grades and operational averages grades, as well as caliche thickness ≥ 2.0 m and overburden thickness ≤ 1.0 m. The mean iodine grade considers the cost and medium-and long-term price forecast of generating iodine as discussed in Section 11.16 and 19 of this TRS.

(f) As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage, or grades.

(g) Marta Aguilera is the QP responsible for the Mineral Resources.

MINERAL RESOURCE CLASSIFICATION

This sub-section contains forward-looking information related to Mineral Resources classification for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecast 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 Resources classification defined by SQM is based on drill hole spacing grid:

Measured Resources were defined using the drill holes grids of 50 x 50 m and 100 T m, which allows to delimit with a significant level of confidence the dimensions, mantle thickness and grades of the mineralized bodies as well as the continuity of the mineralization. Variability and uncertain studies carried out by SQM show a relative estimation error or 4.5 and 5.5 % for both grids, respectively.

Indicated Resources were defined using drill holes grids of 100 x 100 m and 200 x 200 m, which allows to delimit with a reasonable level of confidence the dimensions, mantle thickness, tonnage, and grades of the mineralized bodies. Variability and uncertain studies carried out by SQM show a relative estimation error or 7.6 and 8.3 % for both grids, respectively.

Inferred Mineral Resources were defined using drill holes grid greater than the 200 x 200 m and up to 400 x 400 m. When prospecting is carried out in districts or areas of recognized presence of caliche, or when the drill hole grids is accompanied by some prospecting in a smaller grid, confirming the continuity of mineralization, it is possible to anticipate that such resources have a sustainable base to give them a reasonable level of confidence, and therefore, to define dimensions, mantle thickness, tonnages, and grades of the mineralized bodies. The information obtained is complemented by the surface geology the definition of GUs.

MINERAL RESOURCE UNCERTAINTY DISCUSSION

Mineral Resource estimates may be materially affected by the quality of data, natural geological variability of mineralization and / or metallurgical recovery and the accuracy of the economic assumptions supporting reasonable prospects for economic extraction including metal prices, and mining and processing costs.

Inferred Mineral Resources are too speculative geologically to have economic considerations applied to them to enable them to be categorized as Mineral Reserves.

Mineral Resources may also be affected by the estimation methodology and parameters and assumptions used in the grade estimation process including top-cutting (capping) of data or search and estimation strategies although it is the QP's opinion that there is a low likelihood of this having a material impact on the Mineral Resource estimate.

ASSUMPTIONS FOR MULTIPLE COMMODITY MINERAL RESOURCE ESTIMATE

For Nueva Victoria, the cut-off grade depends on nitrate and iodine grade. Nitrate is part of Iodine process.

QUALIFIED PERSON'S OPINION ON FACTORS THAT ARE LIKELY TO INFLUENCE THE PROSPECT OF ECONOMIC EXTRACTION

As Nueva Victoria is an active mine with more than 20 years of operational experience and data, it is the QP's opinion that the relevant technical and economic factors necessary to support economic extraction of the Mineral Resource have been appropriately accounted for at the Mine.

The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that could materially affect the Mineral Resource Estimate that are not discussed in this Technical Report.

12 MINERAL RESERVE ESTIMATE

ESTIMATION METHODS, PARAMETERS AND METHODS

This sub-section contains forward-looking information related to the key assumptions, parameters, and methods for the Mineral Reserve estimates for the Project. The materials factors that could cause actual results to differ materially from the conclusion, estimates, designs, forecast or projection in the forward-looking 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 tons and grade and mine design parameters.

Mineral Reserves estimates are based on sample grades obtained from drill holes executed with reverse air drilling rigs in 200 x 200 m, 100 x 100 m, 100 T m (100 x 50 m) and 50x50 m grid spacing.

Measured Resources are evaluated from 3D blocks built by numerical interpolation techniques (Ordinary Kriging), where nitrate, iodine, and soluble salt content information available from data obtained in drill hole grids with a spacing equal to or less than 70 m (100T and 50 x 50 m).

Indicated Resources are evaluated from 3D blocks built by Inverse Distance Weighted (IDW) interpolation technique and defined by drill hole spacing of 100 x 100 m and 200 x 200 m.

Mineral Reserves considers SQM's criteria for the mining plan which includes to the following:

Caliche Thickness ≥ 2.0 m

Overload thickness ≤ 1.0 m

Waste / Mineral Ratio ≤ 0.5

Nitrate 3.0 % cut-off grade.

The average production cost for iodine prill corresponds to 19.5 USD/kg and the sales price for Iodine derivatives is 40.0 USD/kg. For nitrate concentrate brine[1], the average production unit cost is 82.31 USD/ton (mining, leaching, seawater pipeline, neutralization, and pond treatment) and the Nitrate salts for fertilizer price is 333 USD/ton.

The mining sectors consider in the mining plans (see figure 12-2) are delimited in base of the environmental licenses obtained by SQM and a series of additional factors (layout of main accesses, heap and ponds locations, distance to treatment plants, etc.). Mining is executed in blocks of 25 x25 m and the volumes of caliche to be extracted are established considering an average density value applied to 2.1 t/m³ for the deposit.

Using these criteria SQM estimated volumes (caliche) to be considered as Proven Reserves based on the 3D block models built, to define Measured Mineral Resources, and applying the criteria defined above to determine the mining plan.

[1] Correspond to the brine enriched in nitrate salts (AFA-Acid Water Feble) neutralized and treated in ponds (Salar Sur Viejo) that SQM transport to Coya Sur plant produce Potassium Nitrate Fertilizers mixing with KCL from Salar de Atacama.

The Indicated Resources estimated by Inverse Distance Weighted method using the Nitrate and Iodine grades and other relevant data obtained from medium density drill hole prospecting grids (100 x 100 m and 200 x 200 m) are stated as Probable Reserves using the same criteria for mineral reserves describes above, caliche and overload thickness, waste/mineral rates, and Nitrate cut-off grade.

To convert Indicated Resources in Probable Reserves, SQM use a unit conversion factor for tonnage considering the layered, shallowed, and sub-horizontal geological features of "caliches" and the mining process to extract the ore. Nevertheless, the intrinsic geological variability of the mineral deposit, perceived when comparing the results obtained from medium density drill hole spacing prospecting surveys (100 x 100 m and 200 x 200 m) with higher density surveys (100T m or 50 x 50 m), indicates using coefficient below the 1.0 for Nitrates and Iodine grades for the conversion Indicated Resources to Probable Reserves.

The historical data collected by SQM during decades of mining exploitation of caliches in Chile implies the use of different values for grade conversion depending on the mine. For Nueva Victoria mine, SQM's mining experience indicates the use of a coefficient of 0.90 for Iodine and 0.85 for Nitrate for Probable Reserves evaluated from Indicated Resources.

Was executed and analysis using 3D model blocks built with the information derived from the database from the prospecting drill hole surveys (100 x 100 m and 200 x 200 m) in the TEA sector of Nueva Victoria mine, reviewing the base data, variograms for nitrate and iodine grades and Ordinary Kriging interpolation, to reconcile these with 3D blocks models obtained from 3D Model Block with combine all the data of the prospecting surveys execute in TEA sector (100 x 100 m and 200 x 200 m and 50 x 50 m).

The purpose was to verify the criteria used to convert Indicate Resources to Probable Reserves. The results of the reconciliation exercise are as follow (Figure 12-1 and table 12-1):

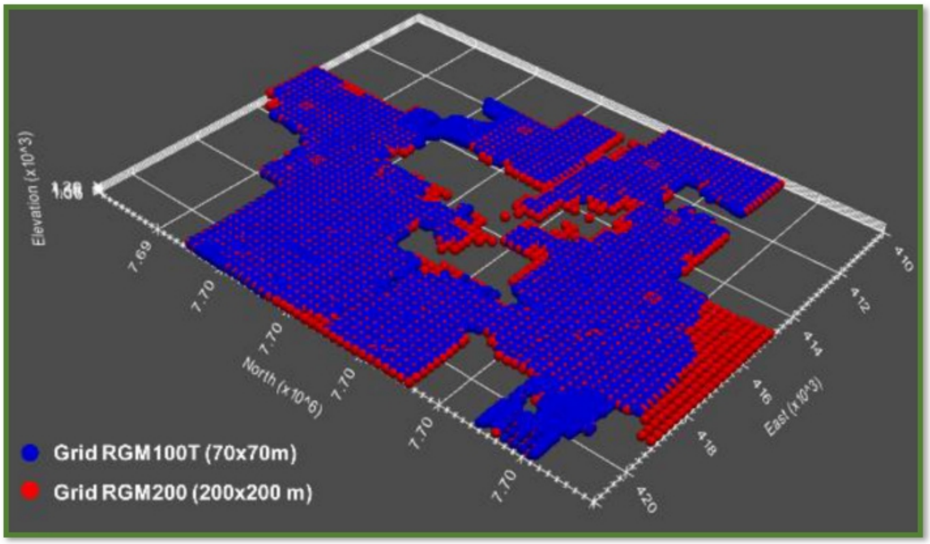
The average Nitrate and Iodine grades obtained by the 3D Block Model built using the 200 x 200 m database higher than the average grades obtained by the 3D Block Model built by the 100T m database.

The average Nitrate and Iodine grades and tonnage obtained by the 3D Block Model built using 100T m database (100x50 m drill hole spacing grid) and the 3D Block Model built to estimate Resources (using collectively base data form 50 x 50 m, 100 x 100m and 200 x 200 m) are similar.

The average Iodine and Nitrate grades obtained by the 3D Block Model built using only 200 x 200 m database are higher than the average grades obtained by the 3D Block Model built using the whole entire database (using collectively base data form 50 x 50 m, 100 x 100m and 200 x 200 m.

Based on the SQM experience and the result obtained to compare data from different grid geological investigations, justify the use of coefficients below a value of one for nitrate and iodine grades to convert Indicate Resources to Probable Reserves, as show in accounts for the variability of the caliche deposits.

Figure 12-1. Results of the 3D Block Models Conciliation

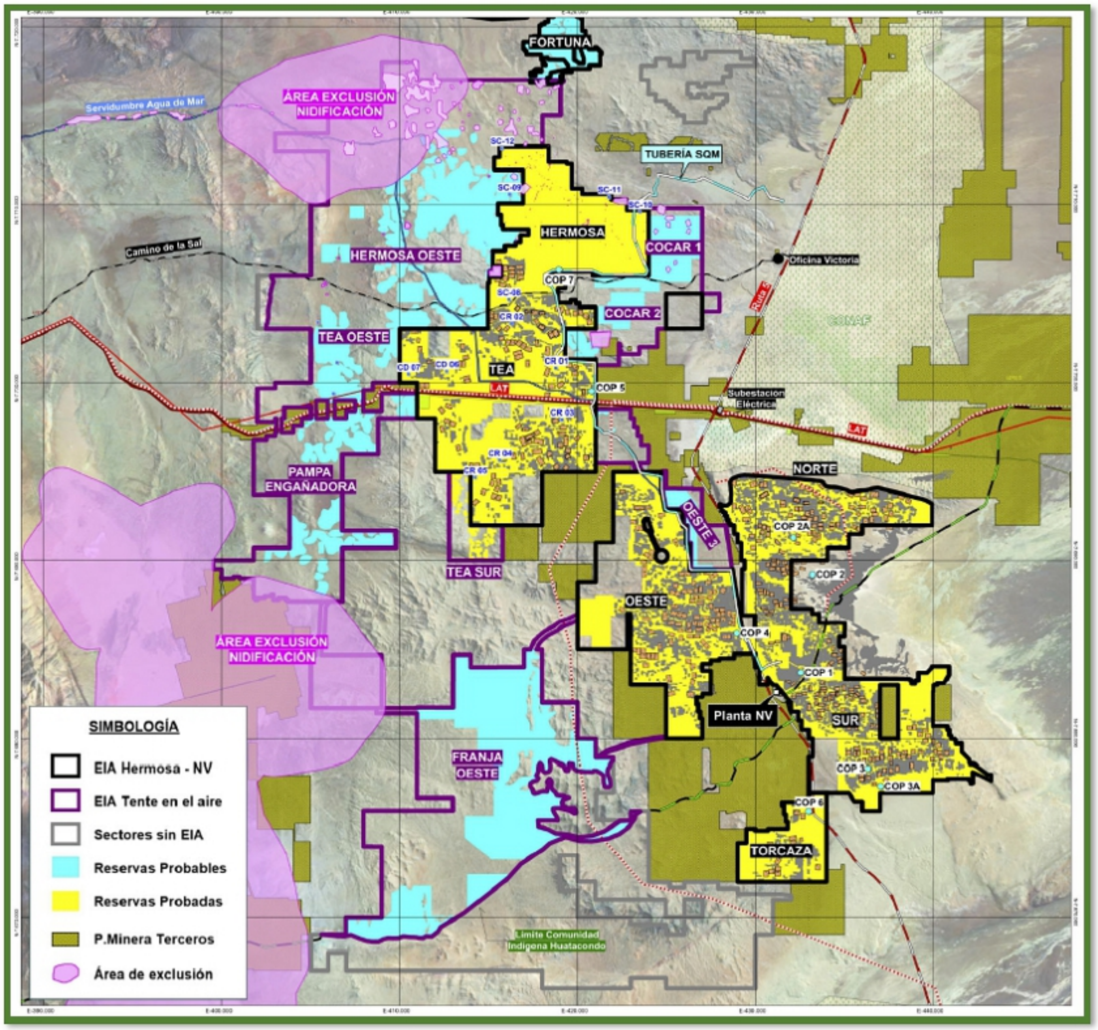


Prospecting drill hole grid – Tente en el Aire (TEA) sector Nueva Victoria Mine.

Table 12-1. Results of 3D Block Model Reconciliations

SOURCE	CUT-OFF Nitrate (%)	Nitrate (%)	Iodine (ppm)	Tonnage (Mt)	Nitrate (Mt)	Iodine (Kt)
3D Model Block SQM (MBSQM)	3.0	5.9	448	324	1.9	145.3
3D Model Block 100T (MB100T)		5.8	428	322	1.9	137.6
3D Model Block 200x200 m (MB200)		6.6	460	319	2.1	147
Difference: (MB100T - MBSQM)/ MB100T		**-1%**	**-4%**	-1%	-1%	-5%
Difference: (MBSQM - MB200)/ MBSQM		**-12%**	**-3%**	1%	-10%	-1%
Difference: (MB100T - MB200)/ MB100T		**-11%**	**-7%**	1%	-11%	-6%

Figure 12-2 Map of Reserves Sectors in Nueva Victoria



CUT-OFF GRADE

SQM´s has historically used an operational cut-off grade of 300 ppm of iodine; for this year´s report has been used operational cut-off grade of 3.0% of Nitrate. The QP has reviewed the cut-off and agrees that at cut-off of 3.0% nitrate is conservative and will more than pay all mining cost and iodine production cost. Additional nitrate production profits will enhance the economics, and that the nitrate cut-off is appropriate for operations.

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, estimate, designs, forecast 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 Resources model tons, grade, and classification.

The geological features of the mineral deposits (sub-horizontal, superficial, and limited thickness) allow to consider all the estimated Measured and Indicated Mineral Resources and Mineral Reserves, because, regardless, the method of mining extraction used by SQM (drill & blast, continuous miner), the entire volume/mass of Mineral Resources defined as Measured or Indicated can be extracted.

Any mining block (25x25 m) that can´t be extracted due to temporary infrastructure limitations (pond, pipes, roads, etc.), are still counted as Mineral Reserves since they may be mined once the temporary limitations are removed.

Proved Reserves have been determined based on Measured Resources, considering the rules set for tonnage and grades conversion (direct conversion of tonnage and grades). Measured Resources are classified as describe in section 11.3 with modifying factors, as described in section 12.1.

Probable Reserves has been determined from Indicated Resources, which are classified as described in section 11.3. Additional criteria as described in section 12.1 are applied in conjunctions with conversion factors for grade conversions as described in section 12.1 and summarized in table 12-2. SQM applies a conversion factor of 0.85 for nitrate and 0.90 for iodine grades.

MINERAL RESERVES

This sub-section contains forward-looking information related to the Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimate, designs, forecast 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 Resources model tons and grade, modifying factors including mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

Nueva Victoria mine is divided into three sectors: Nueva Victoria, Tente en el Aire (TEA) and Hermosa. Each sector is further subdivided into exploitation sub-sectors (see Figure 12-2).

The Nueva Victoria Sector (located at the SW Sector) contains the following sub-sectors:

Mina Sur, Mina Oeste, Oeste 3, Torcaza and Franja Oeste;

The Tente en el Aire (TEA) Sector (Central Sector) contains the following sub-sectors:

TEA, TEA Oeste, TEA Sur, TEA Central, Fortuna, Pampa Engañadora and Cocar;

Finally, the Hermosa Sector (North and NE Sector):

Hermosa, Hermosa Oeste and Coruña

SQM extracts “caliches” from these sectors within areas having environmental license currently approved by the Chilean authorities. Soon, SQM plans to obtain additional environmental licenses to extend the mining into the TEA sector.

SQM exploits caliche at a rate of up to 37,000 ktpy for Nueva Victoria plant site (Exempt Resolution N°0515/2012), and a rate of up to 28,000 ktpy for TEA Project (Exempt Resolution 0047/2022), which implies a caliche production of 65,000 ktpy of caliche extraction in Nueva Victoria.

In 2022 caliche mining production targeted 44.5 Mt of Proved Reserves[2] with an iodine grade averaging 430 ppm I_2 and nitrate salts of 5.9% $NaNO_3$. This implies an average mining rate of 12.4 kt of iodine and 2,611 kt of nitrates in 2022.

SQM's Mining Plan for 2023-2040 (Nueva Victoria-SQM Industrial Plan) sets a total extraction of 773 Mt of caliche with production ranging between 44,000 and 65,000 ktpy. 71% (546 Mt) of this material will be extracted by blasting and 29% (226 Mt) by continuous miner. Iodine average grade is 422 ppm and Nitrate average grade is 5.3% for the long term of mine (LP).

[2] The Five-Year Mining Plan (5YP) in Nueva Victoria mine is defined by the exploitation of Proved Reserves. Every year SQM execute a plan to re-categorization the prospecting grid used to define indicate Resources (100 x 100 m or 200 x 200 m) to convert these to Measured Resources using a higher density drill hole spacing grid (100 T m or 50 x50 m).

The criteria for estimating Mineral Reserves are as described below:

Measured Mineral Resources defined by 3D Model block and ordinary kriging using data from high resolution drill hole spacing campaigns (100T m or 50 x 50 m) are used to establish Proven Mineral Reserves using a unit coefficient conversion for tonnage and Iodine and Nitrate grades (see Table 12-2).

Indicated Mineral Resources defined by 3D Model Block an Inverse Distance Weighted using data from medium resolution drill hole spacing campaigns (100 x 100 m and 200 x 200 m) are converted to Probable Mineral Reserves using a coefficient equal one for tonnage conversion and coefficients lower than one for iodine and nitrate grades as consequence of natural variability of grades in the mineral deposit for coarser drill grids (see Table 12-2).

All the prospected sectors at Nueva Victoria have an environmental license to operate, considering the mining method used by SQM (drill-and-blast and CM) and the treatment by heap leach structures to obtain enriched brines of iodine and nitrates.

Table 12-2 Resources to Reserves Conversion Factors at the Nueva Victoria Mine

Measured Resources	Proven Reserves		
	Tonnage (Mt)	Nitrate (%)	Iodine (ppm)
100T (100 x 50 m)	1.0	1.0	1.0
50 x 50 m	1.0	1.0	1.0

Indicated Resources	Probable Reserves		
	Tonnage (Mt)	Nitrate (%)	Iodine (ppm)
100 x 100 m	1.0	0.85	0.90
200 x 200 m	1.0	0.85	0.90

Notes:

1. Grade variability depends on the prospecting drill hole spacing.

2. Reconciliation analysis using grades/tonnages obtained from 100 x 100 m or 200 x 200 m against those obtained from 100T or 50 x 50 m indicates the need to use conversion coefficients lower than 1 on grades.

Modifying Factors

The modifying factors are considered herein. All permits are current and although there are no formal agreements, the operations have longstanding relationships with the communities, some of which are company towns. Mining, processing, downstream costs, mining loss, dilution, and recoveries are accounted for in the operational cutoff grade. As the project has been in operation since 2002, the risks associated with operating costs and recoveries are considered minimal.

Based on the described rules for resources to reserves conversion and qualification, the Proven Mineral Reserves and Probable Mineral Reserves of Nueva Victoria has been estimated as shown in Table 12-3 summarizes the estimated Mineral Reserves in the different sectors investigated by SQM in the Nueva Victoria mine.

Table 12-3 Mineral Reserves at the Nueva Victoria Mine (Effective 31 December 2022)

	Proven Reserves	Probable Reserves	Total Reserves
Tonnage (Mt)	219.5	553	772.5
Iodine Grade (ppm)	441	415	422
Nitrate Grade (%)	5.9	5.1	5.3
Iodine (kt)	96.8	229.5	326.3
Nitrate (kt)	12,951	28,203	41,154

Notes:

a) Mineral Reserves are based on Measured and Indicated Mineral Resources at an operating cutoff of 3.0 % nitrate. Operating constraints of caliche thickness ≥ 2.0 m; overburden thickness ≤ 1.0 m; and waste / caliche ratio ≤ 0.5 are applied.

b) Proven Mineral Reserves are based on Measured Mineral Resources at the criteria described in (a) above.

c) Probable Mineral Reserves are based on Indicated Mineral Resources at the criteria described in (a) above with a grade call factor of 0.9 for iodine and 0.85 for nitrates confirmed by operating experience.

d) Mineral Reserves are declared as in-situ ore (caliche).

e) The units "Mt", "kt", "ppm" and % refer to million tons, kilotons, parts per million, and weight percent respectively.

f) Mineral Reserves are based on a Nitrate price of 333 USD/ton and an Iodine price of 40.0 USD/Kg. Mineral Reserves are also based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19).

g) Marta Aguilera is the QP responsible for the Mineral Reserves.

h) The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that could materially affect the Mineral Reserve estimate that are not discussed in this TRS.

i) Comparisons of values may not total due to rounding of numbers and the differences caused by use of averaging methods.

The final estimates of Mineral Reserves by sector are summarized in the Table 12-4. The procedure used to check the estimates as follows:

Verified tonnage and average grades (iodine and nitrate) as Mineral Reserves by sectors with the measured and indicated resources previously analyzed (Section 11).

Checked that the sectors with estimated Mineral Reserves by SQM are in areas with environmental licenses approved by the Chilean authorities while also considering application of modifying factors.

Checked that the rules and factors previously described to convert Measures Resources to Mineral Reserves (tonnage and grade) have been correctly applied.

Confirmed that each sector with Mineral Reserves is considered in the Long Term mine plan (2023-2040) and the total volume of mineral ore (caliche) is economically mineable.

Considered the judgment of the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction.

Table 12-4 Reserves at the Nueva Victoria Mine by Sector (Effective 31 December 2022)

Mining	Proved			Probable			Reserves		
	Tonnage (MTon)	Nitrate (%)	Iodine (ppm)	Tonnage (MTon)	Nitrate (%)	Iodine (ppm)	Tonnage (MTon)	Nitrate (%)	Iodine (ppm)
Nueva Victoria	37.9	4.9	405	108	4.2	403	145.9	4.4	404
Tente en el Aire	22.4	4.7	402	265	5.2	412	287.4	5.2	411
Hermosa	159.2	6.3	455	180	5.4	428	339.2	5.8	441
Total	**219.5**	**5.9**	**441**	**553**	**5.1**	**415**	**772.5**	**5.3**	**422**

Exploitation sector of Nueva Victoria comprises:

West Mine, West 3, Torcaza and Franja Oeste (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria).

Exploitation sector of Tente en el Aire (TEA) includes:

TEA Oeste, TEA Sur, Fortuna, Pampa Engañadora and Cocar (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria).

Exploitation sector of Hermosa considers:

Hermosa, Hermosa Oeste, and Coruña (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria).

12.5 Qualified Person's Opinion

The estimate of mineral reserves is based on Measured and Indicated Mineral Resources. This information has been provided in reference to Nueva Victoria. The Competent Person has audited the mineral resource estimate and modifying factors to convert the measured and indicated resources into proven and probable reserves.

The Competent Person has also reconciled mineral reserves with production and indicates that such reserves are appropriate for use in mine planning.

13 MINING METHODS

SQM provided with production forecasts for the period from 2023 to 2040 (Mining Plan MP). This Mining Plan was checked that the planned exploitation sectors had environmental licenses approved by the Chilean authorities; the total tonnage and average Iodine and Nitrate grades were consistent with estimated Mineral Reserves; the total volume of mineral ore (caliche) is economically mineable and the production of prilled Iodine and Brine Nitrate Concentrate (Brine Nitrate) set by SQM is attainable, considering the dilution and mass losses for mining and recovery factors for leaching and processing

Mining at the Nueva Victoria mine comprises soil and overload removal, mineral extraction from the surface, loading and transport of the mineral (caliche) to make heap leach pads to obtain iodine and nitrate-enriched solutions (brine leach solution).

Mineralization can be described as stratified, sub-horizontal, superficial (≤ 5.0 m), and limited thickness (3.0 m average). The extraction process of the mineral is constrained by the tabular and superficial bedding disposition of the geological formations that contain the mineral resource (caliches). This mining process has been approved by local mining authorities in Chile (SERNAGEOMIN) [3]. Generally, extraction consists of a few meters' thick excavation (one continuous bench of up to 6.0 m in height (overburden + caliche) where the mineral is extracted using traditional methods - drilling and blasting and a CM. Extracted ore is loaded by front loaders and/or shovels and transported by rigid hopper mining trucks to heap leach structures.

The concentration process starts with leaching in situ by means of heap leach pads irrigated by drip/spray to obtain an iodine and nitrate enriched solution that is sent to treatment plants to obtain the final products. The mining and extraction process is summarized in Table 13-1.

[3] SERNAGEOMIN Resolution 1469/2005 of June 30, 2005 (" Ordinance for Regularization of Mine Exploitation Method and mineral treatment and expansion of Nueva Victoria mine and iodide plant"); updated by SERNAGEOMIN Resolution 0515/2012 of November 29, 2012, in accordance with Article 22 of D.S. No. 132/04, Ministry of Mining, Mining Safety Regulations).

Table 13-1. Summary of Nueva Victoria-SQM caliche mine characteristics

Mining System	Opencast with a single and continuous bench with a height of up to 6 m
Drilling	Atlas Copco Model F9 and D7
Blast Mining (Explosive)	ANFO, detonating cord, 150 gr APD booster and non-electric detonators. Power factor 0.365 kg/ton
Continuous Mining	Surface excavator (tractor with cutting drum)
Loading and Transportation	Front loaders (12 to 14 m^3), 100 to 150 t trucks (60 m^3 to 94 m^3 capacity)
Topsoil Stripping (overburden removal)	0.15 m^3 of soils and overburden / ton of caliche
Caliche Production	122,500 tons per day (tpd)
Dilution Factor	± 10 ppm Iodine (< 2,5%)
Recovery Factor	56% of Iodine and 52% of Nitrate (2008 - 2022 period)
Heap Leaching Water Consumption	0.39 to 0.60 m^3/ ton leached caliche (2008 - 2022 period)
Sterile[(a)] / Ore Mass Ratio	1 t: 2.36 t

(a) This material is used by SQM to build the base of the heap pads. The final volume of waste material is negligible.

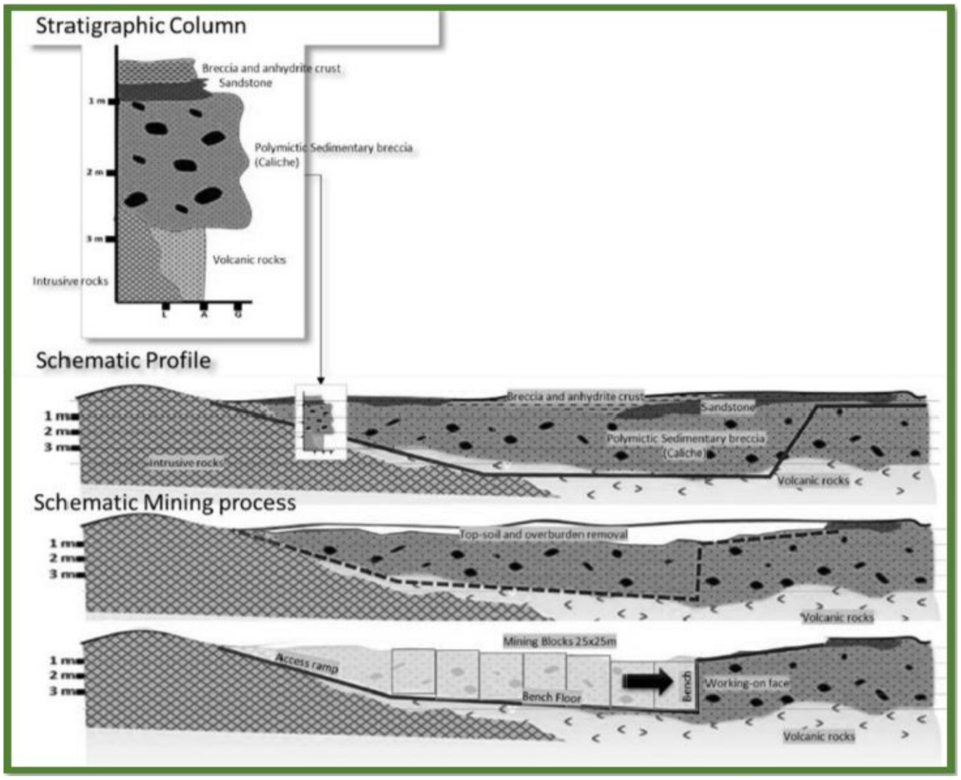
GEOTECHNICAL AND HYDROLOGICAL MODELS, AND OTHER PARAMETERS RELEVANT TO MINE DESIGNS AND PLANS

This sub-section contains forward-looking information related to mine design 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.

Mining at Nueva Victoria is relatively simple, as it is only necessary to remove a surface layer of sterile material (soil + overburden) up to 1.0 m thick (sandstone, breccia, and anhydrite crusts), which is removed. Subsequently the ore (caliche) is extracted, which has a thickness of 1.50 to 6.0 m (average of 3.0 m). Caliche's geotechnical characteristics (Polymictic Sedimentary Breccia) allow a vertical mining bench face, allowing increased efficiency in the exploitation of the mining resources.

The mining conditions do not require physical stability analysis of the mining working face; therefore, no specific geotechnical field investigations and designs are required. One single final bench of about 4.70 m average height (1.0 m of soil + overburden and 3.2 m of caliche) is typical of the operations (Figure 13-1).

Figure 13-1. Stratigraphic Column and Schematic Profile, and Schematic Mining Process in Nueva Victoria Caliche Mine



Due to its practically non-existent surface runoff and surface infiltration (area with very low rainfall) and its shallow mining depth, the water table is not reached during excavation. Therefore, no surface water management and/or mine drainage plans are required to control groundwater and avoid problems arising from the existence of pore pressures.

Therefore, this mining operation does not require detailed geotechnical, hydrological, and hydrogeological models for its operation and/or mining designs and mining plans.

Two methods are used in the mining operation: blasting and continuous surface mining. The selection of the method to be used in each sector depends on a variable defined by the hardness of the caliche to be excavated and its proximity to infrastructure, where there may be a potential risk of blasting damage.

The hardness is established during geological surveys and exploration and relates to the following qualitative technical criteria as judged by the geologist in the field from boreholes:

Caliche drilled borehole section that exhibits collapse and/or roughness in diameter is rated as Soft (Hardness 1) or Semi-Soft (Hardness 2).

Borehole section drilled in caliche that exhibits a consistent and smooth borehole diameter is rated as Hard (Hardness 3).

This parameter is included in the block model and is used in decision-making on mining and heap leach shaping.

Extracted mineral is stockpiled in heaps located in same general area of exploitation. Heap leach pads are constructed in previously mined-out areas. The pads are irrigated to leach the target components (iodine and nitrates) by aqueous dissolution (pregnant brine solution).

SQM has analyzed heap leach stability[4] to verify the physical long-term stability of these mining structures under adverse conditions (maximum credible earthquake). Geomechanical conditions analyzed for heap leaching facilities that are already closed have been considered, which have the following characteristics:

Wet density of 20.4 kilonewtons per cubic meter (kN/m³).

Internal friction angle of 32º.

Cohesion of 2.8 kPa.

A graded compacted material is used to support the liner on which the piles rest. The specification is based on experience and is generally defined by a wet density of 18.5 kN/m³, an angle of friction (ϕ) of 38° and no cohesion. Between the soil base and heap material there is an HDPE sheet that waterproofs the heap leach pad foundation. The interface between geomembrane HDPE and the drainage layer material is modelled as a 10 cm thick layer of material and a friction angle ϕ = 25° is adopted, which represents generated friction between the soil and the geomembrane.

Maximum acceleration value for the maximum credible earthquake is set at 0.86 G (G = 9.8 m/s^2) and for the design earthquake it is set at 0.35 G.

The horizontal seismic coefficient (K_h) was set through expressions commonly used in Chile and the vertical seismic coefficient (K_v) was set according to NCh 2369 Of. 2003, as 2/3 of the horizontal coefficient. Therefore, in the stability analysis of heaps, a K_h value of 0.21 and K_v of 0.14 was used for the maximum credible earthquake; and a K_h of 0.11 and K_v of 0.07 were used for the design earthquake.

[4]INFORME TÉCNICO ANÁLISIS DE ESTABILIDAD DE TALUDES PILAS 300 Y 350. SQM N° 14220M-6745-800-IN-001. PROCURE Servicios de Ingeniería (21146-800-IN-001), May 2021

The stability analysis was executed using the static dowel equilibrium methodology (Morgenstern-Price Limit Equilibrium method) and GeoStudio's Slope software, with results that comply with the minimum Factor of Safety criteria.

Based on the analysis developed in this document, it is possible to draw the following conclusions (Table 13-2 and Figure 13-2):

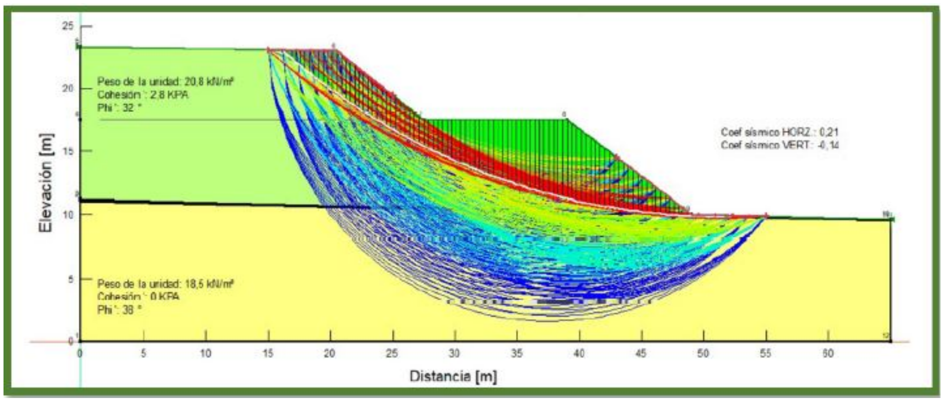
The slopes of the heaps analyzed in their current condition are stable against sliding.

None of the heaps will require slope profiling treatment after closure.

Table 13-2. Summary Results of Slope Stability Analysis of Closed Heap Leaching (Nueva Victoria)

Heap pad Number	Static case (FS_{adm} = 1,4)	Pseudo-static design earthquake (FS_{adm} = 1,2)	Pseudo-static maximum credible earthquake (FS_{adm} = 1,0)
300	1.93	1.42	1.09
350	1.91	1.42	1.1

Figure 13-2. Geotechnical Analysis Results: Heap #300, Hypothesis Maximum Credible Earthquake



TECHNICAL REPORT ''ANÁLISIS DE ESTABILIDAD DE TALUDES PILAS 300 Y 350''. Document SQM N° 14220M-6745-800-IN-001. PROCURE Servicios de Ingeniería (21146-800-IN-001), May 2021.

PRODUCTION RATES, EXPECTED MINE LIFE, MINING UNIT DIMENSIONS, AND MINING DILUTION AND RECOVERY FACTORS

The MP considers a total caliche extraction of 773 Mt, with a production decreasing from 44 Mtpy to 40 Mtpy, as shown in Table 13-3. For the MP total caliche to be extracted is projected to have iodine grades ranging between 410 to 440 ppm and nitrate grades between 4.99 % and 5.8%.

With an average Iodine grade of 422 ppm (0.042%), gross iodine prill production is estimated to be at 30 tpd (10.850 tpy of iodine). Likewise, for a Nitrate average grade of 5.3 %, average Nitrate salts for fertilizer production is estimated to be at 2,458 tpd (897 ktpy of nitrate salts for fertilizer).

The mining area extends over an area of 40 km x 50 km (see Figure 12-2). The mining sequence is defined based on the productive thickness data established for caliche from geological investigations, approved mining licenses exist, distances to treatment plants and ensuring that mineral is not lost under areas where infrastructure is planned to be installed (heap bases, pipelines, roads, channels, trunk lines, etc.). Areas with future planned infrastructure are targeted for mining prior to establishing these elements or mined after the infrastructure is demobilized.

Mineral Reserves considers SQM's criteria for the mining plan which includes the following:

- Caliche Thickness ≥ 2.0 m.
- Overburden thickness ≤ 1.0 m.
- Waste / Mineral Ratio ≤ 0.5.
- Nitrate (3.0 %) cut-off grade.

In addition to the above-mentioned operational parameters, the following geological parameters are also considered for determining the mining areas:

- Lithologies.
- Hardness parameters.
- Total salts (caliche salt matrix) which impact caliche leaching.
- Total salts elements (majority ions) which impact caliche leaching.

GPS control over the mining area floor is executed during mining to minimize dilution of the target iodine and nitrate grades.

Table 13-3. Mining Plan (2023-2040)

MATERIAL MOVEMENT	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Nueva Victoria Sector Ore Tonnage	**Mt**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**128**
Iodine (I2) in situ	ppm	417	416	388	386	386	389	414	410	0	0	0	0	0	0	0	0	0	0	**401**
Average grade Nitrate Salts (NaNO3)	%	5.8%	4.7%	4.5%	4.0%	4.0%	4.2%	5.2%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**4.6%**
Tente en el Aire (TEA) Sector Ore Tonnage	**Mt**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**110**
Iodine (I2) in situ	ppm	403	403	420	400	429	404	405	394	364	403	404	0	0	0	0	0	0	0	**403**
Average grade Nitrate Salts (NaNO3)	%	4.3%	4.3%	5.4%	5.0%	5.2%	4.5%	4.1%	4.0%	4.0%	4.1%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**4.4%**
Hermosa Sector Ore Tonnage	**Mt**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**34**	**34**	**33**	**43**	**42**	**42**	**41**	**41**	**41**	**40**	**535**
Iodine (I2) in situ	ppm	482	460	478	464	466	441	459	428	423	424	425	418	421	417	422	422	415	422	**431**
Average grade Nitrate Salts (NaNO3)	%	6.6%	6.1%	6.4%	6.2%	6.6%	6.2%	5.8%	5.8%	5.9%	5.5%	5.4%	5.4%	5.3%	5.4%	5.3%	5.3%	5.4%	5.3%	**5.6%**
TOTAL ORE MINED (CALICHE)	**Mt**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**43**	**43**	**42**	**42**	**41**	**41**	**41**	**40**	**773**
Iodine (I2) in situ	kt	19.3	19.1	19.5	18.6	18.9	18.1	19.0	17.9	18.0	18.3	18.1	17.9	17.8	17.4	17.5	17.3	16.8	16.9	**326.4**
Yield process to produce prilled Iodine	%	55.6%	54.6%	53.0%	55.8%	59.9%	54.7%	55.2%	59.9%	59.2%	55.8%	55.2%	55.4%	56.0%	56.2%	56.9%	56.9%	57.2%	58.4%	**56.4%**
Prilled Iodine produced	**kt**	**10.7**	**10.1**	**10.6**	**11.1**	**10.3**	**10.0**	**11.3**	**10.8**	**10.1**	**10.1**	**10.1**	**10.0**	**10.0**	**9.9**	**9.9**	**9.9**	**9.8**	**9.8**	**184.6**
Nitrate Salts in situ	kt	2,586	2,344	2,398	2,261	2,343	2,228	2,422	2,097	2,377	2,331	2,306	2,286	2,260	2,241	2,212	2,188	2,174	2,143	**41,198**
Yield process to produce Nitrates	%	43.4%	46.9%	48.2%	58.2%	59.0%	59.0%	57.8%	58.2%	58.0%	59.8%	60.9%	61.1%	62.2%	63.0%	64.2%	65.2%	65.9%	67.3%	**58.7%**
Nitrate production from Leaching	kt	1,122	1,070	1,162	1,312	1,387	1,317	1,324	1,278	1,395	1,349	1,333	1,398	1,405	1,412	1,419	1,427	1,434	1,442	**23,985**
Ponds Yield to produce Nitrates Salts	%	54.2%	60.7%	68.5%	64.3%	65.9%	64.7%	66.3%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	**63.6%**
Nitrate Salts for Fertilizers	**kt**	**608**	**649**	**796**	**843**	**914**	**852**	**878**	**812**	**886**	**857**	**847**	**888**	**893**	**897**	**902**	**906**	**911**	**916**	**15,256**

Grade dilution from mining is estimated to be less than 2.5% (± 10 ppm iodine) and less than 2.3% for nitrate (± 0.12% nitrate). During the caliche mining process, as the mineralized thicknesses are low (≤ 5.0 m), there is a double effect on the mineralized mantle floor resulting from the blasting process: with the inclusion of underlying material as well as over-excavation. These tend to compensate, with dilution or loss of grade is minor or negligible (± 10 ppm for Iodine).

The excavation depth is controlled by GPS on the loading equipment. SQM considers a planned mining recovery of 90%, (average value for MP 2023-2040).

The processes of extraction, loading and transport of the mineral (caliche) include:

Surface layer and overburden removal (between 0.5 to 1.0 m thick) that is deposited in nearby mined out or barren sectors. This material is used to build the base of the heap leaching structures.

Caliche extraction, to a maximum depth of 6 m, using explosives (drill and blast), or surface excavator (CM type Terrain Leveler SEM).

Blasting is performed to achieve good fragmentation, good floor control, ore sizes suitable for the loading equipment, and to avoid further handling (20% of fragments below 5.0-6.0 cm, 80% of fragments below 37.0 cm, and maximum diameter of 100 cm).

CMs are used to mine areas that are close to infrastructure that can be damaged by blasting, to extract softer caliche areas and to obtain a more homogenous granulometry of mineral extracted, which generates better recovery rates in the iodine and nitrate leaching processes. In addition, it generates less dust emission than drill and blast. The decision to use a miner versus drill & blast is based on simple compressive strength parameters of the rock (up to 35 megapascals [MPa]), to limit material abrasiveness, as well as the presence of caliche clasts.

This equipment allows mineral fragmentation through the rotation of the cutting drum with iron tips reinforced with tungsten alloy, which crushes the mineral to obtain an average and homogeneous size of approximately 15.0 cm (20% below 3.5 cm, 80% below 15.0 cm and D_{max} 45.0 cm, as average values). The drum is located at the back of the machine, which enables the cutting of mineral while the crawler tracks remain on the ground so as not to damage the crushed material.

The 2023 Mining Plan targets an annual production of 44 Mt of fresh caliche (5.9 % $NaNO_3$, 440 ppm Iodine and 56.6 % soluble salts) of which 34 Mt will be extracted by traditional mining and 10 Mt by continuous mining. However, the objective is to progressively increase continuous mining to reach a production 15 Mt in 2024 and the remaining 32 Mt by drill and blast.

Caliche loading, using front-end loaders and/or shovels.

Transport of the mineral to heap leach pads, using mining trucks (rigid hopper, 100 t to 150 t).

Heap leach pads (Figure 13-3) are built to accumulate a total of 1 Mt, with heights between 7 to 15 m and crown area of 65,000 m^2 .

Figure 13-3. Pad Construction and Morphology in Nueva Victoria Mine (caliches)

Physical stability analysis performed by SQM reports that these heaps are stable in the long term (closed heaps) and no slope modification is required for closure.

Fragmented material from continuous surface mining (21% of annual production and projected to reach 34% by 2024) comes to heaps separate from the ROM ones.

There are several stages in the heap construction process:

Site preparation and construction of the heap base and perimeter parapets to facilitate collection of the enriched solutions.

The base of the heaps has an area of 84,000 m² and a maximum cross slope of 2.5% to facilitate the drainage of solutions enriched in iodine and nitrate salts.

Heap base construction material (0.4 m thick) comes from the sterile material and is roller-compacted to 95% of normal proctor (moisture and/or density is not tested on site).

An HDPE, waterproof geomembrane is laid on top of this base layer.

To protect the geomembrane, a 0.5 m thick layer of barren material is placed on top (to avoid damage to the membrane by ROM/CM fragments stored in the heap).

Heap pad loading by high-tonnage trucks (100 to 150 t). The leach pads are built in two lifts each 3.25 m high, on average. The average high of a heap pad is 6.5 m.

Impregnation, which consists of an initial wetting of the heap with industrial water, in alternating cycles of irrigation and rest, for a period of 60 days. During this stage the pile begins its initial solution drainage (brine)

Continuous irrigation until leaching cycle is completed in the following stages:

- Irrigation Intermediate Brine: stage where first pass solutions are cycled through the oldest half of heaps to add an additional charge. It lasts up to 280 days.
- Mixing: Irrigation stage consisting of a mixture of recirculated Brine Feble[5] and water. Drainage from these heaps is considered as SI and are used to irrigate other heaps. This stage lasts about 60-80 days.
- Washing: last stage of a heap's life, with a final irrigation of water, for approximately 20-30 days.

In total, there is a cycle of approximately 300 to 500 days for each heap, during which time the heap drops in height by 15-20%.

The irrigation system used is a mixed system with drippers and sprinklers. In the case of drippers, heaps may be covered with a plastic sheet or blanket to reduce evaporation losses and improve the efficiency of the irrigation system.

Leaching solutions are collected by gravity via channels, which lead the liquids to a sump where it is recirculated by means of a portable pump and pipes to the brine reception and accumulation ponds.

Once the heaps are out of operation, tailings can either be used for base construction of other heaps or remain on site as exhausted heaps.

In 2022, for the heap leaching processes, the total water demand was **616.2 L/s** (2,069 m³/h) (unit consumption of 0.386 m³/ton caliche leached), while enriched solution flow from heap leach to Nueva Victoria-Iris concentration plants was 2,224 m³/h. In the process SQM applies a recirculation system for leaching to achieve a higher brine production than fresh water used. The hydraulic efficiency of the heap leaching process in NV mine reached an average of 80%.

In the Long term (MP) for 2023-2040 period, the unit water consumptions range from 0.44 to 0.54 m³/ton of caliche leached with an average of 0.52m³/ton. The leaching process projected for 2023-2040 envisions an increase of water used (pumped groundwater and seawater**) from 582 L/s in 2023 to 668 L/s in 2030**. This increased water use in the leaching process results in an improvement in the extraction of Iodine and Nitrates in the heap leach structures, allowing a better performance in the metallurgical recovery process.

Leaching process yields average 58.0% for iodine and 57.2% for nitrate in ROM heap leaching (drill and blast material) for the Long Term from 2023 to 2040 period.

Homogeneous and smaller fragmentation generated by the CM allows an increase of 6% in Nitrate yield (approximately to 62.9% recovery) and 12% in Iodine yield (approximately to 70.0% recovery).

Heap leaching process performance constraints include the amount of water available, slope shaping[7] (slopes cannot be irrigated), re-impregnation and resource/reserve modelling errors. This last factor most influences annual target production deviations from actuals achieved. Such deviations are typically as high as -5% for iodine and -10% for nitrate.

Other facilities besides heaps are solution ponds (brine, blending, intermediate solution) and water and back-up ponds (brine and intermediate solution). There are about seven rectangular ponds with 8,000 m^3 to 36,000 m^3 capacity and heights between 3.0 to 4.9 m, which have pump systems, whose function is to drive industrial water, Brine Feble (BF), and Intermediate Brine to the heap leaching, through HDPE pipes, to extract the maximum amount of iodine and nitrate from the caliche heaps (continuous irrigation process).

From brine ponds, the enriched solutions are sent to the iodide plants via HPDE pipes.

[7] Heap morphology implies a natural slope of 24º (1H:0.44V).

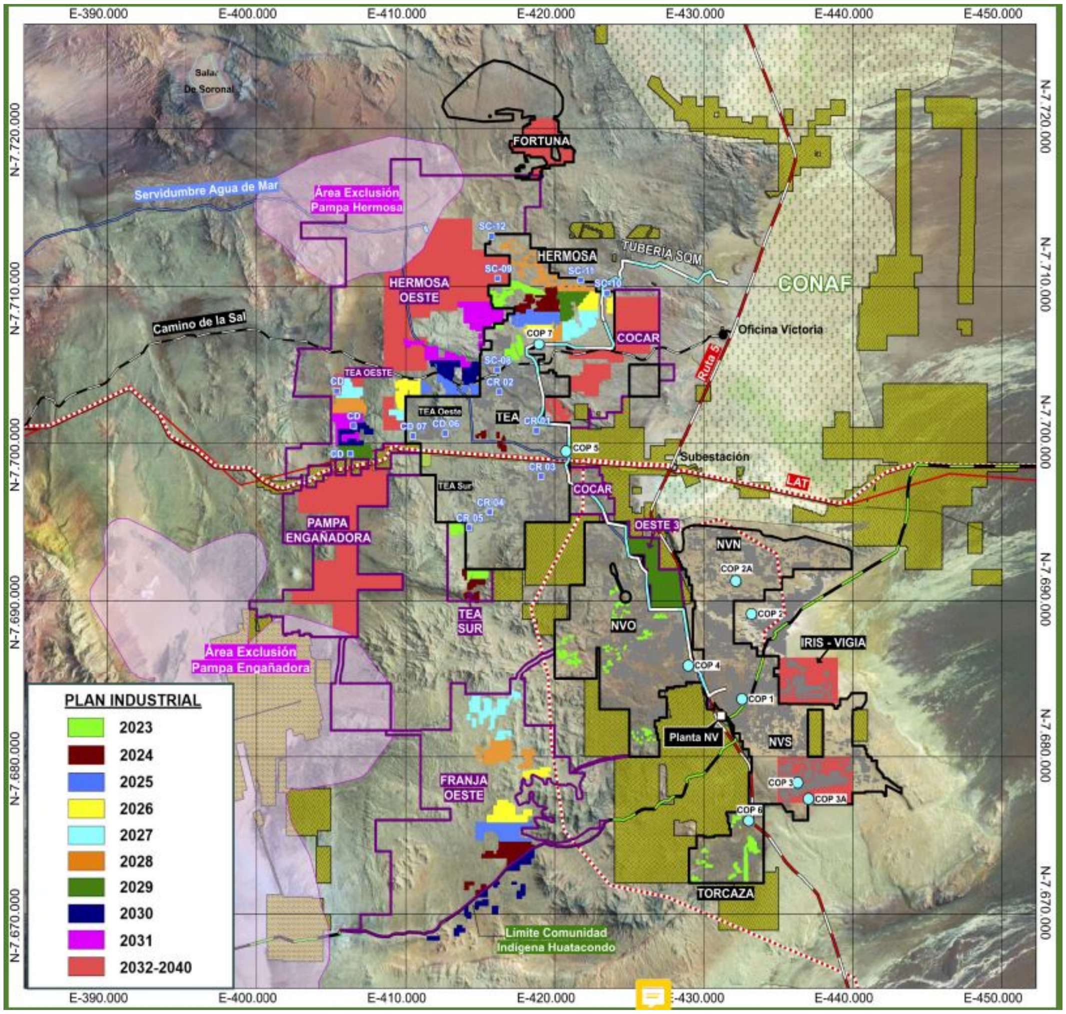
PRODUCTION AND FINAL MINE OUTLINE

SQM works with topographic control in the mining operations whereby the soil and overburden are removed (total thickness of 1.5 m on average at Nueva Victoria) and caliche is extracted (average thickness of 3.0 m).

Given that the excavations are small (4.70 m on average) in relation to the surface area involved (655 ha/y), it is not possible to correctly visualize a topographic map showing the final situation of the mine.

Figure 13-4 depicts the final mine outline for the 2023 to 2040 period (Long Term Plan).

Figure 13-4. Final Mine Outline - Nueva Victoria Mining Plan 2023-2040



Caliche production data for the 2023-2040 Long Term (MP) involves a total production of 773 Mt, with average grades of 422 ppm of Iodine and 5.3 % of Nitrates.

The total of volume of brine leach solution to produce expected is around 659.4 Mm^3 (Mining Plan 2023-2040).

Based on production factors set in mining and leaching processes, a total production of 184.8 kt of Iodine and 24,092 kt of Nitrate salts is expected for this period (2023-2040), which means to produce fresh brine solution (49.492 m^3/d) with average contents of 29 tpd of Iodine (0.64 g/L) and 3,625 tpd of Nitrate salts (112.7 g/l) that would be sent to the processing plants. Note that dilution factors considered herein are in addition to the indicated resource to probable reserve factors described above**.**

Table 13-4. Mine and Pad Leaching Production for Nueva Victoria Mine Period 2023 – 2040.

LOM 2023- 2040	Caliches	% / Ratios	Iodine	Nitrate
Production (kt)	772.5			
Average grades (iodine ppm / Nitrate %)			422	5.3
In-situ estimates (kt)			326.4	41,198
Traditional Mining (kt)	546.5	70.74%		
Continuous Mining (kt)	226	29.26%		
Mining Yield		92.31%		
Grade Dilution Factor			2.25%	2.50%
Grade dilution			9.51	0.13
mining process efficiency			90%	90%
Mineral Charged in Heap Leach (kt)			326.4	41,198
Heap Leach ROM recovery from Traditional mining [(a)]			58%	57%
Heap ROM production from Traditional mining Heaps (kt)			230.9	29,145
Heap Leach recovery from continuous mining			69%	62%
Heap production ROM continuous mining (kt)			95.5	12,053
Total Heap Leach production (kt)			184.6	23,985
Total Heap Leach production (tpd)			30	3,863
Total Heap Leach production (ktpy)			10.9	1,410
Heap Leaching recovery coefficient			61%	58%
Recovery Average Coefficient for Iodine complete process			56.8%	37%
Total Industrial plant processing NV - Iris (kt)			184.6	23,985

(a) Recovery from CM is higher than ROM ore material.

REQUIREMENTS FOR STRIPPING, UNDERGROUND DEVELOPMENT, AND BACKFILLING

Initial ground preparation work requires an excavation of a surface layer of soil-type material (50 cm average thickness) and overburden or waste material above the mineral (caliche) that reaches average thicknesses of between 50 cm to 100 cm.

This is done by bulldozer type tracked tractors and Whelldozer type wheeled tractors. This waste material is deposited in nearby mined-out or barren sectors.

SQM has 8 bulldozer type tractors of 50 to 70 tons and 4 Whelldozer type tractors of 25 t to 35 t for these tasks.

Caliche mining is conducted through use of explosives and/or continuous miners to a maximum depth of 6 m (3.0 m average and 1.5 m minimum mineable thickness), with an annual caliche production rate at Nueva Victoria of 45 Mtpy.

Caliche extraction by drilling and blasting is executed by means of rectangular blasting patterns, which are drilled considering an average caliche thickness of 3.2 m.

Table 13-5 Blasting Pattern in Nueva Victoria Mine

Diameter (Inches)	Burden (m)	Spacing (m)	Subgrade (m)
3.5	2.8 to 3.2	2.2 to 2.8	0.5 to 0.8
4.0	2.8 to 3.4	2.8 to 3.4	0.7 to 1.2
4.5	3.4 to 3.8	3.4 to 3.8	1.0 to 1.5

Usually, drilling grid used in Nueva Victoria is 2.8 x 3.0 m and 3.0 x 3.2 m, with a drill diameter of 4". Atlas Copco rigs (F9 and D7 equipment) are used for drilling (Percussion drilling with DTH hammer).

The explosive used is ANFO, which is composed of 94% ammonium nitrate and 6.0% fuel oil, which has a density of 0.82-0.84 g/cc, with a detonation velocity between 3,800 to 4,100 m/s. The charge is 24.3 kg per drill hole.

A backfill (stemming) of 0.80 m is provided with sterile material. For detonation, 150 g APD boosters and non-electric detonators are used as detonators, which start with a detonating cord. The over-excavation (subgrade) is variable from 0.5 to 1.5 m. Blasting assumes a rock density of 2.1 t/m³ of intact rock, with an explosives load factor of 365 g/ton (load factor of 0.767 kg/m³ of blasted caliche), for an extraction of 122,500 tpd of caliche. The figure 13-5 depicts a typical blast.

Figure 13-5. Typical Blast in Nueva Victoria Mine (caliches)

SQM has two Vermeer T1655; series equipment with a rotating drum and crawler tracks. Each unit can produce 3 Mtpy. It also has SEM-Wirtgen 2500SM Series equipment (Figure 13-6), with a different cutting design to Vermeer equipment, with crawler tracks and able to work with a conveyor belt stacking or loading material directly to a truck.

Figure 13-6. Terrain Leveler and SME equipment (Vermeer)

The unit cost of mine production at Nueva Victoria based on traditional mining is set at 2.09 USD/ton, while for continuous mining it is 2.72 USD/ton.

The higher recovery rate in heap leaching which allows continuous mining fragmented material, smaller in diameter and better sorted, leads to a 16% reduction in iodine production costs at Nueva de Victoria's plant (13,560 USD/ton iodine produced for traditional mining method versus 11,750 USD/ton iodine for continuous mining method).

Use of the continuous Wirtgen-type machinery implies a 2% cost saving compared to Vermeer type machinery for production of enriched solutions on heap leaching and an iodine production cost saving at the Nueva Victoria plant of 2%.

REQUIRED MINING EQUIPMENT FLEET AND PERSONNEL

This sub-section contains forward-looking information related to equipment selection 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 labor and equipment availability and productivity.

SQM has sufficient equipment at the Nueva Victoria mine to produce enough caliche as required, to mine and build heap leach pads, and to obtain enriched liquors that are sent to treatment plants to obtain Iodine and Nitrate end-products.

The equipment available to achieve Nueva Victoria's current production Mining Plan (2023-2040) of caliche is summarized in Table 13-6. The current equipment capacity has been evaluated by the QP and will meet the future production requirements.

Table 13-6 Equipment Fleet at Nueva Victoria mine

Equipment	Quantity	Type or size
Front Loader	5	12.5 and 15 m^3
Shovels	2	13 to 15 m^3 / 150 to 200 Ton
Surface Excavation Machine (SME)	2	100 to 200 Ton
Trucks	15	100 to 150 Ton
Bulldozer	4	50 to 70 Ton
Whelldozer	2	35 Ton
Drill	5	Top hammer of 3.5 to 4.5 inches (diameter)
Grade	3	5 -7 m
Roller	2	10 - 15 Ton
Excavator	3	Bucket capacity 1 -1.5 m^3

The staff at Nueva Victoria's mining operation consists of 575 professionals dedicated to mining and heap leach operation.

Also, a total of 126 professionals are employed for heap leaching and ponds maintenance. No contractor mining and labor is used.

The Nueva Victoria mine operation includes some general service facilities for site personnel: offices, bathrooms, truck maintenance and washing shed, change rooms, canteens (fixed or mobile), warehouses, drinking water plant (reverse osmosis) and/or drinking water storage tank, sewage treatment plant and transformers.

14 PROCESSING AND RECOVERY METHODS

This sub-section contains forward-looking information related to the nitrate and iodine concentrators, leaching and solvent extraction throughputs and designs, 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 ore feed 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 metallurgical recovery factors.

The Nueva Victoria Property includes caliche mining areas, heap leaching and processing plants to produce iodine as the primary product and nitrate as a secondary product. The mine facilities are concentrated in the following three SQM property areas: Nueva Victoria, Sur Viejo, and Iris.

Nueva Victoria ore contains an average of 5.3% nitrate and 422 ppm iodine as stated in the current TRS (section 12.2 Mineral Reserves). A portion of the iodine and nitrate is water-soluble and is extracted during heap leaching. Following iodide extraction, a portion of the iodide-depleted solution is fed back to the heap leaching process. The remaining iodide-depleted solution is piped to the evaporation ponds where nitrate salts are recovered from it.

Standard open pit mining methods are used to mine the caliche ore. Caliche mining occurs over an area of approximately 408.5 km² within the Nueva Victoria Property and 45.5 km² within the Iris Property. The nominal rate of caliche mining is currently 44 Mtpy. Once the environmental permitting of the TEA project is complete, the caliche mining rate will increase by a further 28 Mtpy. Pregnant Leach Solution (PLS) from the heap leach is piped to the iodide plant, Nueva Victoria, and iris, located about 20 km from the pile site, which have a production capacity of 11 ktpy and 2 ktpy of iodine, respectively.

The 2010 environmental permit for the Pampa Hermosa Project considered the installation of a Nitrate Plant to produce sodium nitrate & potassium nitrate at Nueva Victoria. This has not yet been implemented, and currently nitrate production for Nueva Victoria and Iris is carried out at the Coya Sur (Antofagasta Region).

Nueva Victoria operations currently have the following facilities:

- Caliche mine and mine operation centers.
- Nueva Victoria Iodide Plant and Nueva Victoria Iodine Plant.
- Iodide - iodine Iris Plant.
- Neutralization Plant.
- Evaporation ponds.

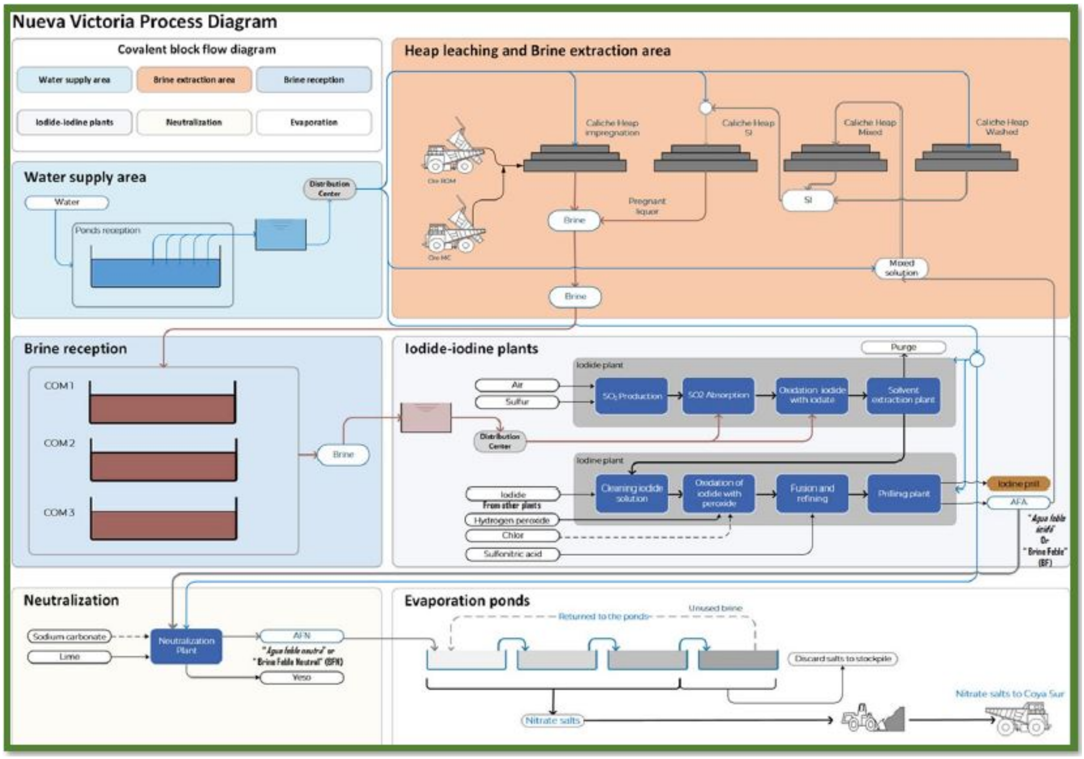
Waste salts deposit.

Industrial water supply.

Auxiliary installations: Camps and offices, domestic waste disposal site, hazardous waste yard, and non-hazardous industrial waste yard.

Figure 14-1 shows a block diagram of the main stages of caliche mineral processing to produce iodine prill and nitrate salts at Nueva Victoria. The following sections describe the operational stages and mineral processing facilities.

Figure 14-1. Simplified Nueva Victoria Process Flowsheet

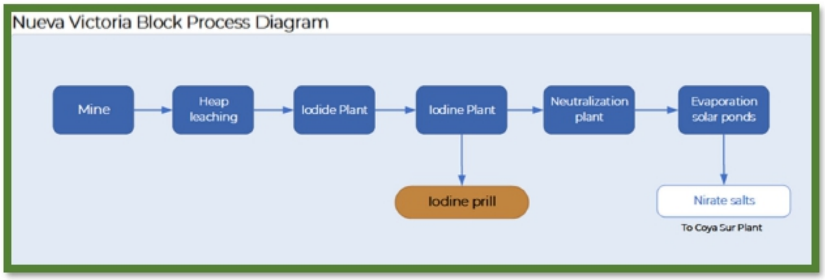


PROCESS OVERVIEW

The Nueva Victoria Property includes caliche mining, heap leaching and processing plants to obtain iodine as the main product and nitrate as a by-product.

Figure 14-2 presents a schematic of the mineral production process of iodine and concentrated nitrate salts from caliche ore at Nueva Victoria. This diagram shows that the process can be summarized in six relevant stages: mining, leaching, extraction in iodide plant, conversion in iodine plant, neutralization, and evapo-concentration. Each of these stages are described below.

Figure 14-2. Schematic of the Mineral Production Process at Nueva Victoria



The extraction process begins with the removal of non-mineralized soil and non-mineralized overburden and ends with the loading and transport of the caliche to the leaching heaps. More details on this operation are described in Section 13.2

Two categories of ore, defined by SQM, are processed at the site. These include **Ore Category 1 (ROM ore extracted by blasting), and Ore Category 2 (ore extracted by CMs)**.

The batter fragmentation of the CM ore results in a higher percentage recovery of the available mineral salts in the PLS generated. As of 2022, this material represents 20% of the mineral stacked on the heap leach pads. The relative proportion of this material added to the heap leach pads will increase sequentially over the long term.

SQM excavates caliche from the Nueva Victoria at a rate of 37 Mtpy in accordance with RE N°0515/2012 (Resolution Exempt, the government permit that authorizes the mineral extraction). At the neighboring Iris Property, SQM mines caliche and a rate of 6.48 Mtpy in accordance with permit RE 1447/2018. The authorized mining rate increased by an additional 28 Mtpy, reaching an authorized total of 65 Mtpy of mining at the Nueva Victoria Property. The caliche is extracted using explosives and then loaded and transferred to the heap leach pads. The caliche is leached using process water, augmented with depleted solution outflow from the iodide plant. This component of depleted (feeble) solution from the iodine process is referred to by SQM as BF that corresponds to weakly acidic water (also called agua feble ácida [AFA]).

The Table 14-1 summarizes the changes considered by the expansion project.

Table 14-1 Modifications to the Operation with Expansion of the TEA Project

Installation	Current Situation	Modification	Situation with TEA Project
Nueva Victoria surface area authorized for mining	408.5 km²	Increase of 436 km²	Total mineable area of 844.5 km² at Nueva Victoria (890 km² including Iris)
Iris surface area authorized for mining	45.5 km²	No change	No modification
Rate of caliche mining at Nueva Victoria	37 Mtpy	Increase of 28 Mtpy	Total mining rate 71.48 Mtpy (65 Mtpy of which is at Nueva Victoria)
Rate of caliche mining at Iris	6.48 Mtpy	No modification	No modification
Iodide production, Nueva Victoria	11 Ktpy	Increase of 12 Ktpy	Total iodide production rate 25 Ktpy
Iodide production, Iris	2 Ktpy	No modification	
Iodine production, Nueva Victoria	11 Ktpy	Increase of 12 Ktpy	Total rate of iodine production 23 Ktpy
Iodine production, Iris	2 Ktpy	No modification	
Salt production	1,025 Mtpy (2,050 Mtpy with Pampa Hermosa)	Increase of 1.95 Mtpy	Total production rate of nitrate-rich salts 4 Mtpy
Evaporation ponds	8.34 km²	Increase of 10.17 km²	Total evaporation ponds area 18.51 km²
Water use	810.8 L/s (groundwater abstraction for industrial use)	Increase of 900 L/s (abstraction of seawater)	Total permitted water uses 1,710.8 L/s for industrial use

The operations carried out to treat the ore and obtain iodine and nitrate salts are described below.

14.1.1 Mine Area and COM (Operation Centers)

The SQM Nueva Victoria and Iris Properties cover areas of approximately 408.5 km² (Nueva Victoria West, North, and South) and 44.5 km² (Iris). Administratively, SQM distinguishes:

- The mining areas (mineral deposit areas).
- The office and support buildings, warehouses, truck repair shops, heap leach piles, industrial water, and leaching solution (brine) storage ponds.

SQM refers to the processing plant and office area at Nueva Victoria and Iris as the Nueva Victoria Mine Operations Center (Centro de Operaciones Mina, or COM) and the Iris COM respectively.

Inside the mine areas there are the COM whose objective is the management of the different solutions. Basically, a COM is formed by the leaching heaps and accumulation ponds for the brine coming from the leaching process and the water required for the same. Thus, both COM de Nueva Victoria and Iris are facilities that have brine accumulation ponds, reception and accumulation ponds for AFA, industrial water ponds, and intermediate solution, which correspond to irrigation solutions.

All brine, industrial water and BF accumulation ponds are lined with impermeable membranes (typically HDPE or PVC) to prevent infiltration of their contents into the underlying ground.

14.1.2 Heap Leaching

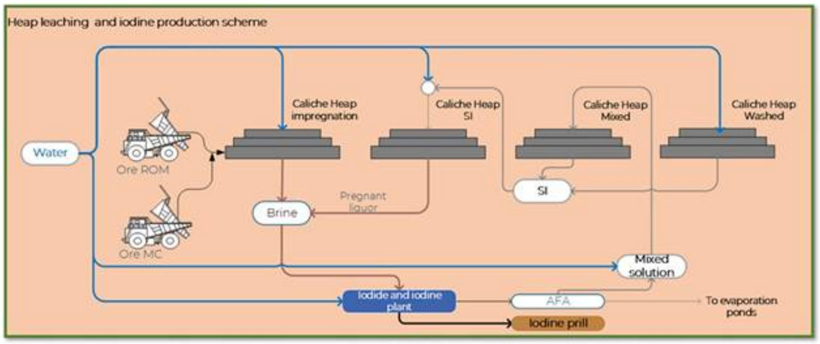
Leach piles are constructed on non-mineralized ground, so as not to cover valuable caliche resource. The land is prepared prior to construction of the heap leach pads. The soil is left with a slope profile of 1 to 4%, to promote gravity flow of the PLS. The base is covered with an impermeable geomembrane (PVC, or HDPE) to prevent seepage of leaching solutions into the ground, allowing the solutions to be collected at the toe of the leach pile. A protective 40-50 cm thick layer of fine material (non-mineralized chusca (weathered material) or spent leached caliche) is spread over geomembrane to protect it against being damaged by the transit of mine vehicles or punctured by sharp stones.

The caliche to be leached is then emplaced over the protective layer. The leach piles are constructed with a rectangular base and heights between 7 to 15 m and a crown area of 65,000 m². Once the stacking of caliche is complete, the pile is irrigated to dissolve the soluble mineral salts present in the caliche.

The heap leaching operation applies alternating cycles of irrigation and resting. The irrigation system used incorporates both sprinklers and drip irrigation. The heap leaching process typically takes around 425 days from start to finish (in general, the operating range is of approximately 300- 500 days for each heap). Over the leaching cycle, the removal of soluble mineral salts results in a 15% to 20% drop in height of each leach pile.

Figure 14-3 presents a schematic of the heap leaching process. The piles are organized in such a way as to reuse the solutions they deliver production piles (the newest ones), which produce rich solution to be sent to the iodine plant, and older piles whose drainage feeds the production piles. At the end of its irrigation cycle, an (old) pile leaves the system as inert debris, and a new pile enters at the other end, thus forming a continuous process.

Figure 14-3. Schematic of the Heap Leaching Process at Nueva Victoria



The stages in the heap leaching process (Figure 14-3) are as follows:

1) **Initial irrigation of the heap with industrial water (impregnation)**: the "impregnation" stage corresponds to the initial irrigation of the leach pile with industrial water. During this stage the pile begins generating salt-bearing leach solution at its base, termed brine. Stage 1 lasts about 50-70 days.

2) **Irrigation of the heap with Intermediate Solution**: Maturing heap leach piles are irrigated with drained solutions. This stage lasts about 190-280 days.

3) **Mixed**: the heap is irrigated with a mixture of recirculated AFA and referred to by SQM as BF and industrial water. The leaching solutions draining from these heaps are termed Intermediate Solution (SI). The SI is the input to Stage 3 of the heap leaching cycle. This stage lasts about 60-80 days approximately.

4) **Washing of the heap**: this is the last stage of a heap's life, comprising a final water irrigation of the heap with industrial water to maximize total extraction of soluble salts. This stage lasts about 20-30 days.

The PLS obtained during heap leaching process is referred to as brine by the operation. The leaching solutions (brines) which drain from the leaching piles are piped, according to their hydrochemistry to poor solution, intermediate solution, and rich solution brine storage ponds (accumulation ponds) at the COM. From here they are piped to the Nueva Victoria and Iris process plants.

The mining waste generated at the site corresponds to spent leached material, overburden, and non-target mineral salts. These discarded mineral salts form an inert, cohesive, and highly cemented material that are emplaced as dump piles adjacent to the evaporation ponds.

As part of ongoing efforts to reduce the use of continental groundwaters, SQM is currently evaluating:

- The integration of seawater into the industrial water feed.
- The reduction of evaporative water loss from leach piles by relying increasingly on drip irrigation rather than spray irrigation and covering the surface of leach piles which are undergoing irrigation with impermeable membranes.
- The reduction of evaporative water loss from industrial water, brine, and BF accumulation ponds by covering the surface of these ponds with floating HDPE spheres.

14.1.3 Iodide-Iodine Production

The facilities are in three sectors corresponding to: Nueva Victoria, Sur Viejo, and Iris. The iodide and iodine production plants are located at Nueva Victoria.

The iodide plant is connected to the Nueva Victoria COM via a 20 km long pipeline. It converts the iodate, recovered from the caliche by the heap leaching process, into iodide. The segregation of the brines into poor, intermediate and rich in the accumulation ponds at the Nueva Victoria and Iris sites allows SQM to ensure an optimum concentration of iodate (in the range 0.5 – 1.0 g/L iodate) in the brine feedline to the iodide plant.

The iodide-rich solution output by the iodide plant is then fed into the iodine plant which produces Iodine pearls (prill) of iodine whose luster gives them a metallic appearance.

The other output from the iodide plant is leaching solution depleted in iodide, which SQM often refers to as BF, or AFA. The BF produced at the iodide plant can be routed via two alternative paths:

- It can be recirculated to the heap leach operation.
- It can be sent to the neutralization plant, where, by adding lime or sodium carbonate, neutral BF (brine feble neutral [BFN, AFN]) is produced. BFN is discharged to the solar evaporation ponds at Viejo Sur where nitrate-rich salts are produced and sent for processing to the nitrate production plant at the SQM Coya Sur facility, located 160 km to the south of Nueva Victoria, and 7 km southeast of the town of María Elena in the Antofagasta Region of northern Chile.

At Iris and Nueva Victoria service plants, this process is intended to reduce sodium iodate from caliche leach solutions to free iodine by addition of sulfur dioxide, and then to separate and purify it. The required sulfur dioxide is produced by burning sulfur. There are two stages in the process of obtaining free iodine: production of iodide from iodate (iodide plant) and production of iodine from iodide (iodine plant). The iodine and iodine derivatives production facilities have qualified in accordance with ISO-9001:2015 program for which TÜV Rheinland provides quality management system certification.

Below is a description of iodate to iodine transformation processes that are performed at Nueva Victoria and Iris service plants.

14.1.3.1 Nueva Victoria Iodine Production

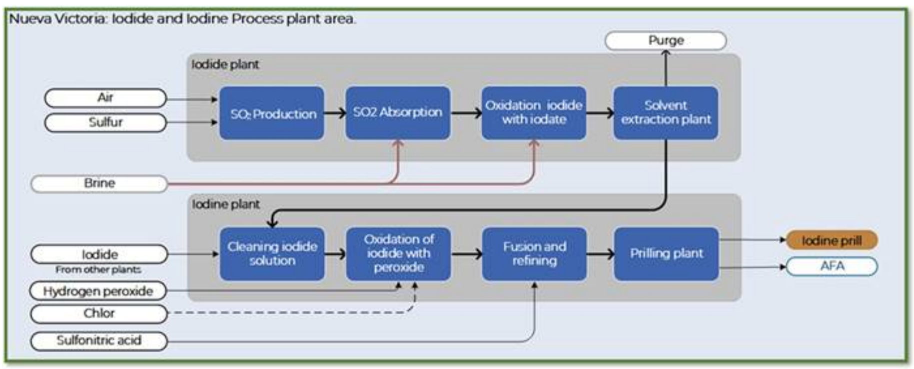
The Nueva Victoria Iodine Processing Plant is situated 1 km southeast of the access control (garita) to the SQM Nueva Victoria complex. It covers an area of approximately 15 ha. It includes:

- 3 Iodate to iodide modules.
- 3 Iodide to iodine modules.
- A sulfur dioxide (SO_2) generating plant.

Leaching solutions (brines) from the heap leaching of caliche ores are piped to the brine reception pond of each iodate to iodide module. This brine has an iodate content between a minimum of 0.4 g/L and an ideal working concentration of 0.7 g/L iodine equivalent.

Figure 14-4 presents a schematic of the iodine recovery process.

Figure 14-4. Schematic of the Iodine Recovery Process at Nueva Victoria



The first stage of the process occurs at the iodide plant. Here, the iodate in the brine entering the iodide plant from the heap leach is chemically reduced to iodide with sulfur dioxide. Most of the iodide produced by this process is in the form of sodium iodide. Sulfuric acid is added to acidify the iodide solution, then fresh brine is mixed into it. Due to the acidic conditions, iodate (IO_3^-) and iodide (I^-) in the solution react to precipitate solid iodine (I_2) as described by the following equation:

$$5I^-(aq)+IO_3^-(aq)+6H^+(aq)\rightarrow 3I_2(s)+3H_2O(l)$$

Three moles of iodine are produced for every mole of iodate ion consumed in the reaction. This process of producing iodine by reacting iodate and iodide in acidic solution is referred to as “cutting”. The brine now comprises an aqueous solution of iodide and iodate with iodine in suspension. It is routed to a mixer-settler which separates out the solid iodine. The aqueous solution of iodide and iodate is then processed with solvent extraction (SX), using kerosene as the solvent, to recover iodide from it. Nueva Victoria has three such SX plants (SX1, SX2, and SX3).

The outputs from the SX plant are:

- Iodide pulp.
- Iodine-depleted acidic solution, referred to by SQM as AFA.

The kerosene solvent is recirculated to the start of the SX process.

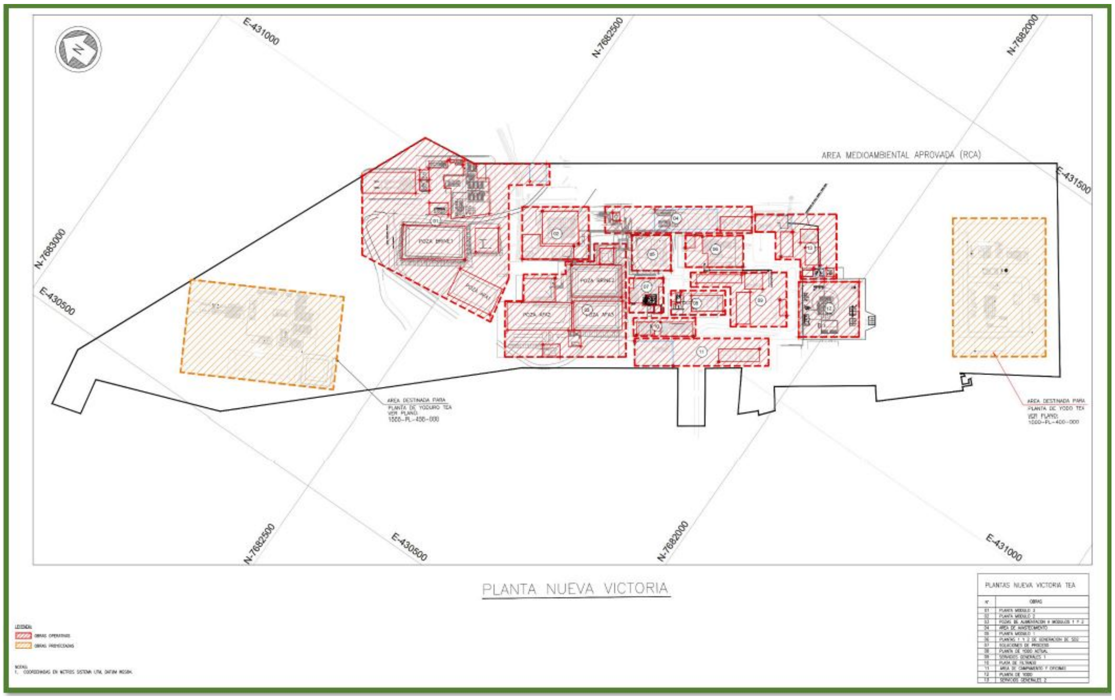
The AFA is neutralized with sodium hydroxide to give BFN, part of which is recycled to the heap leaching process, with the rest routed to the evaporation ponds at Sur Viejo for the recovery of salts rich in potassium and sodium nitrate, which are trucked to the SQM Property at Coya Sur for refining.

The iodide pulp produced by the SX plants is refined in a 2-stage process. First it is filtered, then it is passed through an activated carbon column tower to remove any residual kerosene solvent.

The iodide pulp is then routed through to the next stage of the process at the iodine plant where it is oxidized, using hydrogen peroxide and chlorine as the oxidizing agents. The iodine pulp thus obtained is then smelted and subsequently prilled to produce fine pellets of iodine called “prill” which have a metallic luster.

Figure 14-5 presents the general layout of the iodide and iodine plant complex at Nueva Victoria, including the additional capacity which will be required once the environmental permit for the TEA expansion has been obtained.

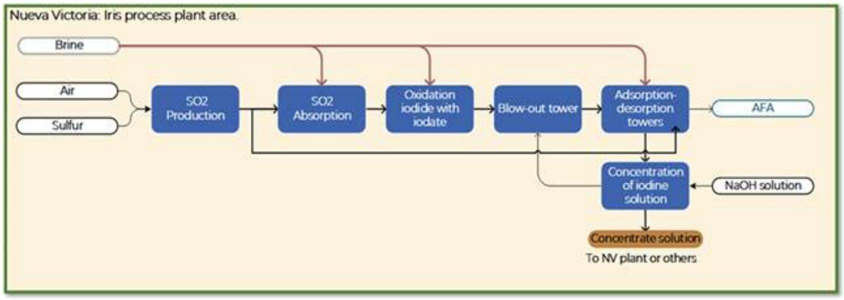
Figure 14-5. General Arrangement Drawing. Iodide-Iodine Plants of Nueva Victoria



14.1.3.2 Iris Iodide-Iodine Production

The Iris plant has an iodide-iodine plant within its COM. The iodine production facilities are currently inoperative and so the iodide brines are used to feed the iodine plants at Nueva Victoria. Figure 14-6 presents a schematic of the production process at Iris Plant

Figure 14-6. Process Diagram of Iris Plant



The Iris Plant can process brines with iodate concentrations as low as 0.02 g/L iodine equivalent.

The iodide produced in the absorption towers is routed to the cutting pond, where it is mixed with iodate-bearing fresh brine from the fresh brine storage pond at the plant. The iodate and iodide in the solution react to precipitate solid iodine.

The iodine-enriched solution from the cutter is pumped to the blow-out tower (blowing tower), where it is counter-flowed with air. This generates a liquid iodine suspension in air, which is routed to the iodine adsorption-desorption tower. There, applying a counterflow of iodide solution, dismutase solution of iodide and iodate, which is stable. The design of the adsorption-desorption tower maximizes contact time between the reagents.

This solution is routed to the iodide recirculation pond, creating a concentration cycle. From the recirculation ponds, the iodide-enriched brine is sent for refining at the Nueva Victoria iodine plant.

14.1.4 Neutralization Plant

The neutralization plant at Nueva Victoria covers a surface area of approximately 59.76 ha. It includes AFA storage ponds, solids sedimentation ponds, neutralization ponds, industrial water ponds, reagent storage warehouses, pumping infrastructure and support facilities. The Neutralization Plant receives AFA outflow from the iodide plants. The AFA is mixed with a lime (calcium hydroxide) slurry to neutralize it in the neutralization ponds.

14.1.5 Solar Evaporation Ponds

The evaporation ponds (referred to by SQM as pozas), and associated transfer pumps, are located at Sur Viejo (Figure 14-7). There are 6 stages in the Evapo-concentration process. The ponds are of different types that vary in size given their function. The Sur Viejo evaporation ponds have a depth of 3.2 m and an approximate surface area of 3,200,000 m^2 – 3,400,000 m^2. The pond configurations (pond types) used are detailed in Table 14-2. Averaged over the sequence of pond types, the mean annual rate of evaporation is approximately 5 L/m²/d (5 mm/d or 1,825 mm/y).

Table 14-2 Solar Evaporation Pond Types at Sur Viejo

Pond Type	Description
Stage 1 Pond	AFA Alkalinization Pond
Stage 2 Pond	Brine Preconcentration, Phase 1 Pond
Stage 3 Pond	Brine Preconcentration, Phase 2 Pond
Stage 4 Pond	Cut-off or Boundary Pond
Stage 5 Pond	High Grade Nitrate Pond

The 6-stage evaporation sequence is designed to progressively concentrate the evaporating brine. As this process progresses, the highly soluble nitrates (KNO_3 and $NaNO_3$) become ever more concentrated in the brine as impurities such as halite and Astrakanita progressively precipitate out from the ever-concentrating brine. Each of the 6 stages in the evapo-concentration process are described below.

Stage 1: AFA Alkalinization

Stage 1 corresponds to the AFA alkalinization (AFA neutralization) stage. Stage 1 infrastructure includes a neutralization plan, a quicklime (calcium oxide, CaO) storage silo, a slaking system to produce slaked lime (calcium hydroxide, $CaOH_2$) and a reactor with agitator to mix the slaked lime slurry into the AFA. The slaked lime-AFA mixture (Stage 1 brine) is discharged into the Stage 1 pond. The main objective of this stage is to increase the pH of the brine from the pH 1.6 - 2.0 of the AFA to the pH 5.4 – 6.0 of the Stage 1 brine.

The rate of quicklime consumption (kg/m³ of AFA) varies between 0.30 and 0.60 kg/m^3, depending on the acidity of the influent AFA. The Stage 1 brine can also be referred to as BFN, or Feble Neutral Water (FNW).

Stages 2 & 3: Brine Preconcentration Ponds

The brine passes through the 125,000 m² Stage 2 and 250,000 m² Stage 3 evaporation ponds in sequence. The objective of this process is to Evapo-concentration the AFN towards saturation with KNO_3 and $NaNO_3$, progressively precipitating out impurities, principally halite (NaCl) and Astrakanita ($Na_2Mg(SO_4)2{\cdot}4H_2O$) crystals.

Stage 4: Cut-off or Boundary Pond

Evapo-concentration continues during Stage 4, progressively concentrating KNO_3 and $NaNO_3$ toward saturation levels.

Stage 5: High Grade Nitrate Pond

KNO_3 and $NaNO_3$ crystallize out in the Stage 5 pond. The high-nitrate salts obtained include residual impurities, including NaCl, Astrakanita, $KClO_4$, H_3BO_3, and $MgSO_4$. The relative proportion of KNO_3 and $NaNO_3$ in the high-nitrate salts reflects their ratio in the AFA fed into Stage 1.

Stage 6: System Purge

This is the final stage of the process, the remaining free moisture in the high-nitrate salt from Stage 5 is evaporated off and the high-nitrate salt is stockpiled for trucking to the SQM Coya Sur facility for further refinement prior to sale.

The Nueva Victoria Mine evaporation ponds planned for the TEA Project can be seen in Figure 14-8 and the dimensions are shown in Table -14-3.

Table 14-3 Solar Evaporation Pond Types at TEA Project

Pond Type	Description	Length x Width (m x m)	Surface Area (m^2)	Surface Area (Ha)
Stage 1 Pond	AFA Alkalinization Pond	500 x 320	160,000	16
Stage 2 Pond	Brine Preconcentration, Phase 1 Pond	500 x 250	125,000	12.5
Stage 3 Pond	Brine Preconcentration, Phase 2 Pond	500 x 500	250,000	25
Stage 4 Pond	Cut-off or Boundary Pond	240 x 165	39,600	3.96
Stage 5 Pond	High Grade Nitrate Pond	280 x 250	70,000	7

Figure 14-7. General Arrangement of Sur Viejo Evaporation Ponds

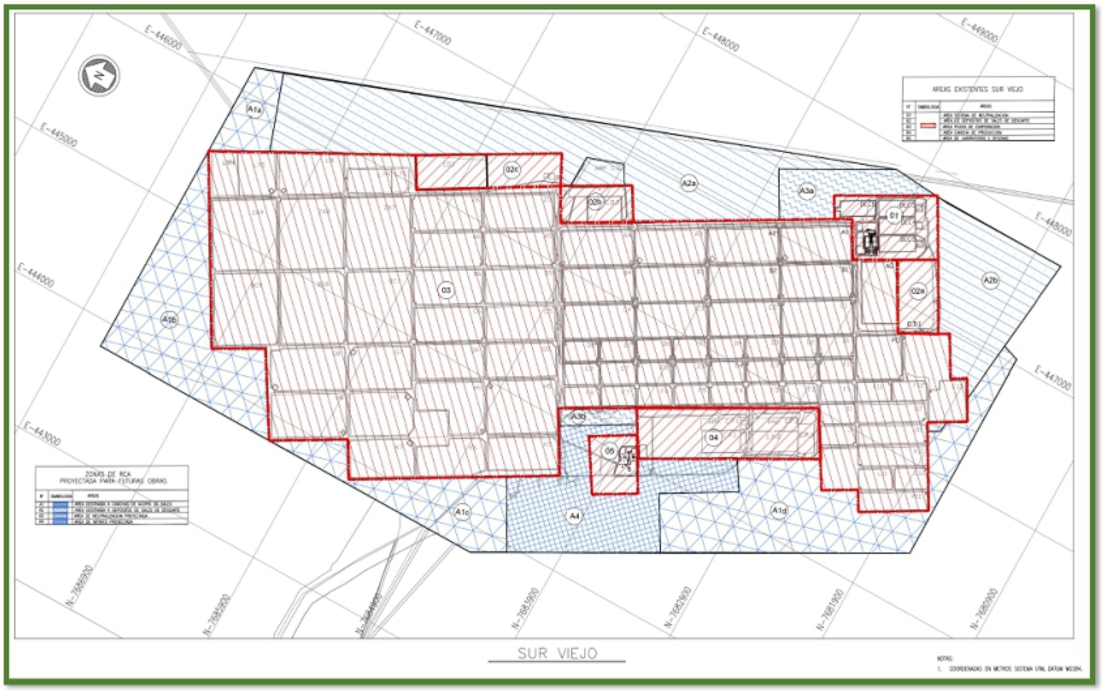
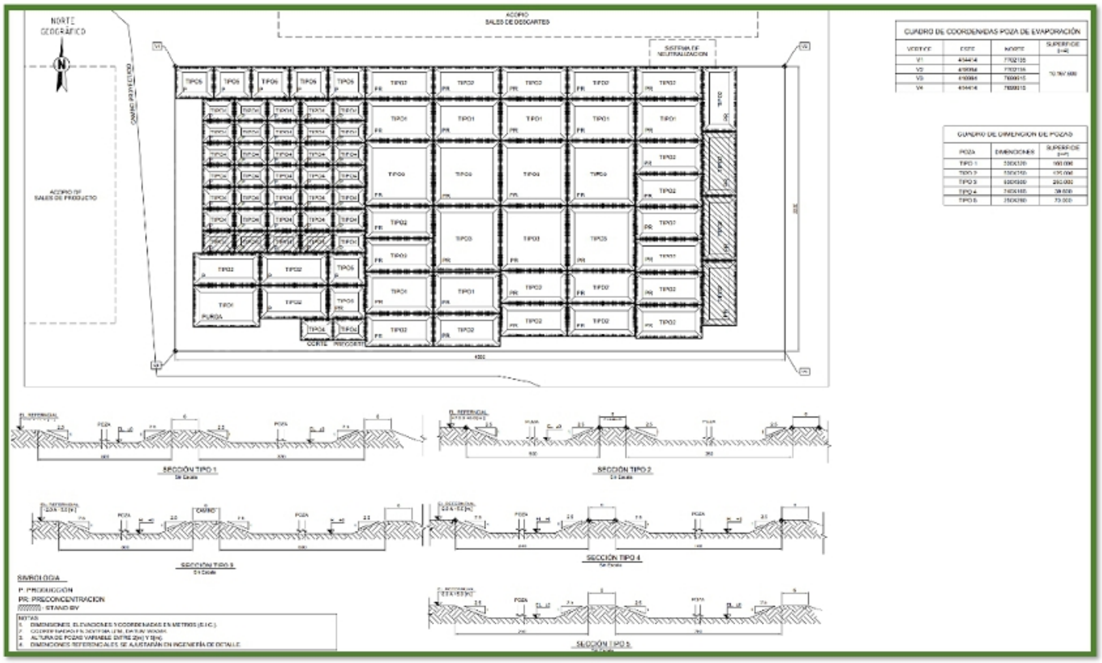


Figure 14-8. General Arrangement of TEA Evaporation Ponds



14.1.6 Sur Viejo Nitrate Plant (Planned)

The 2010 environmental permit (RCA 890/10), which constitutes the environmental approval for the Pampa Hermosa Project, contemplates the construction of a nitrate plant at the Sur Viejo, adjacent to the existing evaporation ponds. The nitrate plant has yet to be constructed and so the high-nitrate salt produced by the evaporation pond sequence at Sur Viejo is trucked to the SQM Coya Sur facility for refinement.

The production capacity of the Sur Viejo nitrate plant would be 1.2 Mtpy of refined $NaNO_3$ & KNO_3. It would cover an area of 8.2 ha. Of modular construction, it would comprise 4 modules, each with a 300 ktpy $NaNO_3$ / KNO_3 production capacity. The plant would receive high-nitrate brine from Stage 5 of the evaporation pond sequence, which would be routed through crystallizers, solid-liquid separators, thickeners, and centrifuges. The resulting commercial products would be sodium nitrate and wet potassium nitrate.

PRODUCTION SPECIFICATIONS AND EFFICIENCIES

14.1.7 Process criteria

Table 14-4 contains a summary of the main criteria for the Nueva Victoria processing circuit.

Table 14-4 Summary of process criteria. Mine site caliche heap leaching and productive iodine process.

Criteria	
Mining Capacity and Grades	
Caliche Mine Exploitation	8.5 to 20 Mtpy
Caliche Exploitation at Iris Mine	6.48 Mtpy
Exploitation of Future Proven Areas	28 Mtpy
Average Grades	6.7 % Nitrate ; 408 ppm Iodine
Cut-off Grade	Nitrate 3.0% - Iodine 300 ppm
Availability / Use of Availability	
Mining Exploitation Factor	80 - 90 %
Plant Availability Factors	85%
Caliche Iodine PO Factor	3.7 Mt Caliche per Ton of Prilled Iodine
Caliche Nitrate PO Factor	21 Tonnes Caliche / Nitrate
Caliche Iodine Iris Factor	
Heap Leaching	
Impregnation Stage	300 to 500 Days for Each Heap
Intermediate Solution	
Mixed Irrigation Stage	
Washing Stage with Industrial Water	

Criteria	
Heap Leaching	
Water + AFA Mixed Irrigation	40% Dilution of AFA
Heap Drainage	10 Days
Iodate Brine Turbidity	
Yield and Plant Capacity	
Iodate / Iodide Yield	92 - 95%
Iodide / Iodide Yield	92%
Production Capacity at Nueva Victoria	11 Ktpy Iodide at Nueva Victoria
Production Capacity at Iris	2 Ktpy Iodide at Iris
Iodine Prill Product Purity	99,8%
High - Nitrate Salts Production Capacity	2.050 Mtpy

The following sections summarize the Nueva Victoria productivity and forecast.

14.1.8 Solar Pond Specifications

The specific criteria for the operation of evaporation ponds are summarize in the 14-5:

Table 14-5 Description of Inflows and Outflows of the Solar Evaporation System

System Input Flows	Unit	Value
AFA Feed Flow	m_3 / h	1,200
Sodium Nitrate ($NaNO_3$)	g/l	127
Potassium (K)		12.5
Potassium Perchlorate ($KClO_4$)		1.2
Magnesium (Mg)		15
Boron w/boric acid (H_3BO_3)		4.0
System outflows	**Unit**	**Value**
Discard Salts	Ton	3,900,000
Astrakanite	%	25
Sodium Chloride	%	75
High Nitrate Salt Production	Ton	2,050,000
Sodium Nitrate ($NaNO_3$)		1,050,000
Sodium Nitrate ($NaNO_3$)	%	41.9
Potassium Nitrate (KNO_3)		11.4
Potassium Perchlorate ($KClO_4$)		0.32
Magnesium (Mg)		1.3
Boron w/boric acid (H_3BO_3)		2.4

14.1.9 Production Balance and Yields

Since 2014, SQM has been working on a plan to develop new caliche mining areas at Nueva Victoria and increase production of both nitrates and iodine at Nueva Victoria. With respect to the Iris Property, no modifications to the operation are contemplated. In recent years, investments have been made to increase the water supply capacity at the Nueva Victoria operations and to expand the capacity of the solar evaporation ponds and implement new mining and solution collection areas through expansion projects submitted to the National Environmental Commission. These projects are the Pampa Hermosa project (approved in 2010) and the TEA project, currently in process. The approval of Pampa Hermosa allowed increasing the nominal production capacity of the Nueva Victoria Operations to 11 ktpy iodine and to produce up to 1.2 Mtpy of nitrates and use new water rights of up to 665.7 L/s. This increase in capacity was achieved by adding new iodide production modules and new support facilities over an area of 34.9 hectares at the Nueva Victoria COM.

Nueva Victoria (including the Iris Operation) currently has a total production capacity of 13 ktpy of iodine, which affords SQM the flexibility to adjust production according to market conditions (iodine price). In 2019, 42,196 Mt of caliche, with a mean iodine grade of 465 ppm iodine, were processed, from which 10.70 kt of prilled iodine was produced. For the year 2022, the mean iodine grade of mined caliche was slightly lower at 430 ppm iodine and the 45.4 Mt of caliche processed yielded 12.4 kt of prilled iodine (10.8 kt from Nueva Victoria and 1.6 kt from PV).

Table 14-6 presents a summary of 2022 iodine and nitrate production at Nueva Victoria, including Iris.

Table 14-6 Summary of 2022 Iodine and Nitrate at Nueva Victoria, Including Iris

Iodine Balance NV	Unit	Total Year 2022
Caliche Processed	Mt	45.4
Caliche Nitrate Grade	%	6.0%
Caliche Iodine Grade	ppm	430
Iodine Heap Yield	%	55%
Brine sent to plant	m^3	17,803,215
Concentration	gpl	0.57
Iodide Produce	Kt	9,639
Iodine Plant Yield	%	97.0%
Iodine Produced	Kt	12,400
Iodide Plant Yield	%	92%
Iodide Global Yield	**%**	**55%**
Iris Iodine Production	**Unit**	**Total Year 2022**
Iodate Rich Brine Feed to Iodide Plant	m^3	1,021
Iodide to Nueva Victoria Iodine Plant	Kt	1,172
Iodide Plant Yield	%	92%
Average Yield of Prilled Iodine from Iris Iodide		97%
Global Iodine Yield Iris		87%
Iodine Produced	Kt	1,348
Nitrate Balance NV	**Unit**	**Total Year 2022**
AFA Sent to Sur Viejo Evaporation Ponds	Mm^3	9,663,961
Nitrate in AFA Sent to Sur Viejo Evaporation Ponds	Ton $NaNO_3$	1,009,873
Nitrate Concentration in AFA Sent to Sur Viejo Evaporation Ponds	g/l (ppt)	106
$NaNO_3$ Grade	%	53%
Yield of $NaNO_3$ from Sur Viejo Evaporation Ponds		71%

Table 14-7 shows the production data for 2022, 2021, 2020 and 2019:

Table 14-7 Nueva Victoria Production Data for 2019 to 2022.

Nueva Victoria (Including Iris)	2022	2021	2020	2019
Mass of Caliche Ore Mined (Mt)	45,400	41,428	43,420	42,196
Iodine Grade in Caliche Ore (ppm)	430	441	452	465
Mass of Iodine Produced (Kt)	12.4	8.7	10.6	10.7

14.2.4 Production Estimation

In recent years, investments have also been made to increase water supply capacity at Nueva Victoria operations from two water sources approved by the Pampa Hermosa Environmental Study and to expand solar evaporation pond capacity and implement new mining and solution collection areas.

Due to Pampa Hermosa project, to increase nitrate production, Sur Viejo Industrial Area will have to be incorporated. In this sector, solar evaporation ponds will be expanded and there will be 2 types of ponds:

Pre-concentration ponds: Four pits (500 x 250 m, depth 3.2 m) and 13 ponds (500 x 250 m, depth 2.2 m), and a total volume of 5,175,000 m^3.

Production ponds: Area 1,645,000 m^2; 3,290,000 m^3, 47 Ponds (140 x 250 m, depth of 2 m), and a total volume of 3,290,000 m^3.

Furthermore, two additional neutralization plants will be built in addition to those already existing; a nitrate production plant will be built (with a capacity of 1.2 Mtpy of sodium nitrate and/or potassium nitrate) and new salt storage areas will be set up (final product, nitrate-rich salts, discarded salts and neutralization process residue). These facilities will involve a total surface area of 1,328 ha.

In terms of future, Nueva Victoria, and Iris' mining (see Section 13.2, see Table 13-3) and industrial plan, an economic analysis of which is discussed later in Chapter 19 (see Table 19-1) considers caliche extraction at a current rate of 44 Mtpy and estimates an increase in iodine and nitrate production to the year 2030. Projected growth is sequential and is expected to reach 10.1-11.3 ktpy of iodine production by 2029 - 2030.

Table 14-8 shows that to achieve the committed production it is required to increase water consumption to 0.52 m^3/ton for the years 2028-2040 and the heap leach yield for iodine must be increased to 70.3%.

The indicated yield values for each year have been calculated using empirical yield ratios as a function of soluble salt content, nitrate grade and unit consumption.

Table 14-8 Nueva Victoria Process Plant Production Summary.

Parameter	2023	2024	2025	2026	2027	2028	2029	2030	2031	Long Term 2032 -2040	Average	Total
Mass of Caliche ore Processed (Mt)	44	44	44	44	44	44	44	44	44	377	42.9	773
Water Consumption (m^3 / Ton Caliche)	0.41	0.40	0.42	0.48	0.48	0.48	0.48	0.48	0.48	0.50	0.48	
Ore Grade (ppm, I_2)	440.5	430.7	432.1	421.1	428.4	413.3	430.1	413.8	409.5	419.6	422.1	
Ore Grade (Nitrate, %)	5.80%	5.18%	5.48%	5.13%	5.34%	5.08%	5.21%	4.99%	5.47%	5.30%	5.30%	
Soluble Salts, %	56.8%	62.4%	60.1%	59.5%	65.2%	63.5%	59.5%	59.4%	62.7%	64.3%	62.6%	
Iodine Leaching Yield, %	55.6%	54.6%	53.0%	55.8%	59.9%	54.7%	55.2%	59.9%	59.2%	56.4%	56.4%	
Yield process to produce Nitrates, %	43.4%	46.9%	48.2%	58.2%	59.0%	59.0%	57.8%	58.2%	58.0%	63.2%	58.6%	
Ponds Yield to produce Nitrates Salts, %	54.2%	60.7%	68.5%	64.3%	65.9%	64.7%	66.3%	63.5%	63.5%	63.5%	63.5%	
Prilled Iodine produced (kt)	10.7	10.1	10.6	11.1	10.3	10.0	11.3	10.8	10.1	89.6	13.8	184.6
Nitrate Salts for Fertilizers (kt)	608	649	796	843	914	852	878	812	886	8,017	1,507	15,256

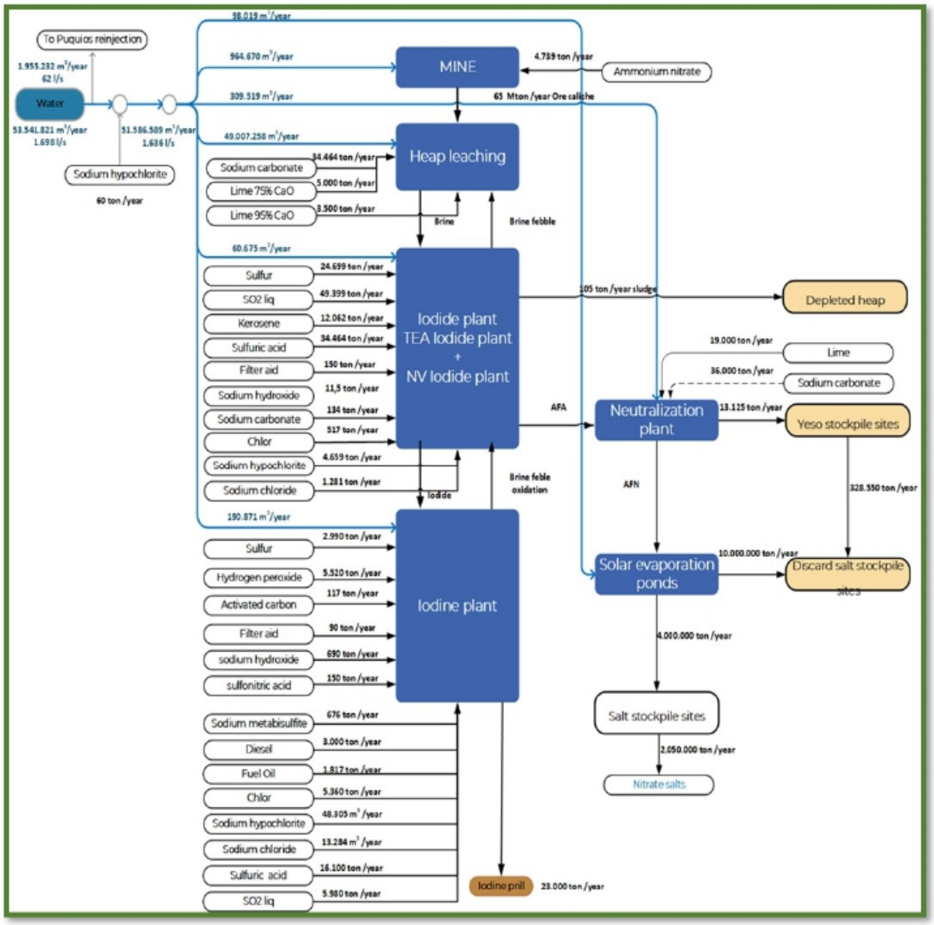
a) The expected increase in caliche production requires reaching leaching yields over 70% for Nitrate leaching based on the projected increment in the water consumption for irrigation (0.52 m^3/Ton). However, it's advisable to keep the nitrate leaching yield in heap pads not above 70%, selecting sectors with a Nitrate grade above 5.0% and maintaining ore control to prevent dilution grade in mining process.

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 plant requirements that yield different results from the historical operations.

Figure 14-9 shows Nueva Victoria's process diagram with TEA project incorporated, giving an overall production process balance. It is important to note that input quantities will depend on caliche chemical properties, as well as iodide plant operation (whether operating in SX or blow-out mode) but will not exceed those indicated in the diagram.

Figure 14-9. Projected Water and Reagent Consumption at Nueva Victoria with Implementation of the TEA Extension



The balance scenario shown corresponds to the situation of treatment of 65 Mtpy of caliche with 23 ktpy of iodine prill production.

Future energy and water needs will be satisfied by the infrastructure expansion plan considered in the TEA Project. This includes power transmission lines connected to electrical installations with new transformers to be located at mine operation centers, water supply centers, and the Nueva Victoria mining areas, as well as the Sur Viejo industrial area.

The following sections detail energy, water, staff, and process input consumption.

14.1.10 Energy and Fuel Requirements

14.1.10.1Power and Energy

The power supply comes from permanent power lines to the site. Its function is to supply electricity to the industrial areas to carry out operations and to supply electricity to the adduction system, specifically through installed substations. There is a control portal and power distribution center at the facility. This center has a start-up power supply for the operations, laboratory, and plant.

Nueva Victoria has one substation, with two distribution systems. One system has a capacity of 50 MW and the other has a capacity of 60 MW. Associated with the Nueva Victoria 50 MW line, the consumption declared by SQM for the 2022 is of 21.048.180 kilowatt-hours (kWh), while for the line Nueva Victoria 60 MW, the energy consumption is 123,531,632 kWh.

In terms of power consumed and considering a calendar year of 365 days and 24 hours, the indicated energy values translate into a consumption of 2.40 MW for the available 50 MW power line and 14.10 MW for the available 60 MW power line. Therefore, for the year 2022, the electric power consumption was about 16.50 MW.

There is an auxiliary electricity supply system, via 500-kilovolt-amperes (kVa) generators, considered to be installed in both process plants planned for the expansion.

14.1.10.2Fuels

The operation will require 28,804 m^3/y of diesel and 24 m^3/y of petrol. Fuel will be supplied by duly authorized fuel trucks. Storage tanks in the Sur Viejo industrial area will be the source of the fuel.

Gas is a source of energy for operations at Iris. Gas is stored in liquefied gas storage tanks at the Iris camp.

14.1.11 Water Supply and Consumption

14.1.11.1 Water Supply System

Water supplies are required for basic consumption, drinking water consumption (treated and available in drums, dispensed by an external supplier) and for industrial quality work. As reported, the entire sector is supplied by an industrial water supply center located in Nueva Victoria.

For industrial water supply, groundwater will be extracted at an average rate of 810.8 L/s, from wellfields at the Salar de Sur Viejo, the Salar de Llamara and the Pampa del Tamarugal.

SQM has:

- 4 wells at Sur Viejo with consumptive rights totaling 103 L/s.
- 5 wells at the Iris with consumptive rights totaling 60.4 L/s.
- Well TC-9, situated to southwest of the Salar de Bellavista.
- 7 wells in the Salar de Llamara with consumptive rights totaling 203.8 L/s.
- 7 wells in the Soronal with consumptive rights totaling 126 L/s.
- 4 Catchment wells with consumptive rights totaling 122.8 L/s.

SQM projects the addition of the following water resource supply capacity to its water rights:

- 113.1 L/s of groundwater extraction from new wells situated to the east of the Salar de Bellavista.
- Groundwater extraction from the TC-10 well located in Salar de Llamara.
- Surface water extraction through permanent and continuous surface consumptive rights for a maximum of 60 L/s granted in Quebrada Amarga.

Industrial water pipelines connect groundwater ponds to the mining and industrial areas of Nueva Victoria. For water extraction, pumping and transport, there is a network of pipes, pumping stations and power lines that allow extraction of the required industrial water and its transport and redistribution to the different points where it is required.

Water is supplied to an existing process water storage tank. Raw water is used for all purposes requiring clean water with low dissolved solids and salt content, mainly for reagent replenishment.

Raw water is treated in a reverse osmosis system; whose infrastructure includes tanks for water storage (industrial or potable). The potable water storage tank also supplies water for use in:

[8] 730.3 L/s (approved by the Direccion General de Aguas (DGA), The Chilean Regulator

Safety showers and other similar applications:

Fire-fighting – the building of the Nueva Victoria, Iris and Sur Viejo COMS are equipped with water storage tanks for firefighting which supply hydrant & sprinkler systems.

Cooling water.

Boilers for steam generation.

In addition, the TEA project considers a seawater supply system (900 L/s design flow) to supplement the industrial process water supply. The seawater will be drawn from the coast at Puerto Patillos, 58 km northwest of the Nueva Victoria Property and 55 km SSW of the City of Iquique. The seawater will be stored in reception ponds at Nueva Victoria.

14.1.11.2Water Consumption

Table 14-9 summarizes the rate of groundwater pumping for industrial water supply by SQM, by sector, for the years 2020; 2021 & 2022.

Table 14-9 Historic Rates of Groundwater Extraction for Industrial Water Supply

Year	Sur Viejo (L/s)	Llamara (L/s)	Iris (L/s)	Soronal (L/s)	Pampa Tamarugal (L/s)	Total (L/s)
2020	105	225	61	127	117	635
2021	107	221	61	128	120	637
2022	103	203.8	60.4	126	122.8	616

Potable water will be required to cover all workers' consumption and sanitary needs. Potable water supply considers a use rate of 100 L/person/d, of which 2 L/person/d corresponds to drinking water at the work fronts and cafeterias. Commercial bottled water will be provided to staff. Sanitary water will be supplied from storage tanks located in the camp and office sectors, which will be equipped with a chlorination system. A total of 719 workers per month are required, considering the Nueva Victoria and Iris operations together, so the total amount of potable water will be 72 m^3/day (0.83 L/s).

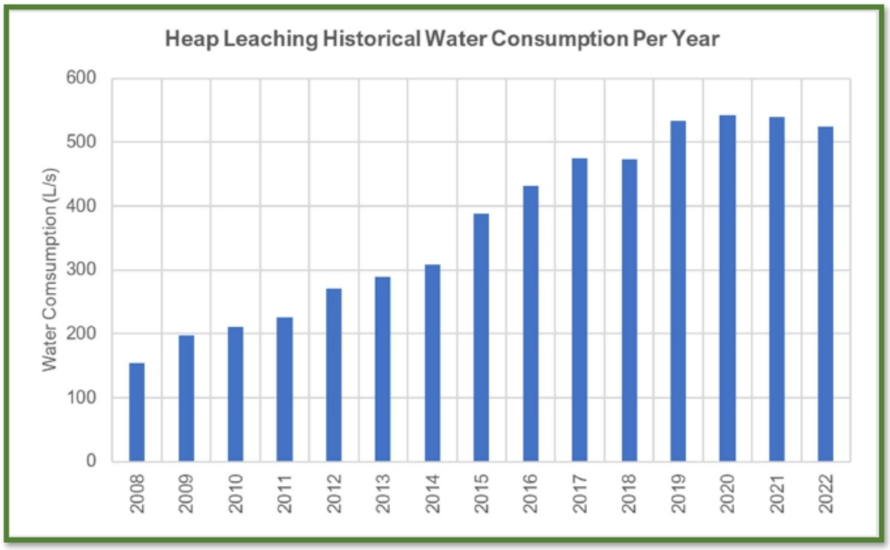
Table 14-10 provides a breakdown of the estimated annual water requirement by potable and industrial water for year 2022. The heap leaching process corresponds to the greatest water demand.

Table 14-10 Nueva Victoria Industrial and Potable Water Consumption

Process	Annual Volume (M^3/Year)	Equivalent Rate (L/s)
Industrial Water		
Heap Leach	17.899.577	567,6
Puquios Reinjection	897.702	28,5
Mine	157.680	5,0
Iodide - Iodine Plants	242.511	7,7
Neutralization Plant		
Solar Evaporation Ponds	449.085	14,2
Camp	63.073	2,0
Total Other Areas	1.800.142	57,1
Mine		
Iodide Plant		
Iodine Plant		
Neutralization Plant		
Solar Evaporation Ponds		
Camp		
Puquios Reinjection		
Total Industrial Water	21.509.770	693
Drinking Water	**26.207**	**0,83**

Figure 14-10 presents the historical rate of water consumption by the heap-leaching operation at Nueva Victoria over the period 2008 – 2022. In 2022 the consumption of industrial water for heap leaching was 567.6 L/s.

Figure 14-10. Historical Rate of Consumption of Industrial Water by the Heap Leach Operation at Nueva Victoria (L/s)



14.1.11.3 Future Process Water Requirements

Future process water requirements, due to TEA Project incorporation, will be covered by adding a 900 L/s seawater supply system. This seawater supply system extends from an intake located in Patillos Bay at a depth of 25 m and 852 m from the beach line, through to the seawater storage ponds located at the Seawater System Terminal Station at Nueva Victoria.

This system will be implemented starting in 2024, with an initial capacity of 206 L/s, which will increase to 400 L/s between 2026 - 2028 and reach the full design capacity of 900 L/s by 2030.

14.1.12 Staffing Requirements

An estimated 719 workers are required during Nueva Victoria and Iris operations, while an estimated 717 workers will be required for the TEA Expansion of the Nueva Victoria Property when that project is completed. Table 14-12 summarizes current and future workforce requirements.

Table 14-11 Personnel Required by Operational Activity

Operational Activity	Current Personnel, Nueva Victoria & Iris Operations	Additional Personnel, TEA Expansion Project
Caliche Mining	475	474
Maintenance (mine-plant)	38	38
Iodide Production	17	17
Iodine Production	40	40
Neutralization System	2	2
Evaporation System-Operations	75	75
Evaporation System, Maintenance	72	71
Total	**719**	**717**

14.1.13 Process Plant Consumables

Raw materials such as sulfur, chlorine, paraffin, sodium hydroxide, or sulfuric acid, are added to the plants to produce a concentrated iodide solution which is then used in iodine production. These materials are transported by trucks from different parts of the country. A-412, which connects with Route 5, is the main route for vehicular flows required for input supply and raw material shipment.

Reagent Consumption Summary

Table 14-12 summarizes the main annual materials required for Nueva Victoria's operations to the nominal production rate of 11 kt iodine prill. This table also includes a total requirement for the future expansion of TEA project. It is worth noting that some of the inputs can be replaced by an alternative compound; for example, sulfur can be replaced by liquid sulfur dioxide, kerosene can be replaced by sodium hydroxide and finally, lime can be replaced by sodium carbonate.

It is important to note that there are ranges of consumption factors that have been studied through historical operational data of plant treatment. The ranges are established according to the different qualities of brine obtained from the treated resource. These factors allow projecting the requirements of reagents and process inputs, both for annual, short- and long-term planning.

Table 14-12 Process Reagents and Consumption Rates per Year, NV

Reagent and Consumables	Function or Process Area	Units	Cosumption of Nueva Victoria (11 kton iodine prill)	Consumption with TEA (23 kton iodine prill)
Sodium Hypochlorite	Addition Of Sodium Hypochlorite Solution in The Seawater Pipeline Suction.	Tpy	29	60
	Iodide And Iodine Consumption	Tpy	2,228	4,659
			23,102	48,305
Ammonium Nitrate	Necessary for Blasting	Tpy	13,860	22,000
Sulfuric Acid	Iodide Plant	Tpy	16,652	34,464
Sulfur	Iodide And Iodine Plants	Tpy	9,058	24,699
			825	2,990
Liquid Sulfur Dioxide	Used as an Alternative to Solid Sulfur	Tpy	23,626	49,399
			2,860	5,980
Kerosene	At The Iodide Plant as a Solvent	Tpy	6,007	12,062
Sodium Hydroxide	At the Iodine Plants and at the Iodide Plant as Replacement of Kerosene	Tpy	1,935	34,464
			166	690
Chlorine	Supply Chlorine to the Iodine Plants as an Oxidizer	Tpy	2,563	5,360
	To The Iodide Plants	Tpy	247	517
Filter Aid	Alpha Cellulose Powder used to Iodide and Iodine Plants	Tpy	72	150
		Tpy	43	90
Codium Chloride	Iodide Plant	Tpy	613	1,281
		Tpy	6,353	13,284
Hydrogen Peroxide	Iodine Plant as an Oxidizer	Tpy	2,136	5,520
Activated Carbon	At the Iodine Plant	Tpy	52	117
Sulfonitric Acid	At the Iodine Plant	Tpy	72	150
Sodium Metabisulfite	Iodine Plant	Tpy	132	276
Lime (75 % Cao)	Neutralization Plant	Tpy	7,979	19,000
	Heap	Tpy	2,391	5,000
Lime (95 % Cao)	Heap	Tpy	2,674	2,500
Sodium Carbonate	Neutralization Plant for Lime Replacement	Tpy	17,217	36,000
	Heap	Tpy	16,483	34,464
Others				
Fuel Oil	Iodine Plant	Tpy	399	1,817
Barrels	Packaging	Pcs/Month	15,105	31,584
Polyethylene Bags	Packaging	Pcs/Month	17,948	37,527
Krealon Bags	Packaging	Pcs/Month	16,452	34,399
Maxi Bags	Packaging	Pcs/Month	414	865

It should be noted that when the Project's Nitrate Plant is built and becomes operational, 2,050,000 tpy of nitrate salts will be processed to produce 1,000,000 tpy of potassium nitrate and 1,200,000 tpy of potassium nitrate, for which it will require the following processing inputs in addition to those detailed above (Table 14-13).

Table 14-13 Process Reagents and Consumption Rates per year with Nitrate Plant (Planned).

Reagent and Consumables	Units	Consumption
Potassium Chloride	Tpy	924,000
Potassium Salts		3,314,000
Fuel Oil		33,500
Diesel		31,500

14.1.13.1Reagent handling and storage

To operate, inputs used are stored in stockpiles and tanks, facilities available in the area known as the input reception and storage area. To store the inputs used in the Nueva Victoria plants, the following infrastructure are used:

- Sulfur storage facilities.
- Paraffin tanks.
- Sulfuric acid tanks.
- Peroxide tanks.
- Chlorine tanks (mobile).
- Bunker oil tanks.
- Diesel oil tanks.
- Sulfonitric acid tank.

In the case of inputs used at Iris' iodine plant, the storage facilities include:

- Sulfur storage facilities.
- Sulfuric acid tanks.
- Diesel oil tank.
- Caustic soda tank.
- Calcium carbonate silo.

Each reagent storage system assembly is segregated based on compatibility and is located within curbed containment areas to prevent spill spreading and incompatible reagents from mixing. Drainage sumps and pump sumps are provided for spill control.

14.1.14 Air Supply

High pressure air at 600-700 kPa is produced by compressors in place to satisfy the requirements of the plant as well as the equipment. High pressure air supply is dried and distributed through air receivers located throughout the plant. Each process plant has a compressor room to supply air to the compressors.

QUALIFIED PERSON´S OPINION

According to Gino Slanzi Guerra, QP responsible for metallurgy and resource treatment:

> Metallurgical test data on the resources planned to be processed in the projected production plan to 2023 indicate that recovery methods are adequate. The laboratory, bench and pilot plant scale test program conducted over the last few years has determined that feedstock is reasonably suitable for production and has demonstrated that it is technically possible using plant established separation and recovery methods to produce iodine and nitrate salts. Based on this analysis, the most appropriate process route, based on test results and further economic analysis of the material, are the unit operations selected which are otherwise typical for the industry.
>
> In addition, historical process performance data demonstrates reliability of recovery estimation models based on mineralogical content. Reagent forecasting and dosing will be based on analytical processes that determine mineral grades, valuable element content and impurity content to ensure that system treatment requirements are effective. Although there are known deleterious elements and processing factors that can affect operations and products, the company has incorporated proprietary methodologies for their proper control and elimination. These are supported by the high level of expertise of its professionals, which has been verified at the different sites visited.
>
> The mineralogical, chemical, physical and granulometric characterization results of the mineral to be treated, obtained from trials obtained, allow continuous evaluation of processing routes, either at the initial conceptual stages of the project or during the process already established, to ensure that the process is valid and in force, and/or to review optimal alternatives to recover valuable elements based on resource nature. Additionally, analysis methodologies determine deleterious elements, to establish mechanisms in operations so that these can be kept below the limits to ensure a certain product quality.

15 PROJECT 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 New Victoria has been developed considering current facilities and requirements associated with future projects. This Section describes the existing facilities and planned expansion projects.

SQM's mining sites in Tarapacá Region, Nueva Victoria, and Iris, are in Tarapacá Region, in Iquique and Tamarugal provinces, communes of Iquique and Pozo Almonte, approximately 145 km southeast from Iquique and 85 km south from Pozo Almonte, in the case of Nueva Victoria, and 120 km southeast from Iquique in the case of Iris, located close to Iris office (Figure 15-1). These works as a whole involve a surface area of approximately 92.998 ha, including the TEA Project. The geographical reference location is 7,682,276 N, 431,488E, with an average elevation of 891 masl.

In late 2002, in order to restore mining operations at Nueva Victoria East, SQM re-established mining operations at Nueva Victoria East. Mineral at Nueva Victoria is transported by truck to heap leaching facilities, where iodine is produced. This site is constituted by facilities located in three sectors corresponding to Nueva Victoria, Sur Viejo, and Iris.

Figure 15-2 shows Nueva Victoria's geographic location. It also shows, for reference purposes, other sites belonging to SQM (Coya Sur, Salar de Atacama, and Salar del Carmen), and facilities used to distribute its products (Port of Tocopilla, Port of Antofagasta, and Port of Iquique).

From caliche, this site produces iodine and nitrate-rich salts through heap leaching and evaporation ponds. The main raw material required for the production of nitrate and iodine is caliche mineral, which is obtained from SQM's surface mines. The areas that are currently mined are located approximately 20 km northwest of Nueva Victoria.

Iodine extraction from caliche is a well-established process, but variations in the iodine and other chemical content of treated mineral and other operational parameters require a high level of technical expertise to manage effectively.

Caliche mineral in northern Chile contains a unique deposit of nitrate and iodine known throughout the world and is the world's largest commercially exploited source for natural nitrate. From these caliche mineral deposits, a wide range of nitrate-based products are produced, used as specialty plant nutrients and industrial applications as well as iodine and iodine derivatives

Figure 15-1. General Location of Nueva Victoria

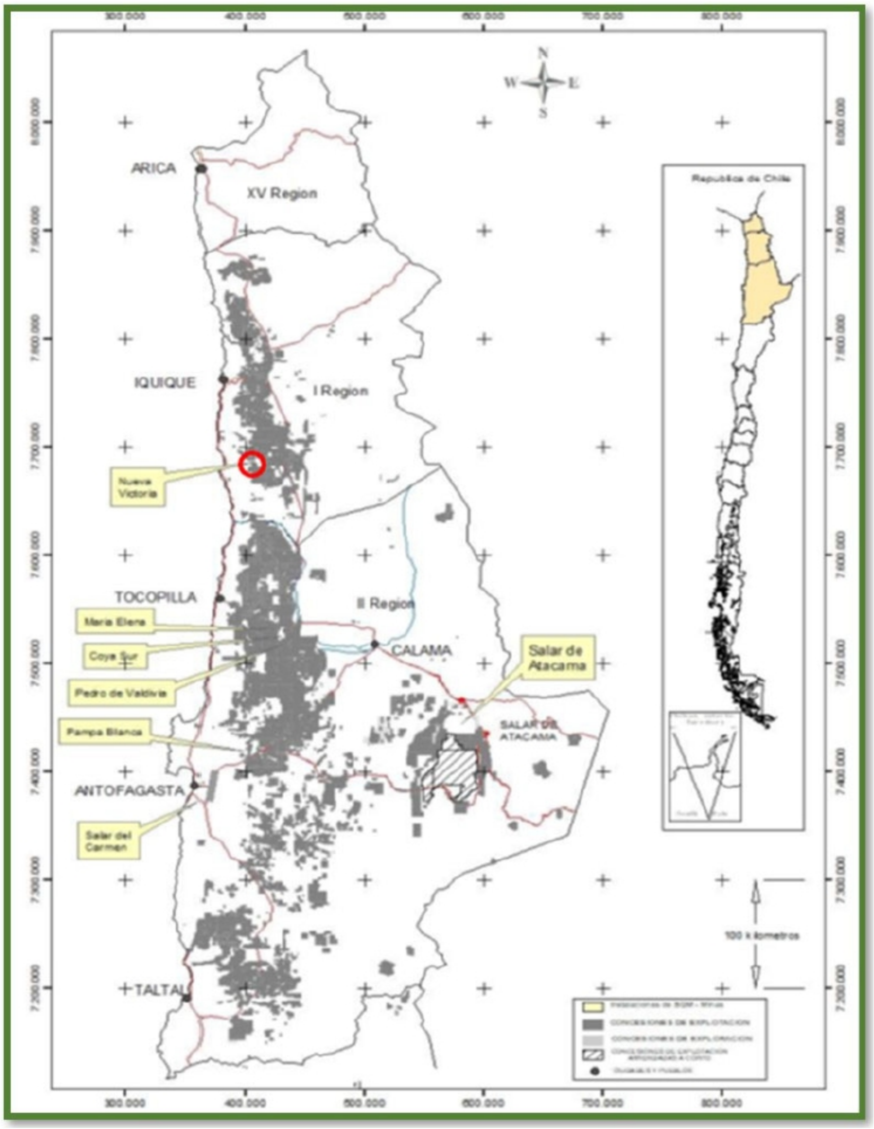


Figure 15-2. Location of Nueva Victoria Production Area

Iodine and its derivatives are used in a wide range of medical, pharmaceutical, agricultural and industrial applications, including x-ray contrast media, polarizing films for liquid crystal display (LCD/LED) screens, antiseptics, biocides and disinfectants, in pharmaceutical synthesis, electronics, pigments and dye components.

The solutions resulting from caliche mineral leaching at Nueva Victoria plant are used to produce iodine from the iodate contained inside them. Iodine is extracted from aqueous and concentrated solutions in iodide form using solvent extraction in plants at Nueva Victoria, Pedro de Valdivia and Iris. Details on the process facilities and the iodine and nitrates extraction can be found n Section14.

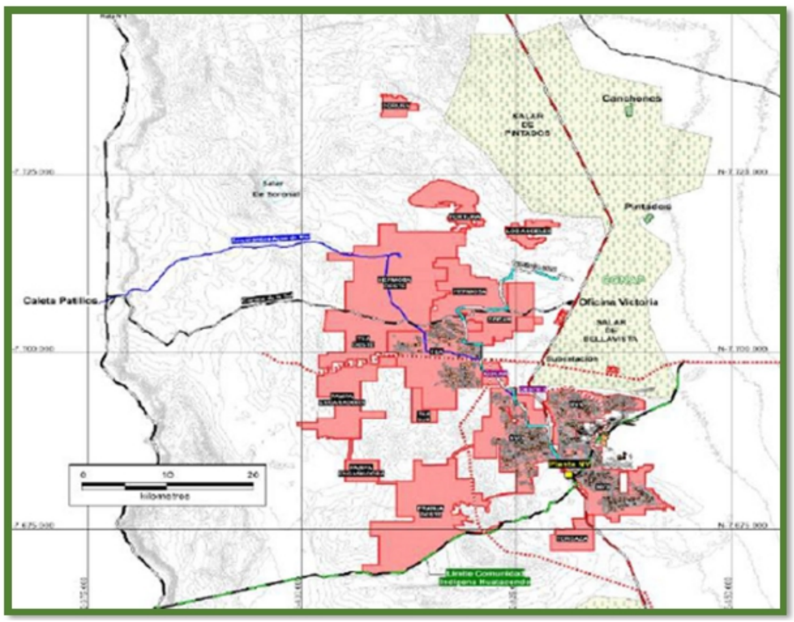
Prilled iodine is tested for quality control purposes, using international standard procedures it has implemented, and then packaged in 20 - 50 kg drums or 350 - 700 kg maxi bags and transported by truck to Antofagasta, Mejillones or Iquique for export.

Figure 15-3 shows Nueva Victoria's process diagram.

Figure 15-3. Nueva Victoria Plant Process Diagram

SQM S.A.'s surface area under Mining Concessions for Exploitation associated with caliche Mineral Resources for its mining operations as of 31 December 2022 is approximately 558,562 ha (Figure 15-4).

Figure 15-4. Nueva Victoria Site Resource Diagram



In September 2010, the National Environmental Commission (now the Environmental Assessment Service) approved Pampa Hermosa's Environmental Study in Chile's Tarapacá Region (RCA N°890/2010).

This approval allowed SQM to have a production capacity at Nueva Victoria of 11,000 t of iodine per year and to produce up to 1.2 Mt of nitrates, extract up to 37 Mt of caliche per year, and use new water rights of up to 665.7 L/s.

At Iris, SQM has approved 2,000 t of iodine production per year with annual caliche extraction of up to 6.48 Mt. In recent years SQM has invested to increase water capacity at Nueva Victoria's operations from two water sources approved by Pampa Hermosa's Environmental Study and to expand the capacity of solar evaporation ponds and implement new mining areas and solution collection.

In 2011 and 2013, SQM completed iodine plant capacity expansions at Nueva Victoria.

In 2014, SQM made investments in new mining sector development and production increases for both nitrates and iodine at Nueva Victoria, achieving a production capacity (including Iris facility) of approximately 8,500 tpy of iodine at that site.

In November 2015, mining and nitrate operations at Pedro de Valdivia were suspended and iodine production at the site was reduced to take advantage in the more efficient production facilities at Nueva Victoria. Pampa Blanca's operations were suspended in 2010 and Maria Elena's operations were suspended in October 2013.

During 2017, iodine production capacity at Nueva Victoria was increased to approximately 10,000 tpy.

Currently, Nueva Victoria has a production capacity of approximately 13,000 metric tpy of iodine in an area of about 48,000 ha and 1,000,000 metric ton of nitrates per year.

Current total effective production capacity at the iodine production plants (Nueva Victoria, Iris, Pedro de Valdivia) is approximately 14,800 tpy.

Total iodine production in 2022 was 12,400 t, 10,800 ton from Nueva Victoria (with loading fronts TEA, and NV Norte), 1,250 t from Iris, and 1,600 t from Pedro de Valdivia. Nueva Victoria is also equipped to produce iodine from iodide delivered from the other plants. There is flexibility to adjust production according to market conditions.

Some of iodine produced is used to manufacture inorganic iodine derivatives, which are intermediate products used to make nutritional and agricultural applications, at facilities located near Santiago, Chile, and to produce organic and inorganic iodine derivatives in collaboration with Ajay, a company that purchases iodine. Iodine-derived products have been marketed mainly in South America, Africa, and Asia, while Ajay and its affiliates have marketed iodine derivatives mainly in North America and Europe.

During 2020, progress was made on the TEA project development and environmental processing. In November 2021, SQM's TEA project was favorably classified by Tarapacá Region's Environmental Assessment Commission.

It involves an investment of USD350 million and aims to incorporate new mine areas for iodide, iodine, and nitrate-rich salts production at Nueva Victoria mine, which will increase the total amount of caliche to be extracted and the use of the sea water for these processes.

This project consists in modifying Nueva Victoria mine, which consists of:

a) New mine areas (436 Km^2), with a caliche extraction rate of 28 Mtpy, resulting in a total of 65 Mtpy.

b) Two new Iodide production plants (6,000 tpy each), for a total of 23,000 tpy.

c) One new iodine production plant (12,000 tpy) for a total of 23,000 tpy.

d) New evaporation ponds to produce nitrate-rich salts (1,950,000 tpy) for a total of 4,000,000 tpy.

e) New operational irrigation centers and distribution pipe solutions which should cover the new mine area.

f) New truck workshops and supporting infrastructure such as roads, casinos, offices, control rooms, etc.

g) A new neutralization system, a seawater conveyance (900 L/s maximum) from Patillos Bay sector to the mining area.

ACCESS TO PRODUCTION, STORAGE AND PORT LOADING AREAS

The main access for vehicular traffic will be through a private existing road and A-760 Route. This private road will be accessed from Route 5. Access to Route A-760 may be from Route A-750 or from Route 5.

Additionally, the TEA Project considers two service roads - a road that connects the north-west sector (mine areas) with the coastal sector, where seawater suction works are located; and an internal road that will run from south to north, parallel to electric transmission line.

SQM's products and raw materials are transported by trucks, which are operated by third parties under long-term, dedicated contracts,

Iodine raw material, obtained from the same caliche used for nitrate production, is processed, packaged, and stored exclusively at Nueva Victoria and Pedro de Valdivia facilities.

Iodine is packaged in FIBC drums and maxi-bags with an inner polyethylene bag and oxygen barrier. When transported, it is consolidated in containers and sent by truck to port terminals suitable for handling, mainly in Antofagasta, Mejillones, and Iquique.

They are then shipped to the different markets by container ship, or by truck to Santiago where iodine derivatives are produced at Ajay-SQM Chile's plants.

In Nueva Victoria, nitrate raw material is produced for potassium nitrate production at Coya Sur, whose plant, also owned by SQM, is located 161 km southwest of Nueva Victoria by road.

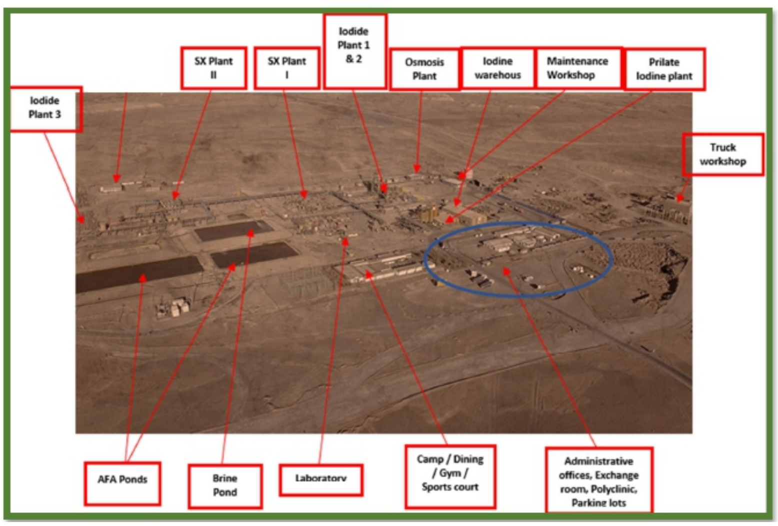
PRODUCTION AREAS AND INFRASTRUCTURE

The main facilities of the Nueva Victoria production area are as follows:

- Caliche extraction mine.
- Industrial water supply.
- Leaching.
- Iodide plants NV.
- Iodine and Prilling Plant NV.
- Evaporation ponds.
- Iodine Iris Plant.
- Camp and Offices.
- Domestic waste disposal site.
- Hazardous Waste Yard.
- Non-hazardous industrial waste yard.

Figure 15-5 depicts the Nueva Victoria site layout.

Figure 15-5. Nueva Victoria Site Layout



The Nueva Victoria mining areas and process facilities are described in more detail below.

15.2.1 Caliche Mine Areas

Caliche ore is blasted and dug at Nueva Victoria and Iris. The minimum thickness of caliche ore that SQM will mine is 1.5 m. The ore deposits are mined on a 25 x 25 m grid pattern.

The surface area authorized for mining at Nueva Victoria is 844 km². The surface area authorized for mining at Iris is 45.5 km². No expansion is planned at Iris.

Caliche extraction at Nueva Victoria is 37 Mtpy, with an additional 6.48 Mtpy at Iris. The overall mining rate at Nueva Victoria and Iris is a 71.48 Mtpy with the incorporation of TEA Expansion.

15.2.2 Heap Leaching

Heap leaching: platforms (normally 90 x 500 m) with parapets around the perimeter and with bottom waterproofed with HDPE membranes), which are loaded with required caliche (between 400 to 1000 Mton) and are irrigated with different solutions (Industrial Water, Industrial water + BF mix or Intermediate Solution).

Mine Operation Centers (COM) represent a set of heap leaching facilities, with brine accumulation ponds (poor solution, intermediate solution, and rich solution), recirculated brine ponds, industrial water ponds and their respective pumping and impulsion systems.

Auxiliary infrastructure includes general service facilities destined for workers.

15.2.3 Iodide Plants

Iodide production at the Nueva Victoria Iodide Plant totals 11 ktpy. The Iris Iodide Plant produces an additional 2 ktpy. Whit the TEA expansion the combined Nueva Victoria plus Iris iodide production will reach 25 ktpy.

The infrastructure at the iodide plants includes the following:

Storage ponds to hold the brine received from the heap leaching operation.

SO2 generation units.

Absorption towers with their respective pick-up tanks.

SX units.

Stripping system.

Gas scrubbing system.

BF storage ponds with their respective pumps.

15.2.4 Iodine Plant

The Iodine Plant at Nueva Victoria receives iodide from the iodide plants at Nueva Victoria and Iris. The current production capacity of the Nueva Victoria Iodine Plant is 11 ktpy. This increase to 23 ktpy whit the TEA expansion.

The infrastructure at the iodine plant includes the following:

- Iodide storage ponds (concentrated, filtered, or conditioned).
- Filters (perrin, or duplex plates).
- Activated carbon towers for iodide conditioning.
- Oxidizers.
- Reactors (for smelting, refining and prilling stages).
- Prilling towers.
- Prill grading sieving systems.
- Gas scrubbing system.
- Boiler room.
- Warehouse for packaging and temporary storage (product awaiting approval).
- Dispatch warehouse with a rack system for product storage.

15.2.5 Ancillary Infrastructure at the Nueva Victoria COM

The following facilities are available for the storage of consumables used in the iodide and iodine plants:

- Sulfur stockpiles for the generation of sulfur dioxide.
- Kerosene tanks.
- Sulfuric acid tanks.
- Hydrogen peroxide storage tanks.
- Mobile storage tanks for chlorine.
- Oil storage tanks.
- Diesel storage tanks.
- Sulfonitric acid storage tanks.

The Nueva Victoria COM is also equipped with the following systems and infrastructure:

- Firefighting water system.
- Water storage tank with its respective pump and piping system distributed throughout the entire plant installation.
- Reverse osmosis system, including water storage tanks (industrial or drinking water).
- Generator room.
- Compressor room.
- Control room.
- Office building.
- Ponds used with intermediate process solutions.
- Equipment maintenance workshop.
- Material and replacement parts yard.
- Electrical control rooms.

15.2.6 Evaporation Ponds

This facility, located in the industrial area of Sur Viejo, receives AFA piped 20 km from the iodide plant at Nueva Victoria.

Current production of high-nitrate salts at Nueva Victoria is 2.05 Mtpy. This is projected to increase to a total of 4 Mtpy whit the TEA expansion.

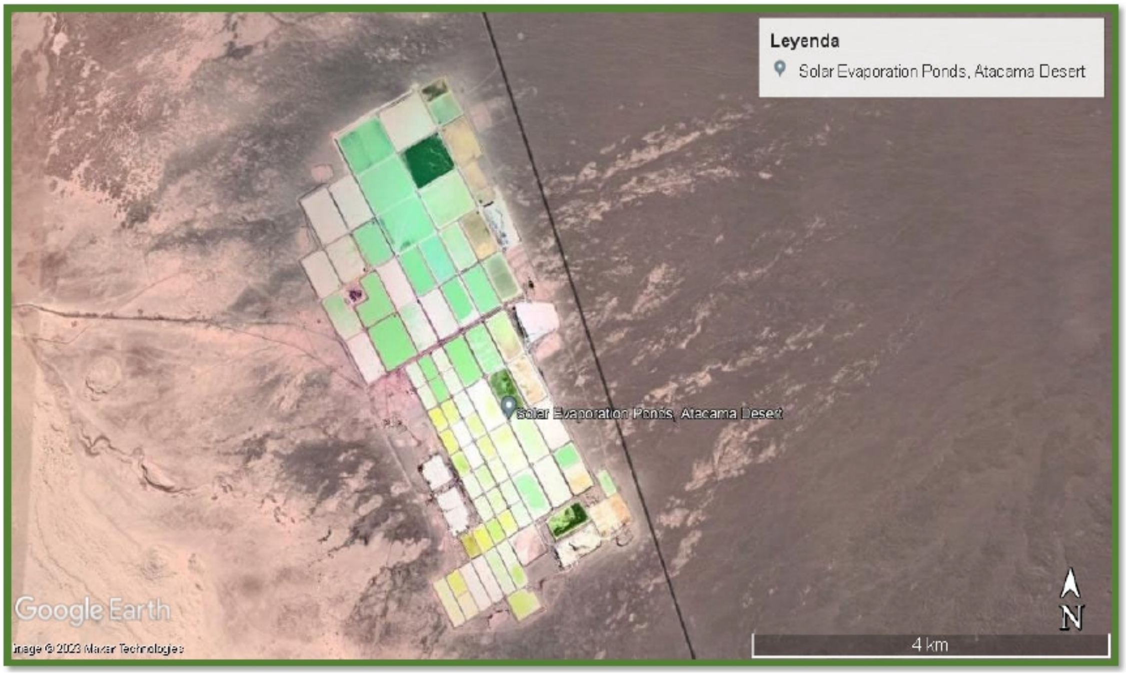
The current facility covers an area of 8.34 km², this will increase to a total of 18.51 km² with the TEA expansion.

The evaporation ponds facility includes the following infrastructure:

- Neutralization Plant to raise the pH of the influent AFA.
- Solar evaporation ponds.
- Auxiliary facilities.

Figure 15-6 presents an aerial view of the evaporation ponds facility at Sur Viejo.

Figure 15-6. General View of The Evaporation Ponds at the Sur Viejo Industrial Area



15.2.7 Neutralization Plant

AFA is neutralized by mixing it with a slurry of calcium hydroxide. Neutralization takes place in mixing ponds that discharge into ponds that allow sedimentation of solids in suspension, such as gypsum.

15.2.8 Solar Evaporation Ponds

Solar evaporation ponds are divided into pre-concentration ponds, production ponds and purge ponds. Figure 15-7 shows a panoramic view of a part of the solar evaporation ponds.

Figure 15-7. General View of Solar Evaporation Ponds in Sur Viejo

In the pre-concentration ponds, discard salts precipitate, which are harvested and placed in discard salt stockpiles that have a waterproofed base to recover the solution from the squeezing or impregnation. Nitrate-rich salts precipitate in the production ponds are harvested and stockpiled in product ponds.

These nitrate-rich salts are shipped by truck to SQM's facilities in the Antofagasta Region

15.2.9 Auxiliary Facilities

These include offices, bathrooms, dressing rooms and a cafeteria for personnel working there, a reverse osmosis plant and a sewage treatment plant (TAS).

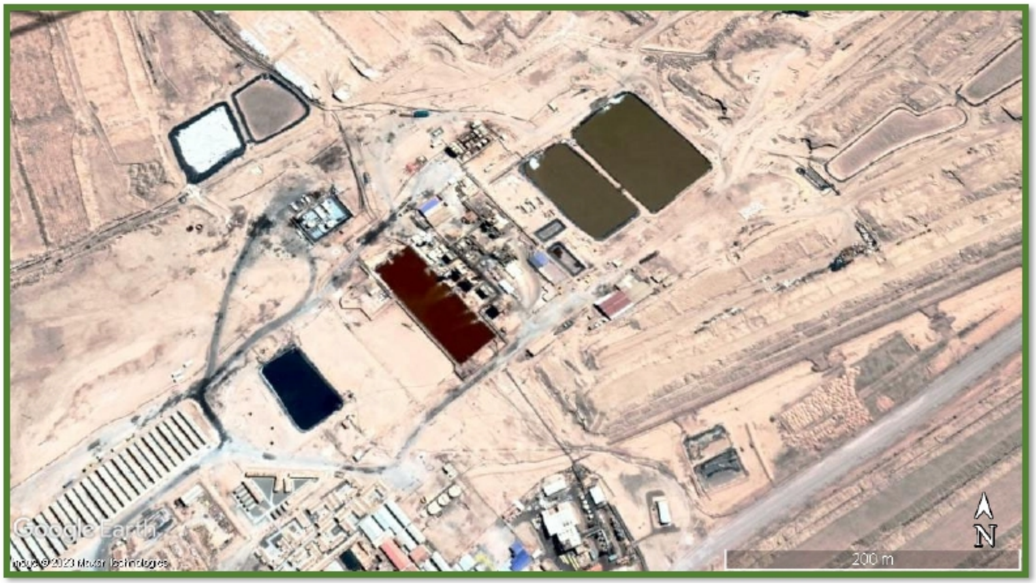
15.2.10 Iris Iodine Plant

Located at the Iris COM, it includes the following infrastructure:

- Iodide plant
- Auxiliary installations
- Iodine plant

Figure 15-8 presents an aerial view of the Iris Iodine Plant.

Figure 15-8. General View of The Iris Iodine Plant Area



To produce iodine at Iris the plant that cover reception of raw materials to producing iodine prill as a final product.

The main equipment and infrastructure included in iodine plant are:

- SO2 generation furnaces,
- Iodization absorption towers, each with its respective TK pick up, cooler and TK seal,
- Iodine reception TK from the iodization towers,
- Scrubber or gas scrubber with its respective TK seal,
- TK for primary cutting,
- Blow-out modules, consisting of absorption tower, desorption tower and NaOH TK,
- concentrated iodide TK,
- Brine feble pond for blow-out modules discard solution, with their respective pumps,
- Crystallizers (secondary cutting),
- Reactors (for smelting, refining and prilling stages),
- Prilling tower,
- Dryers and sifters,
- Boiler room.

Packaging and shipment facilities include.

- Auxiliary facilities.

Storage facilities at the at Iris iodine plant include:

- Sulfur storage yard
- Sulfuric acid tanks,
- Diesel oil tank,
- Caustic soda tank

Other infrastructures around the plant include:

- Osmosis plant and water storage ponds
- TAS plants (sewage treatment)
- Generator room
- Compressors

- Control room
- Administrative offices
- Ponds used with intermediate process solutions,
- Maintenance workshop,
- Camp and Offices.

In the industrial sectors of Nueva Victoria and Iris, the following annexed facilities are available:

- General office facility
- Offices
- Training room,
- Cafeteria,
- Camp,
- Warehouse,
- Domestic waste disposal site,
- Hazardous waste yard and
- Non-hazardous industrial waste yard.

COMMUNICATIONS

The facilities have telephone, internet, and television services via satellite link or by fiber optics supplied by an external provider.

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

Communication to the control system, CCTV, internal telephony, energy, and data monitoring is via its own fiber optics, which connects process plants and control rooms.

15.3.1 Information Systems and IT

In addition to the facilities mentioned above, SQM operates several computer and information systems that connect its main subsidiaries to operational and administrative facilities in Chile and other parts of the world. IT and information systems are mainly used for finance, accounting, human resources, supply and inventory tracking, invoicing, quality control, research activities, as well as production and maintenance process control. The mainframe computer system is located at Santiago offices and Chilean and international subsidiaries are interconnected with each other through data links.

WATER SUPPLY

Water for Nueva Victoria's facilities is obtained from ground water ponds near the production facilities. Currently, the new EIA TEA considers seawater from an aqueduct to be constructed by SQM.

For industrial water supply, there are groundwater extraction ponds in Salar de Sur Viejo, Pampa del Tamarugal and Salar de Llamara, whose water rights have been approved as shown in Table 15-1:

Table 15-1. Approved Water Rights, by Sector

Ponds Location Sector	Approved water right
Salar de Sur Viejo	107
Pampa del Tamarugal	378.6
Salar de Llamara	244.7
Total	**730.3**

The current authorized groundwater extraction for industrial use is 810.8 L/s, increasing by an additional 900 L/s due to seawater conveyance (TEA project), reaching a total of 1,710.8 L/s for industrial use.

The average water abstraction records (L/s) during 2020 to 2022 are included in Table 15-2

Table 15-2. Average Water Extraction, by Sector

Pond location sector	Water extraction average value 2020 (l/s)	Water extraction average value 2021 (l/s)	Water extraction average value 2022 (l/s)
Salar de Sur Viejo	104.68	106.5	103
Pampa del Tamarugal	304.89	309.3	309.2
Salar de Llamara	225.48	220.62	203.8
Total	**635.05**	**636.42**	**616**

A network of pipelines, pumping stations, and power lines are used for water extraction, pumping, and transport to storage ponds, and from there to the different points where it is required. Average water consumption is 567 l/s.

The difference between extraction of 616 L/s compared to consumption of 567 L/s, in other words, 49 L/s (approximately 2,649,024 m^3/y) is accumulated in pools and/or ponds.

WATER TREATMENT

The volume of treated water at the wastewater treatment plant in 2022 was 11,738 m^3.

Mining waste generated at the site correspond to depleted heap leaching, overburden, and waste salts.

POWER SUPPLY

These facilities, shown in Figure 15-9, are connected to the National Electric System, Arica-Diego de Almagro area. The electrical system in the north of the country is called "Sistema Interconectado Norte Grande" or SING.

Nueva Victoria Tap-Off Substation has 220-, 66-, and 23-kV high-voltage yards in single bus configuration. It is currently connected to Circuit No. 1 of the Lagunas - Crucero 220-kV National Transmission Line, and to the line, called Lagunas - Nueva Victoria, with 220-kV voltage and 211-MVa capacity.

Figure 15-9. Geographical location of S/E Tap Off Nueva Victoria

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 forecasted over the Long-Term period.

THE COMPANY

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 92% of our sales in 2021 derived from countries outside Chile.

The business strategy is to maintain the world leadership position in the market for iodine, potassium nitrate, lithium, and salts.

The products are mainly derived from mineral deposits found in northern Chile. Mine and process caliche ore and brine deposits.

Caliche ore in northern Chile contains the only known nitrate and iodine deposits in the world and is the world's largest commercially exploited slice of natural nitrate.

From the caliche ore deposits, SQM produces a wide range of nitrate-based products used for specialty plant nutrients and industrial applications, as well as iodine and its derivatives.

The SQM´s products are divided into six categories:

- specialty plant nutrients,
- iodine and its derivatives,
- industrial chemicals,
- lithium and its derivatives,
- potassium chloride and potassium sulfate,
- other commodity fertilizers.

The following table presents the percentage breakdown of SQM's revenues for 2021, 2020, 2019 and 2018 according to the product lines:

Table 16-1 Percentage Breakdown of SQM's Revenues for 2021, 2020, 2019 and 2018

Revenue breakdown	2021	2020	2019	2018
Specialty Plant Nutrition	32%	39%	37%	35%
Lithium and derivatives	33%	21%	26%	33%
Iodine and derivatives	15%	18%	19%	15%
Potassium	15%	12%	11%	12%
Industrial chemicals	5%	9%	5%	5%
Other products and services	1%	2%	2%	
Total	100%	100%	100%	100%

IODINE AND ITS DERIVATIVES, MARKET, COMPETITION, PRODUCTS, CUSTOMERS

SQM is one of the world's leading producers of iodine and its derivatives, which are used in a wide range of medical, pharmaceutical, agricultural, and industrial applications, including x-ray contrast media, polarizing films for liquid crystal displays (LCD/LED), antiseptics, biocides, and disinfectants, in the synthesis of pharmaceuticals, electronics, pigments and dye components.

In 2021, the SQM’s revenues from iodine and iodine derivatives amounted to US$437.9 million, representing 15.3% of our total revenues in that year. We estimate that our sales accounted for approximately 31% of global iodine sales by volume in 2021.

SQM's strategy for the iodine business is:

i. To achieve and maintain sufficient market share to optimize the use of the available production capacity.

ii. Encourage demand growth and develop new uses for iodine.

iii. Participate in the iodine recycling projects through the Ajay-SQM Group (“ASG”), a joint venture with the US company Ajay Chemicals Inc. (“Ajay”).

iv. Reduce the production costs through improved processes and increased productivity to compete more effectively.

v. Provide a product of consistent quality according to the requirements of the customers.

16.1.1 Iodine Market

Iodine and iodine derivatives are used in a wide range of medical, agricultural, and industrial applications as well as in human and animal nutrition products. Iodine and iodine derivatives are used as raw materials or catalysts in the formulation of products such as X-ray contrast media, biocides, antiseptics and disinfectants, pharmaceutical intermediates, polarizing films for LCD and LED screens, chemicals, organic compounds, and pigments. Iodine is also added in the form of potassium iodate or potassium iodide to edible salt to prevent iodine deficiency disorders.

X-ray contrast media is the leading application of iodine, accounting for approximately 24% of demand. Iodine's high atomic number and density make it ideally suited for this application, as its presence in the body can help to increase contrast between tissues, organs, and blood vessels with similar X-ray densities. Other applications include pharmaceuticals, which we believe account for 13% of demand; LCD and LED screens, 13%; iodophors and povidone-iodine, 8%; animal nutrition, 8%; fluoride derivatives, 7%; biocides, 6%; nylon, 4%; human nutrition, 4% and other applications, 14%.

Japan has the world's largest reserves of iodine, contained in brines rich in sodium iodide (NaI) in natural gas wells east of Tokyo, and estimated at 5 million tons of contained iodine. For reasons of geotechnical stability of the wells, the extraction of brine has a controlled flow, so its production is limited in its level current.

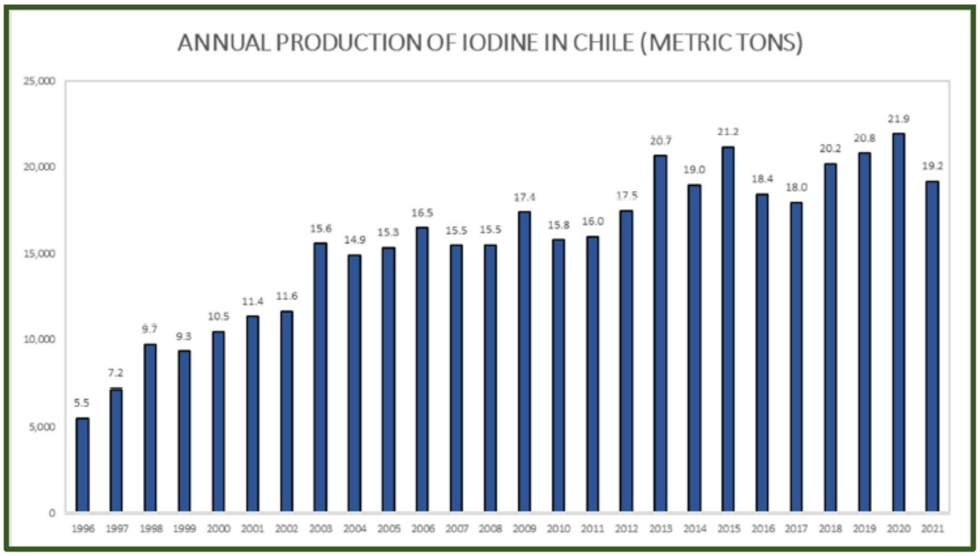
Iodine resources in Chile are found in the nitrate deposits of the regions of Tarapacá and Antofagasta, in the form of calcium iodate, $Ca(IO_3)_2$ in typical concentrations of 400 ppm (0.04% iodine by weight). It is obtained in co-production with sodium nitrate. The reserves in these deposits are estimated at 1.8 million tons of iodine, the second in the world.

The USA has similar resources in its type to Japan, but to a lesser extent (250,000 tons).

During 2021, the demand for iodine had a significant recovery compared to 2020 and exceeded the demand levels of 2019. Main drivers of this increase were in the X-ray contrast media market, in which demand grew by 14-15% compared to 2020, mainly due to worldwide growth in the healthcare industry spending during the year and increased accessibility to these types of treatments in emerging economies, mainly China. Another application for which demand increased above the market average was polarizing films for screens, growing around 6% compared to 2020, due to the reduction in TV costs, increased screen sizes and home office and home school trends because of the pandemic.

The following figure shows the evolution of the production of iodine and its derivatives in Chile, from 1996 to 2021.

Figure 16-1. Iodine and Derivates, Production Evolution 1996-2021



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

SQM supplies 12,300 metric tons of iodine and derivatives and other companies contribute the difference. The other Chilean producers are Atacama Chemical S.A. (Cosayach), controlled by the Chilean holding company Inverraz S.A.; ACF Minera S.A., owned by the Chilean Urruticoechea family; Algorta Norte S.A., a joint venture between ACF Minera S.A. and Toyota Tsusho; and Atacama Minerals, which is owned by Chinese company Tewoo.

16.1.2 Iodine Products

SQM produce iodine in our Nueva Victoria plant, near Iquique, and our Pedro de Valdivia plant, close to María Elena. The total production capacity of approximately 16,000 metric tons per year of iodine, including the Iris plant, which is located close to the Nueva Victoria plant.

Through ASG, SQM produces organic and inorganic iodine derivatives. ASG was established in the mid-1990s and has production plants in the United States, Chile, and France. ASG is one of the world's leading inorganic and organic iodine derivatives producer.

Consistent with the business strategy, SQM works on the development of new applications for iodine-based products, pursuing a continuing expansion of the businesses and maintaining the market leadership.

SQM manufactures its iodine and iodine derivatives in accordance with international quality standards and have qualified its iodine facilities and production processes under the ISO 9001:2015 program, providing third party certification of the quality management system and international quality control standards that SQM has implemented.

SQM's revenues increased to US$437.9 million in 2021 from US$334.7 million in 2020. This increase was primarily attributable to higher sales volumes and higher average prices during 2021. Average iodine prices were more than 2.8% higher in 2021 than in 2020. Our sales volumes increased 27.2% in 2021.

Revenues from sales of iodine and derivatives during the twelve months ended December 31, 2021, were US$437.9 million, an increase of 30.9% compared to US$334.7 million generated for the twelve months ended December 31, 2020. During 2021, global demand for iodine had a significant recovery compared to 2020, even exceeding the demand levels seen before the COVID-19 pandemic. Main drivers of this increase were seen in the X-ray contrast media market, which demand grew by 14-15% compared to 2020, mainly due to worldwide growth in the healthcare industry spending during the year and increased accessibility to these types of treatments in emerging economies. This strong recovery led to a strong pricing environment during the year, with prices increasing over 11% in the fourth quarter 2021 when compared to the third quarter. As a result of tight supply/demand equilibrium, we are expecting the upward pricing trend to continue during 2022. We believe that demand growth in 2022 could be around 1%. We believe average prices in 2022 could be significantly higher.

The following table shows the total sales volumes and revenues from iodine and iodine derivatives for 2021, 2020, 2019 and 2018:

Table 16-2 Iodine and derivates volumes and revenues, 2018 - 2021

Sales volumes (Thousands of metric tons)	**2021**	**2020**	**2019**	**2018**
Iodine and derivatives	12.3	9.7	12.7	13.3
Total revenues (In US$ millions)	437.9	334.7	371	325

16.1.3 Iodine: Marketing and Customers

In 2021, we sold our iodine products in approximately 52 countries to approximately 260 customers, and most of our sales were exports. Two customers each accounted for more than 10% of our iodine revenues in 2021. These two customers accounted for approximately 42% of revenues, and our ten largest customers accounted in the aggregate for approximately 77% of revenues. No supplier accounted for more than 10% of the cost of sales of this business line.

The following table shows the geographical breakdown of the revenues:

Table 16-3 Geographical Breakdown of the Revenues

Revenues Breakdown	2021	2020	2019	2018
North America	23%	27%	24%	26%
Europe	40%	42%	33%	34%
Chile	0%	0%	0%	0%
Central and South America (excluding Chile)	2%	3%	2%	2%
Asia and Others	34%	27%	40%	37%

SQM sells iodine through its own worldwide network of representative offices and through its sales, support, and distribution affiliates. SQM maintains inventories of iodine at its facilities throughout the world to facilitate prompt delivery to customers. Iodine sales are made pursuant to spot purchase orders or within the framework of supply agreements. Supply agreements generally specify annual minimum and maximum purchase commitments, and prices are adjusted periodically, according to prevailing market prices.

16.1.4 Iodine Competition

The world's main iodine producers are based in Chile, Japan, and the United States. Iodine is also produced in Russia, Turkmenistan, Azerbaijan, Indonesia, and China.

Iodine is produced in Chile using a unique mineral known as caliche ore, whereas in Japan, the United States, Russia, Turkmenistan, Azerbaijan, and Indonesia, producers extract iodine from underground brines that are mainly obtained together with the extraction of natural gas and petroleum. In China, iodine is extracted from seaweed.

Five Chilean companies accounted for approximately 58% of total global sales of iodine in 2021, including SQM, with approximately 31%, and four other producers accounting for the remaining 27%. The other Chilean producers are Atacama Chemical S.A. (Cosayach), controlled by the Chilean holding company Inverraz S.A.; ACF Minera S.A., owned by the Chilean Urruticoechea family; Algorta Norte S.A., a joint venture between ACF Minera S.A. and Toyota Tsusho; and Atacama Minerals, which is owned by Chinese company Tewoo.

We estimate that eight Japanese iodine producers accounted for approximately 27% of global iodine sales in 2021, including recycled iodine. We estimate that iodine producers in the United States accounted for nearly 5% of world iodine sales in 2021.

Iodine recycling is a growing trend worldwide. Several producers have recycling facilities where they recover iodine and iodine derivatives from iodine waste streams.

We estimate the 17% of the iodine supply comes from iodine recycling. SQM, through ASG or alone, is also actively involved in the iodine recycling business using iodinated side streams from a variety of chemical processes in Europe and the United States.

The prices of iodine and iodine derivative products are determined by market conditions. World iodine prices vary depending upon, among other things, the relationship between supply and demand at any given time. Iodine supply varies primarily because of the production levels of the iodine producers and their respective business strategies.

Our annual average iodine sales prices increased to approximately 36 USD/kg in 2021, from the average sales prices of approximately 35 USD/kg observed in 2020. During the first half of 2021, the price remained like 2020. However, in the second half of the year, the growth in demand and the challenging international logistics situation led to a gradual increase in prices.

Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial, and other sectors that are the main users of iodine and iodine derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices. The main factors of competition in the sale of iodine and iodine derivative products are reliability, price, quality, customer service and the price and availability of substitutes. We believe we have competitive advantages compared to other producers due to the size and quality of our mining reserves and the available production capacity. We believe our iodine is competitive with that produced by other manufacturers in certain advanced industrial processes. We also believe we benefit competitively from the long-term relationships we have established with our largest customers.

Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial, and other sectors that are the main users of iodine and iodine-derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices. Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial, and other sectors that are the main users of iodine and iodine-derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices.

The main factors of competition in the sale of iodine and iodine derivative products are reliability, price, quality, customer service and the price and availability of substitutes. SQM has competitive advantages over other producers due to the size and quality of its mineral reserves and the production capacity available. Iodine is competitive with that produced by other manufacturers in certain advanced industrial processes. SQM also benefits from the long-term relationships it has established with its main clients.

NITRATES

Nitrates are obtained in Chile from the exploitation of the fields of nitrates that are in a strip of approximately 700 km long by 30-50 km wide, which is in the north of Chile, to the east of the Cordillera de la Costa, in the regions of Tarapacá and Antofagasta. This is the only area in the world where nitrate deposits have reserves and resources with economic content, where it is feasible to obtain different products such as nitrate sodium, potassium nitrate, iodine, and sodium sulfate. Its ore, called caliche, is presented preferably as a dense, hard surface layer of salt-cemented sands and gravels, with variable thicknesses between 0.5 m to 5 m.

The caliche resources and reserves estimated by SERNAGEOMIN for the year 2007, amounted to 2,459 million tons with an average grade of 6.3% nitrates. In turn, SQM reports that its total reserves amount to 1,378 million tons of caliche with an average grade of 6.29% of nitrates, this is 56% of national total.

Nitrates, in general, are considered specialty fertilizers because they are applied in a relatively narrow range of crops where it is possible to obtain higher yields and better products in their crops compared to massive fertilizers (urea and others).

Of these, potassium nitrate is today the main nitric fertilizer due to the combination of two primary nutrients, Nitrogen (N) and Potassium (K). Other nitric fertilizers are nitrate of sodium, ammonium nitrate and calcium nitrate. Nitrates explain less than 1% of the world market for nitrogenous fertilizers.

The most relevant crops for the potassium nitrate market are fruits, vines, citrus, tobacco, cotton, and vegetables, where higher yields and specific benefits are achieved such as improvements in color, flavor, skin strength, disease resistance, etc.

Potassium nitrate competes favorably against ammoniacal fertilizers in Market niches indicated Its greatest advantage is the solubility and speed of assimilation by the plants. These properties have been keyed to gaining a solid position in the applications of drip irrigation and foliar fertilization that are applied in specialty crops and higher value, is that is, those that clearly bear the highest cost of this type of fertilizer.

In addition, sodium nitrate, historically recognized in the international market as "Salitre de Chile", fulfills functions like potassium nitrate, although the functionality of the sodium is more limited. For this reason, it has been losing importance to the benefit of potassium nitrate.

For some applications, a more balanced dose of sodium and potassium is required, therefore that "potassium-sodium" is especially elaborated, which corresponds to a mixture of 67% by weight of sodium nitrate and 33% potassium nitrate.

Additionally, nitrates can be modified by adding other functional nutrients, such as phosphorus, sulfur, boron, magnesium, silicon, etc., seeking to enhance certain fertilizer properties for more specific crops. These products fall into the range of fertilizer mixtures.

Sodium and potassium nitrates also have industrial applications based on their chemical properties.

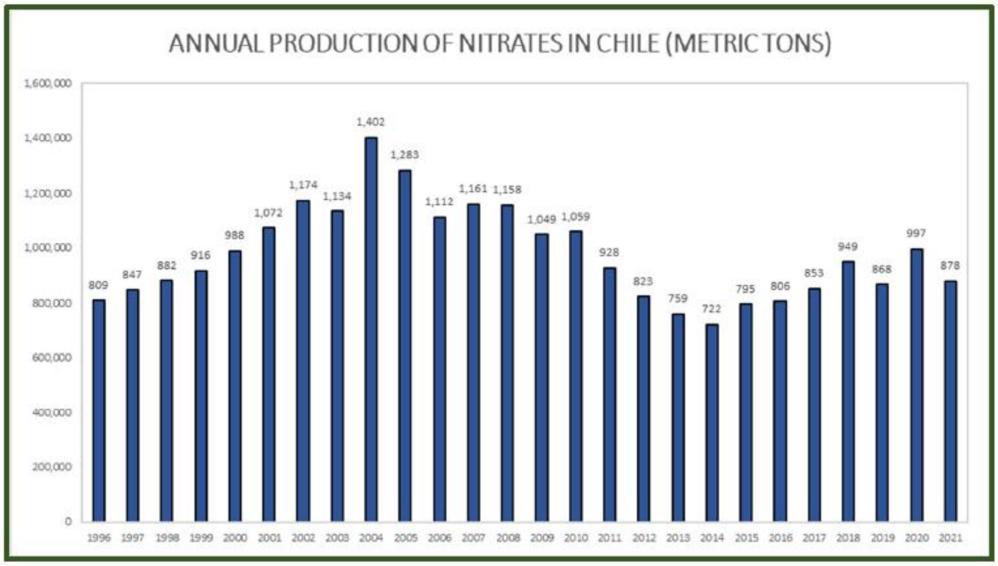
The alkaline oxides of sodium and potassium (Na_2O and K_2O) give it properties to melt and source of sodium or potassium, required in the special glass industry. The nitrate, for its composition rich in oxygen, strengthens the oxidizing properties. Its main applications industrial are found in high-resolution glasses for TV screens and computers, ceramics, explosives, charcoal briquettes, metal treatment and various chemical processes as a powerful industrial oxidant.

It is relevant to mention the great growth potential of the application of nitrates in solar thermal installations, where it plays the role of a heat accumulator that allows capturing the solar energy in the day and release heat at night to allow almost continuous operation of power generation plants. The most efficient solar salt for this purpose is a mixture of 60% by weight of sodium nitrate and 40% of potassium nitrate.

In Chile, the main companies producing nitrate are SQM, Cosayach and ACF. However, it is estimated that SQM produces close to 92% of the nitrates produced in Chile.

The following figure shows the evolution of the production of nitrates in Chile, from 1996 to 2021.

Figure 16-2. Evolution of the production of nitrates in Chile, 1996-2021



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

In 2021, SQM supplies approximately 830.000 1,000,000 tons of nitrates to the SQM market.

It is estimated that the Chilean participation in the potassium nitrate market is between 49% and 55% of world sales. It should be noted that Chilean natural nitrates, although unique in nature, must compete on the international market with similar products of synthetic origin, produced mainly in Israel, Jordan, and China.

The price of nitrates has varied from 241 USD/ton registered in 2003, reaching 400 USD/ton in 2006 and 2007, and stabilizing between 650 USD to 900 USD in the period 2009-2019. In 2021 the price for Specialty Plant Nutrition was on average 792 USD/ton and for Industrial Chemicals it was 753 USD/ton.

In 2022, it is estimated that the demand for potassium nitrate decreased by 15%, as its average price rose to around 1,450 USD/ton.

16.1.5 Specialty Plant Nutrition, Market, Competition, Products, Customers

In 2021, SQM's revenues from the sale of specialty plant nutrients was US$909 million, representing 32% of the total revenues for that year.

Specialty Plant Nutrients are premium fertilizers that allow farmers to improve their yields and the quality of certain crops.

SQM produces four main types of specialty plant nutrients that offer nutritional solutions for fertigation, soil, and foliar applications: potassium nitrate, sodium nitrate, sodium potassium nitrate and specialty blends.

In addition, SQM markets other specialty fertilizers including third-party products.

All these products are commercialized in solid or liquid form, for use mainly in high-value crops such as fruits, flowers, and certain vegetables.

These fertilizers are widely used in crops using modern farming techniques such as hydroponics, greenhouses, foliar-applied crops, and fertigation (in the latter case, the fertilizer is dissolved in water before irrigation).

Specialty plant nutrients have certain advantages over commodity fertilizers. Such advantages include rapid and effective absorption (no need for nitrification), higher water solubility, alkaline pH (which reduces soil acidity), and low chloride content.

One of the most important products in the field of specialty plant nutrients is potassium nitrate, which is available in crystallized and granulated (prilled) form, which allows different application methods. Crystalline potassium nitrate products are ideal for application by fertigation and foliar applications. Potassium Nitrate Granules are suitable for direct use in soil.

SQM has developed brands for marketing according to the different applications and uses of the products. The main brands are: UltrasolR (fertigation), QropR (soil application), SpeedfolR (foliar application) and AllganicR (organic agriculture).

The new needs of more sophisticated customers demand that the industry provide integrated solutions rather than individual products. The products, including customized specialty blends that meet specific needs along with the agronomic service provided, allow to create plant nutrition solutions that add value to crops through higher yields and better-quality production.

Because SQM products come from natural nitrate deposits or natural potassium brines, they have certain advantages over synthetically produced fertilizers.

One of these advantages is the presence in the products of certain beneficial micronutrients, valued by those customers who prefer products of natural origin.

As a result, specialty plant nutrients are sold at a premium price compared to commodity fertilizers.

SQM's strategy in the specialty plant nutrition business is:

i. Leverage (take) the advantages of the specialty products over commodity-type fertilizers.

ii. Selectively expanding the business by increasing sales of higher-margin specialty plant nutrients based on potassium and natural nitrates, particularly soluble potassium nitrate and specialty blends.

iii. Pursue (seek) investment opportunities in complementary businesses to enhance (improve) the product portfolio, increase production, reduce costs, and add value to the marketing of the products.

iv. Develop new specialty nutrient blends produced at the mixing plants that are strategically located in or near the principal markets to meet specific customer needs.

v. Focus primarily on the markets where SQM can sell plant nutrients in soluble and foliar applications to establish a leadership position.

vi. Further develop the global distribution and marketing system directly and through strategic alliances with other producers and global or local distributors.

vii. Reduce production costs through improved processes and higher labor productivity to compete more effectively.

viii. Supply a product with consistent quality according to the specific requirements of customers.

Specialty plant Nutrition: Market

The target market for the specialty plant nutrients includes producers of high-value crops such as vegetables, fruits, industrial crops, flowers, cotton and others. Furthermore, SQM sells specialty plant nutrients to producers of chloride-sensitive crops.

Since 1990, the international market for specialty plant nutrients has grown at a faster rate than the international market for commodity-type fertilizers. This is mainly due to:

i. The application of new agricultural technologies such as fertigation, hydroponics, and greenhouses.

ii. The increase in the cost of land and the scarcity of water, which has forced farmers to improve their yields and reduce water use.

iii. The increase in the demand for higher quality crops.

Over the last ten years the compound annual growth rate for per capita vegetable production was 3% while the same rate for the world population was close to 1%.

The global scarcity of water and arable land is driving the development of new agricultural techniques to maximize the use of these resources. An example of this is the more efficient use of water. While total irrigation has grown at an annual average of 1% over the last 20 years (like population growth), micro-irrigation (more efficient in water use) has grown by 10% per year in the same period. Micro-irrigation systems, which include drip irrigation and micro-sprinklers, are the most efficient forms of technical irrigation. These applications require fully water-soluble plant nutrients. The specialty nitrate-based plant nutrients are fully water soluble and provide nitric nitrogen, which allows faster nutrient uptake by the crop than when using urea or ammonium-based fertilizers. This facilitates the efficiency in the consumption of nutrients in the plant and, therefore, increases the yield of the harvest and improves its quality.

The lowest global share of hectares under micro-irrigation over total irrigated hectares is recorded in Asia with a figure of around 3%. This means that there is a high potential for the introduction of this technology in the region in the next years.

China is an important market for potassium nitrate, however agricultural demand for this product is largely met by local producers. The demand for potassium nitrate in the Asian country reaches approximately 400,000 to 420,000 metric tons, of which approximately 130,000 metric tons are linked to the tobacco industry and approximately another 120,000 metric tons are related to horticulture.

Specialty plant Nutrition: Products

Potassium nitrate, and specialty blends are higher margin products that use sodium nitrate as a feedstock. These products can be manufactured in crystallized or prilled form. Specialty blends are produced using the company's own specialty plant nutrients and other components at blending plants operated by the Company or its affiliates and related companies in Brazil, Chile, China, Spain, the United States, the Netherlands, Italy, Mexico, Peru, and South Africa.

The following table shows sales volumes and revenue for specialty plant nutrients for 2021, 2020 and 2019:

Table 16-4 Sales Volumes and Revenue for Specialty Plant Nutrients, 2021, 2020, 2019, 2018

Sales Volumes (Thousands of Metric Tons)	2021	2020	2019	2018
Sodium Nitrate	32.0	25.6	30.2	25
Potassium Nitrate and Sodium Potassium Nitrate	640.3	572.2	617.4	373.4
Specialty blends	305.5	271.3	238.9	242.5
Blended Nutrients and other Specialty Plant Nutrients	168.3	164.4	155.3	141.6
Total Revenues (In US$ millions)	**909**	**701.7**	**723.9**	**781.8**

In 2021, SQM's revenues from the sale of specialty plant nutrients increased to US$909 million, representing 32% of the total revenues for that year and 29% more than US$702 million for sales of the previous year. Average prices during 2021 were up approximately 17%.

It is estimated that SQM's sales volume of potassium nitrate marketed during 2021 represented close to 52% of the total potassium nitrate marketed in the world for all its applications (including agricultural use). During 2021, the agricultural potassium nitrate market increased approximately 4% when compared to 2020. These estimates do not include potassium nitrate produced and sold locally in China, only Chinese net imports and exports.

Depending on the application systems used to deliver specialty nutrients, fertilizers can be classified as granular (also known as “SFF” or Specialty Field Fertilizer) or soluble (also known as “WSF” or Water-soluble fertilizer).

Granulated specialty nutrients are those for direct application to the soil, either manually or mechanized, which have the characteristics of high solubility, are free of chloride and do not present acid reactions, which makes them especially recommended for crops of tobacco, potatoes, coffee, cotton and for various fruit trees and vegetables.

In the soluble line, all those specialty nutrients that are incorporated into technician irrigation systems are considered. Due to the high-tech characteristics of these systems, the products used must be highly soluble, highly nutritional, free of impurities and insoluble particles, and with a low salt index. Potassium nitrate stands out in this segment, which, due to its optimal balance of nitric nitrogen and chloride-free potassium (the two macronutrients most required by plants), becomes an irreplaceable source for crop nutrition under technical irrigation systems.

Potassium nitrate is widely known to be a vital component in foliar applications, where it is recommended to prevent nutritional deficiencies before the appearance of the first symptoms, to correct deficiencies and increase resistance to pests and diseases, to prevent stress situations and promote a good balance of fruits and/or plant growth along with its development, especially in crops affected by physiological disorders.

Specialty Plant Nutrition: Marketing and Customers

In 2021, SQM sold specialty plant nutrients in approximately 101 countries and to more than 1.300 customers. No customer represented more than 10% of specialty plant nutrition revenues during 2021, and the ten largest customers accounted in the aggregate for approximately 22% of revenues during that period. No supplier accounted for more than 10% of the costs of sales for this business line.

The following table shows the geographical breakdown of the sales:

Table 16-5 Geographical Breakdown of the Sales

Sales Breakdown	2021	2020	2019	2018
North America	35%	35%	34%	31%
Europe	20%	21%	21%	26%
Chile	14%	14%	15%	14%
Central and South America (excluding Chile)	10%	10%	11%	10%
Asia and Others	19%	20%	20%	19%

SQM sells specialty plant nutrition products worldwide mainly through its own global network of sales offices and distributors.

Specialty Plant Nutrition: Competition

The main competitive factors in potassium nitrate sales are product quality, customer service, location, logistics, agronomic expertise, and price.

SQM is the largest producer of sodium nitrate and potassium nitrate for agricultural use in the world.

Sodium nitrate products compete indirectly with specialty substitutes and other commodities, which may be used by some customers instead of sodium nitrate depending on the type of soil and crop to which the product will be applied. Such substitute products include calcium nitrate, ammonium nitrate and calcium ammonium nitrate.

In the potassium nitrate market, SQM´s largest competitor is Haifa Chemicals Ltd. (“Haifa”), in Israel, which is a subsidiary of Trans Resources International Inc. It is estimate that sales of potassium nitrate by Haifa accounted for approximately 17% of total world sales during 2021 (excluding sales by Chinese producers to the domestic Chinese market). SQM's sales represented approximately 52% of global potassium nitrate sales by volume for the period.

ACF, another Chilean producer, mainly oriented to iodine production, has been producing potassium nitrate from caliche and potassium chloride since 2005.

Kemapco, a Jordanian producer owned by Arab Potash, produces potassium nitrate in a plant located close to the Port of Aqaba, Jordan.

In addition, there are several potassium nitrate producers in China, the largest of which are Yuantong and Migao. Most of the Chinese production is consumed by the Chinese domestic market.

In Chile, the products mainly compete with imported fertilizer blends that use calcium ammonium nitrate or potassium magnesium sulfate. Specialty plant nutrients also compete indirectly with lower-priced synthetic commodity-type fertilizers such as ammonia and urea, which are produced by many producers in a highly price-competitive market. Products compete based on advantages that make them more suitable for certain applications as described above.

16.1.6 Industrial Chemicals, Market, Competition, Products, Customers

In 2021, the SQM´s revenues from Industrial Chemicals sales amounted to US$132 million, representing 4.7% of the total revenues for that year.

SQM produces and markets three industrial chemicals: sodium nitrate, potassium nitrate and potassium chloride.

Sodium nitrate is mainly used in the production of glass and explosives, in metal treatments, metal recycling and the production of insulating materials, among others.

Potassium nitrate is used as a raw material to produce frits for ceramic and metal surfaces, in the production of special glasses, in the enamel industry, metal treatment and pyrotechnics.

Solar salts, a combination of potassium nitrate and sodium nitrate, are used as a thermal storage medium in concentrated solar power plants.

Potassium chloride is a basic chemical used to produce potassium hydroxide, and it is also used as an additive in oil drilling as well as in food processing, among other uses.

In addition to producing sodium and potassium nitrate for agricultural applications, SQM produces different grades of these products, including prilled grades, for industrial applications. The grades differ mainly in their chemical purity.

At SQM there is some operational flexibility in the production of industrial nitrates because they are produced from the same process as their equivalent agricultural grades, needing only an additional step of purification.

SQM, with certain constraints, shift production from one grade to the other depending on market conditions. This flexibility allows to maximize yields and to reduce commercial risk.

In addition to producing industrial nitrates, SQM produces, markets, and sells industrial potassium chloride.

The strategy in industrial chemical business is to:

(i) Maintain the leadership position in the industrial nitrates market.

(ii) Encourage demand growth in different applications as well as exploring new potential applications.

(iii) Reliable supplier for the thermal storage industry, maintaining close relationships with R&D programs and industrial initiatives.

(iv) Reduce production costs through improved processes and higher productivity to compete more effectively.

(v) Supply a product with consistent quality according to the requirements of the customers.

Industrial Chemicals Market

Industrial sodium and potassium nitrates are used in a wide range of industrial applications, including the production of glass, ceramics and explosives, metal recycling, insulation materials, metal treatments, thermal solar and various chemical processes.

In addition, this product line has also experienced growth from the use of industrial nitrates as thermal storage in concentrated solar power plants (commonly known as "concentrated solar power" or "CSP"). Solar salts for this specific application contain a blend of 60% sodium nitrate and 40% potassium nitrate by weight ratio and are used as a storage and heat transfer medium. Unlike traditional photovoltaic plants, these new plants use a "thermal battery" that contains molten sodium nitrate and potassium nitrate, which store the heat collected during the day. The salts are heated up during the day, while the plants are operating under direct sunlight, and at night they release the solar energy that they have captured, allowing the plants to operate even during hours of darkness. Depending on the power plant technology, solar salts are also used as a heat transfer fluid in the plant system and thereby make CSP plants even more efficient, increasing their output and reducing the Levelized Cost of Electricity (LCOE).

A growing trend for the CSP application is seen because of its economical long duration electricity storage. The thermal storage of CSP plants helps to improve the stabilization of the electricity grid. Like all large power generation plants, such large CSP power plants are capital intensive and require a relatively long development period.

We supply solar salts to CSP projects around the world. In 2021, we sold approximately 100,000 metric tons of solar salts to supply a CSP project in the Middle East. We expect to supply over 400,000 metric tons to this project between 2020-2022. In addition, there are several major solar salt and Carnot Battery projects currently under development worldwide that we believe we could supply between 2022-2025. There is also a growing interest in using solar salts in thermal storage solutions not related to CSP technology. Due to their proven performance, solar salts are being tested in industrial heat processes and heat waste solutions. These new applications may open new opportunities for solar salts uses soon, such as retrofitting coal plants.

Industrial Chemicals Products

Revenues for industrial chemicals decreased to US$132 million in 2021 from US$161 million in 2020, because of lower sales volumes in this business line. Sales volumes in 2021 decreased 22.0% compared to sales volumes reported last year.

The following table shows the sales volumes of industrial chemicals and total revenues for 2021, 2020, 2019 and 2018:

Table 16-6 Sales Volumes of Industrial Chemicals and Total Revenues for 2021, 2020, 2019 and 2018

Sales Volumes (Thousands of Metric Tons)	2021	2020	2019	2018
Industrial Chemicals	173.4	225.1	123.5	135.9
Total Revenues (In US$ millions)	132	160.6	94.9	108.3

Industrial Chemicals: Marketing and Customers

In 2021 SQM sold industrial nitrate products in 59 countries to 338 customers. One customer accounted for more than 10% of SQM´s revenues of industrial chemicals in 2021, accounting for approximately 51%, and the ten largest customers accounted in the aggregate for approximately 61% of such revenues.

No supplier accounted for more than 10% of the cost of sales of this business line. SQM makes 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.

The following table shows the geographical breakdown of the revenues for 2021,2020, 2019 and 2018:

Table 16-7 Geographical Breakdown of the Revenues

Sales breakdown	2021	2020	2019	2018
North America	23%	15%	29%	25%
Europe	15%	7%	16%	16%
Chile	1%	3%	42%	4%
Central and South America (excluding Chile)	6%	3%	7%	11%
Asia and Others	56%	72%	6%	43%

SQM´s industrial chemical products are marketed mainly through its own network of offices, representatives, and distributors. SQM maintains updated inventories of the stocks of sodium nitrate and potassium nitrate, classified according to graduation, to facilitate prompt dispatch from its warehouses. SQM provides support to its customers and continuously work with them to develop new products and applications for its products.

Industrial Chemicals Competition

SQM is one of the world's largest producers of industrial sodium nitrate and potassium nitrate. In 2021, SQM's estimated market share by volume for industrial potassium nitrate was 61% and for industrial sodium nitrate was 43% (excluding domestic demand in China and India).

The competitors are mainly based in Europe and Asia, producing sodium nitrate as a by-product of other production processes. In refined grade sodium nitrate, BASF AG, a German corporation, and several producers in China and Eastern Europe are highly competitive. They produce industrial sodium nitrate as a by-product of other production processes.

SQM´s industrial sodium nitrate products also compete indirectly with substitute chemicals, including sodium carbonate, sodium sulfate, calcium nitrate and ammonium nitrate, which may be used in certain applications instead of sodium nitrate and are available from many producers worldwide.

The main competitor in the industrial potassium nitrate business is Haifa, which had a market share of 10% for 2020. SQM's market share was approximately 61% for 2021. Other competitors are mainly based in China.

Producers of industrial sodium nitrate and industrial potassium nitrate compete in the marketplace based on attributes such as product quality, delivery reliability, price, and customer service. SQM´s operation offers both products at high quality and with low cost. In addition, SQM´s operation is flexible, allowing to produce industrial or agricultural nitrates, maximizing the yields, and reducing commercial risk. In addition, with certain restrictions, SQM can adapt production from one grade to another depending on market needs.

In the potassium chloride market, SQM is a relatively small producer, mainly focused on supplying regional needs.

Pricing Estimates

The QP has determined that using 40.0 USD/kg for iodine at the port of Tocopilla is the appropriate price for this study. Nitrates are more complicated since various products are produced based on market conditions, however the QP has determined that an appropriate average price for nitrates at Tocopilla is $US820. The derivation of a price for delivery of nitrates for refining in Coya Sur is detailed in Section 19.

17 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

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 to begin the mining operations. The environmental Assessment 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.

ENVIRONMENTAL STUDIES

The Law 19,300/1994 General Bases of the Environment (Law 19,300 or Environmental Law), its amendment by Law 20.417/2010 and Supreme Decree N°40/2012 Regulation of the Environmental Impact Assessment Service 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. 3.i of the Environmental Law defines that mining project must be submitted to the Environmental Impact Assessment System (SEIA) before being developed.

The Nueva Victoria project, which includes the "Pampa Hermosa" and "Tente en el Aire" projects, has been submitted to the Environmental Impact Assessment System (SEIA) a total of 13 times, on account of the following projects:

Salar Sur Viejo Groundwater Extraction Project presented through DIA and approved by RCA 036/ 1997

Draft loopholes submitted by EIA and approved by RCA N° 058/1997

Nueva Victoria extension presented through a DIA and approved by RCA N° 0163/2005)

Draft Adduction Call presented through DIA and approved by RCA N° 032/ 2005)

Nueva Victoria Sur Mine presented through DIA and approved by RCA N° 0173/ 2006.

Modification of Nueva Victoria Yoduro Plant presented by DIA and approved by RCA N° 094/2007

Incorporation of Chlorine in Nueva Victoria Iodine Plant presented by DIA and approved by RCA N°070/2008)

Update Operation Nueva Victoria presented through DIA and approved by RCA N°124/2008.

Nueva Victoria Mine Area submitted through an EIA and approved by RCA N°042/2008)

Evaporation Iris Pipeline and Pools presented through a DIA and approved by RCA N° 061/ 2009.

Pampa Hermosa Project presented through an EIA and approved by RCA N° 890/2010

Expansion of Nueva Victoria South Mine Zone presented through by DIA and approved by RCA N°076/ 2012.

Tente en el Aire presented by EIA and approved by RCA N° 20210100112/2021

In addition, an Environmental Impact Study (EIA), "Partial modification of the reinjection system in the Llamara Púquios", was submitted to the SEIA on July 17, 2020, and is in process of being qualified.

Recently, the Environmental Impact Statement (EIS) Project was also entered: "Adaptation of the seawater pipeline and complementary works Nueva Victoria". The Project corresponds to a modification of the mining project "Tente en el Aire" (TEA), approved by RCA No. 20210100112/2021. To this end, the modification of the route of the seawater supply and associated works are considered, together with the incorporation of an access road from Route A-750, in the Costa area; And in the Pampa area, the incorporation of a SE Sectioning Machine and complementary works, such as an LTE 66 kV and SE 10 MVa.

The Project, which entered the Environmental Impact Assessment System (SEIA), in September 2022, is in the process of responding to its Addendum 1 and consolidated observations generated by the Citizen Participation Process (PAC) which was requested by the communities.

Given the above, and in case of having the approval and conformity by the authority of the response process and the Addendum 1 and CAP Annex documents, it is expected to have a favorable environmental qualification resolution (RCA), in 2023.

17.1.1 Baseline studies

Each time the project has been submitted to the SEIA; baseline environmental studies have been carried out. The last Environmental Impact Study (EIA) approved by RCA N° 20210100112/2021 included the following environmental baseline studies.

The following is a more detailed analysis of certain components of the baseline:

Hydrology

As for the hydrology of the site, the average annual rainfall has a value of less than 2 mm in recent years, with many years with zero precipitation. The maximum 24 hour recorded in the area is less than 10 mm, with historical maximums fluctuating between 3 and 7 mm. There are no permanent surface runoff channels, with sporadic runoff associated with extreme precipitation events. It is estimated that the streams of the sectors are able to contain the runoff generated by these extreme precipitation events.

Hydrogeology

In the area of influence of the project, groundwater rights have been granted for 41 wells. All are consumptive, permanent, and continuous.

In the area of influence, there are four distinct hydrogeological units: A1, A3, C5 and D1 (IMAGE). Units A have a high hydrogeological potential to store and transmit water, C has a low potential and D has no potential.

Unit D1 corresponds to compact to slightly fractured/altered andesites, and locally fractured/altered diorites without water content. Its potential is nonexistent because it does not receive any recharge due to its position.

Unit C5 corresponds to sandy-clayey gravels intercalated with sands, clays and silts, without water content. It has a low to null recharge due to precipitation at the site.

Unit A3 corresponds to evaporite deposits hosted in the western sector of the Pampa del Tamarugal. It has a medium to high water transmissivity.

Unit A1 corresponds to sands and gravels with low consolidation, which form active deposits mainly in the central basin. It has a medium to high water transmissivity, with a maximum value of 4,280 m^2/day.

According to the study, there is no evidence of the existence of water under the area of the planned works in the coastal mountain range. To the northwest and southwest of the planned works there are local basins with groundwater. To the east, groundwater belonging to the Pampa del Tamarugal aquifer can be observed. To the north of the works, in the Soronal salt flat, there is groundwater with a depth of between 0.8 and 19.6 m.

According to hydro chemical information, the water in the area corresponds to the chloride-sodium type.

Figure 17-1. Location of Wells with Granted Water Rights

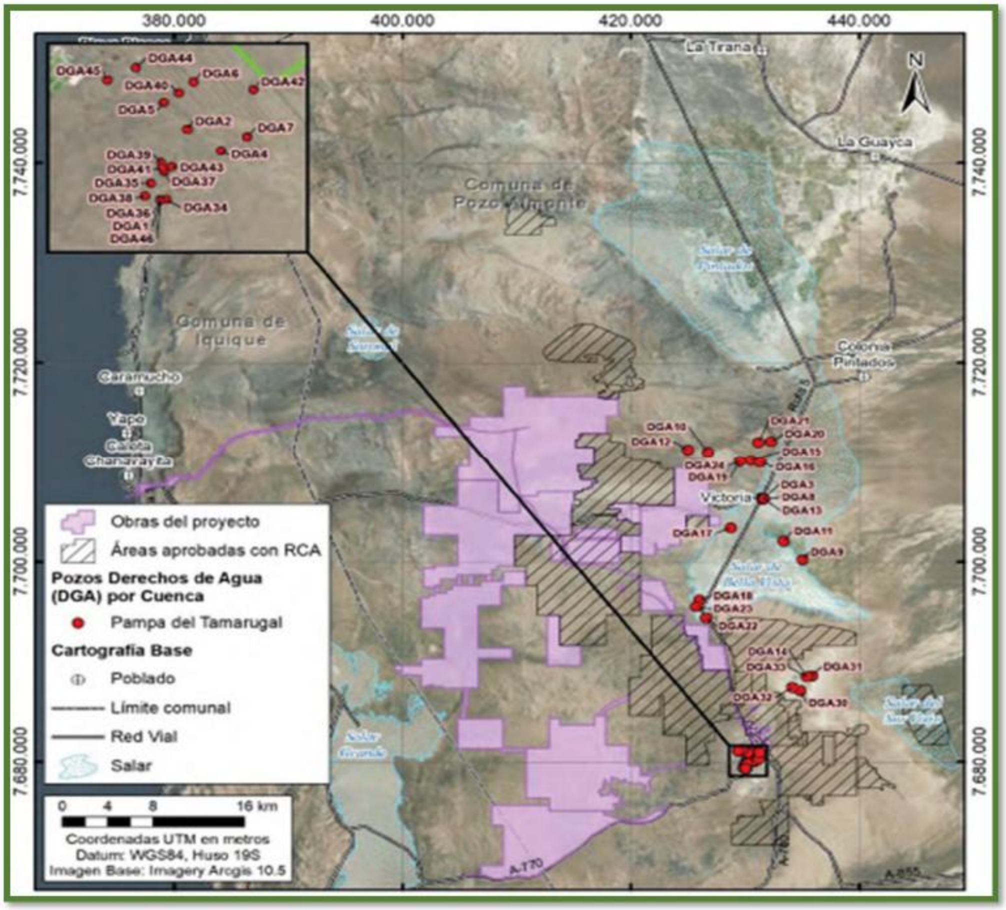
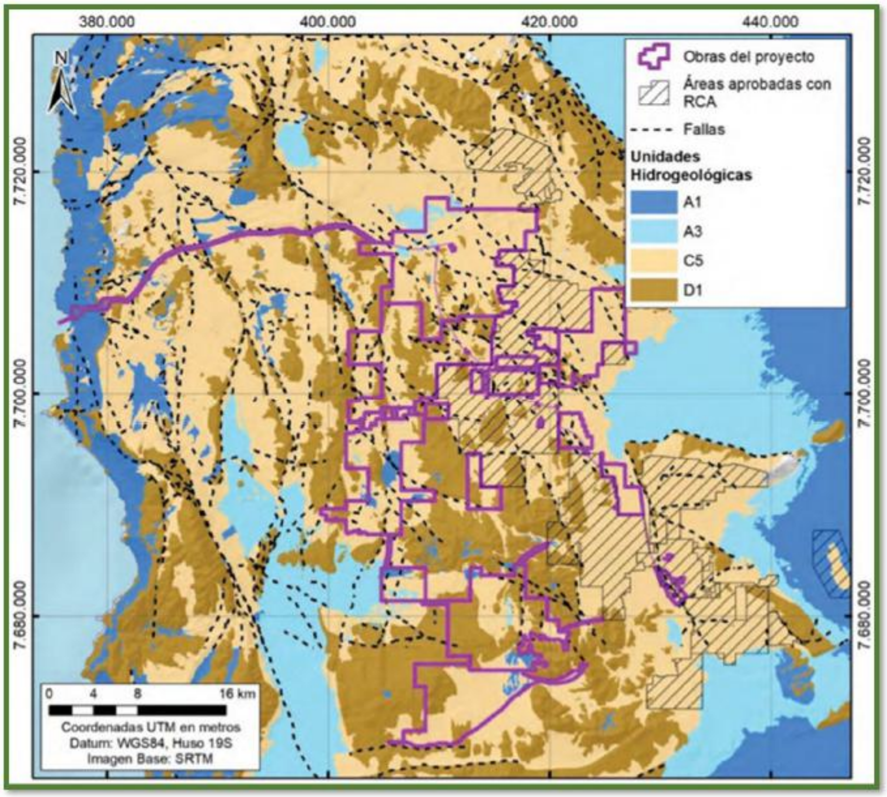


Figure 17-2. Hydrogeologic Map of the Area of Background Collection



Soil

The soils present in the slaughter show very little edaphic development, mainly due to the extremely arid conditions of the site, which have limited the intensity of soil formation processes. Four different homogeneous soil units were defined, being "Depositional plains soils" the predominant one in the sector (76.6%).

The soil in the sector has a neutral to strongly alkaline pH; it is extremely saline, and strongly to extremely sodic. Soils with loam- sandy (Fa) and sandy- loam (aF) textures predominate. All these characteristics place all the sector's soils within use capacity VIII ("soils with no agricultural, livestock or forestry value, where their use is limited to wildlife, recreation or watershed protection").

The soil resource present in the slaughter not considered a scarce or unique resource within the region. In addition, it has a very low capacity to support biodiversity, which makes it an inhospitable habitat (absolute desert condition).

Plants

As for the vegetation in influence of the project, the predominant vegetation type is "*Prosopis Tamarugo* plantation", covering 96.6% of the study area. It is followed by "*Distichlis Spicata Meadow*", with 1.9%; and the least represented is "*Tillandsia Landbeckii Meadow*", with 0.1%.

There is a preservation native forest formation around influence (vegetation type "*Prosopis Tamarugo* forest"); however, it is far from the area of direct intervention of the project. Only the intervention of floristic elements in the vegetation type "*Tillandsia Landbeckii* Meadow" is considered, which has no endemic species or species in conservation category.

With respect to the flora, 4 species were identified within the area of influence of the project, 2 belonging to the Magnoliopsida class and 2 to the Liliopsida class. There are 2 species classified in a conservation category: *Prosopis Tamarugo* (tamarugo), classified as endangered; and *Prosopis Alba* (Algarrobo Blanco), classified as out of danger. Both species are considered native. The area of influence is dominated by native and endemic species.

With respect to environmental singularities (1, according to the document "Guide for the Description of the area of influence, description of the Soil, Flora and Fauna Components of Terrestrial Ecosystems in the SEIA" (SEA, 2015)), Native Forest formations of *Prosopis Tamarugo* were detected, because it is a scarce area arid due to the presence of a species classified as Endangered; however, the project does not affect the habitat of *Prosopis Tamarugo*.

Wild Animals

38 native species were identified: 27 birds, 7 mammals and 4 reptiles.

18 species were identified in some state of conservation:

<u>In danger</u>: Black tern, little tern.

<u>Vulnerable</u>: Garuma Seagull, Nun Seagull, Humboldt Penguin, Guanay, Stolzmann's Dragon, Chungungo (detected exclusively in the Patillos Islote sector).

<u>Near Threatened</u>: Northern Mouse-Eared Bat.

<u>Rare</u>: Teresa's Corridor

<u>Sufficiently known</u>: Tamarugal Sebo-Eater, Lile;

<u>Least Concern</u>: Four-banded Racer, Booby, Common Sea Lion, Great Northern Gecko, Chilla Fox, Culpeo Fox.

<u>Six Exotic species were detected</u>: Dog, Donkey, Mule, Goat, hare and Guarén.

The coastal sector had the greatest richness of species, with 20 detected. This was followed by the Pampa del Tamarugal National Reserve sector, with 14 species, and then the pampas sector, with 9 species. In particular, the lesser tern was detected in the coastal sector (Chanavayita sector), with 7 adults and 5 active nests in the incubation stage. The black tern and other species of the family *Procellaridae* were detected only through carcasses, and no nesting sites were found. The Garuma gull was sighted in the coastal sector and in the pampas sector, with 9 sightings of adults and detection of isolated nesting events.

Fungi and Lichens

No fungal species were detected in the study area. 36 species of lichens were detected, four of which are in a conservation category: *Acarospora Altoandina* and *Acarospora Rhabarbarina*, both in the Data Deficient category; and Acarospora *Bullata and Polycauliona Ascendens* in the Least Concern category.

Biological Oceanography

A marine baseline was conducted, taking as the study area (larger than the area of influence of the project) a sector of the Bay of Patillos and a sector north of Caleta Caramucho.

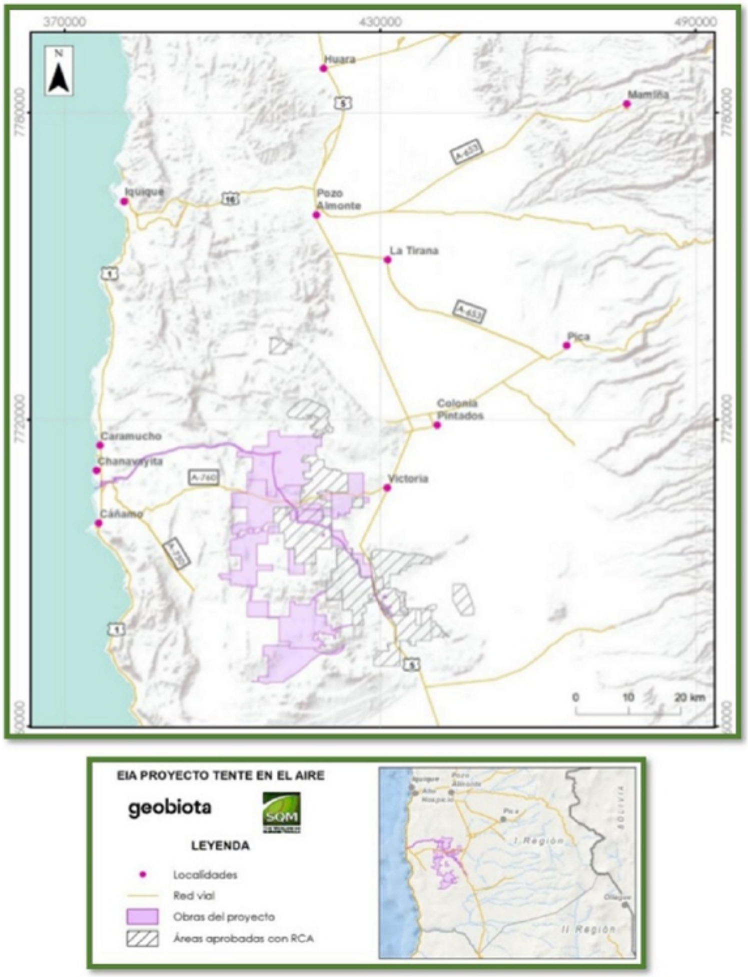
In the sampling period (winter 2017 to winter 2018) the number of identified phytoplankton taxa varied between 41 and 47; of Zooplankton varied between 24 and 68.

With respect to fish, 16 taxa were found, the most abundant being Burrito (C. crusma), Bilagay (C. variegatus) and Borrachilla (*Scartichthys spp*). The highest abundance of fish was observed in transects with rocky substrate.

Human Environment

For the definition of the area of influence of the project's human environment, the sectors that had some type of housing, productive and/or cultural use were considered. Accordingly, the settlements of Chanavayita, Caleta Cáñamo and Caramucho, corresponding to the Coast sector, and the settlements of Colonia Pintados and Victoria, corresponding to the Pampa sector, were considered.

Figure 17-3. Sectors of the Area of Influence



Cultural Heritage

In paleontological terms, the sector where the project is located has a low to medium potential. Most of the geological units of the sector did not present paleontological findings of interest during the survey; however, the Coastal Deposits Unit (PIHI) shows medium to high potential, having shown a finding of fossil pieces in the field, in addition to its characteristics.

Regarding archaeology, a survey found 3,017 heritage elements in influence of the project. They were classified into five categories: 761 point finds, 194 aerial type finds, 239 linear type finds, 71 lithic sites and 1,752 calicheros. The linear elements were mostly classified as roadways, totaling almost 410 km in length. Specific finds are divided into isolated finds, signaling structures, animal skeletons, and stone inscriptions. Regarding the time of the findings, 76% were dated as chronologically historical, with 5.5% dating from pre-Hispanic times.

17.1.2 Environmental Impact Study

As for the Pampa Hermosa Project, based on the results of the EIA (Chapter 5), the activities of the project and their possible environmental impacts were analyzed. This made it possible to identify the environmental components that could be directly or indirectly affected during the different phases of the project and where they are located.

For those significant environmental impacts, management measures were designed to mitigate, repair, and compensate the relevant affected elements.

The following table summarizes that information.

Table 17-1. Environmental Impacts of the Pampa Hermosa Project and Committed Measures

Impact	Phase in which it occurs	Type of measure	Measures
Decrease in surface water level in the Salar de Llamara ponds (púquios)	Operation	Mitigation	Implementation of a hydraulic barrier: consist of injecting water between the pumping sector and the ponds, to induce an increase in the aquifer level so as to generate a water divide that isolates the hydraulic behavior of both sectors and prevent the cone of depression from spreading and affecting the water level of the ponds.
			An Early Warning Plan "PAT" has been designed, which should be understood as an environmental management tool complementary to the implementation of the hydraulic barrier, i.e., the PAT would be activated if the hydraulic barrier runs the risk of not being efficient enough to meet the environmental objectives defined for the Púquios and hydromorphic vegetation.
The alteration of the vital state of natural Tamarugo formations and of the habitat for flora species in the Salar de Llamara	Operation	Mitigation	Staggered groundwater withdrawal and the exclusion of groundwater withdrawal from the 45 l/s well TC-10.
			An Early Warning Plan has been designed that contemplates the application of warning and recovery measures aimed at maintaining population vitality values, the main measures to be implemented being a) Irrigation of tamarugos during the Warning Phase and b) Reduction of pumping flow during the Recovery Phase.
			Tamarugo recovery irrigation program: the purpose of this program would be to recover the vitality of the Tamarugo of the Salar de Llamara that could be affected by water stress due to the pumping of the Project. For this purpose, it is considered to irrigate specimens that are in regular or bad condition, according to the amount of Tamarugo that exceeds the threshold defined for the activation of the Tamarugo alert for a certain period. This measure will be linked to the Early Warning Plan of the Llamara Tamarugo System, consequently it will be implemented together with the actions of the Tamarugo alert and recovery phase, as appropriate.
The alteration of the livelihood systems of tenant ranchers who use the Pampa del Tamarugal National Reserve due to water extraction.	Construction, operation, and closure	Mitigation	Change of well catchment point
			Staggered water withdrawal
			Tamarugo plant production program
			Tamarugo planting program
			Program to support phytosanitary control of Tamarugo trees
			Program for sustainable management of tamarugo trees
			Productive development program for cattle ranchers
			SQM commits not to affect the livelihood systems of the Quillagua Community in the Quebrada Amarga sector; to maintain monthly contact with the leadership of the Community in order to monitor the generation of any situation related to the project in the sector and, in the event that the information provided by the leadership indicates any situation attributable to the project, the respective measures will be taken in order to maintain the commitment of not affecting; and submit an annual report to the competent authority on these contacts with the Quillagua leadership, the situations detected that are attributable to the project and the actions taken for such purposes.
The alteration of cultural heritage	Construction, operation, and closure	Mitigation	An archaeological exclusion area will be created for the geoglyphs, lithic workshops, burial sites and recorded animites, where the application of mitigation measures focused on signage and fencing is proposed, to ensure their protection and safeguarding.
		Compensation	Materials recovered in the different compensation activities will have a definitive destination such as the Saltpeter Museum Corporation of Humberstone
			Plan for the study, preservation, and enhancement of the Pintados Station

Source: own elaboration, based on information obtained from RCA N°890/2010

The Pampa Hermosa Project is currently in a sanctioning process (Sanctioning File D-027-2016) for the infractions detected by the authority during 2016 in relation to the breach of certain commitments established in the Environmental Assessment Resolution (RCA 890/2010) of the project, mainly associated with water resources and their impact on environmental systems (public, tamarugos). Along these lines, in 2019 SQM presented an adequate plan to address this issue: a revised and corrected Environmental Compliance Program, which incorporates the observations made by the authority, complying with the contents and criteria established and legal requirements to ensure compliance with the requirements infringed.

PDC Approved on 02.26.2019 by Res. Ex N°24/Rol D-027-2016. and amended by Res. Ex. N°27/ Rol D-027-2016, 08.11.22.

This program establishes concrete actions to improve knowledge and follow-up of the environmental systems that make up the project, recognizes the role of the communities, and provides greater transparency in the monitoring of environmental variables. To date, 45 reports have been filed on the status of compliance with the Environmental Compliance Program and no new charges or economic sanctions have been filed. However, constant monitoring of established actions must be maintained.

It should be noted that the EIA "Partial modification of the reinjection system in the Llamara reservoirs", mentioned above, was presented as part of the commitment of this Compliance Program that the company presented. The project corresponds to a modification of the Pampa Hermosa project (RCA N°890/2010), geographically limited to the "Púquios Sector in Salar de Llamara", and its objective is to modify the mitigation measure of recital 7.1.1 of RCA N° 890/2010, which is oriented to minimize the secondary impacts that water extraction will have on biotic systems present in the area of influence of the project, allowing to maintain the surface levels of the ponds in such a way as not to affect the aquatic and terrestrial biota surrounding them. The project also pretends to modify the Phase I Alert Llamara Aquifer of the Early Warning Plan, as well as to strengthen the monitoring plan associated with the Púquios of Llamara.

As for the Tente en el Aire project, it aims to incorporate new mine areas into the "Nueva Victoria" mine to produce salts rich in iodide, iodine, and nitrate, which implies an increase in the total amount of caliche to be extracted, in the production of salts rich in iodide, iodine and nitrate and in the use of seawater for these processes.

The environmental impacts of this project and the measures proposed by the company to mitigate, repair, or compensate those impacts are in the following table:

Table 17-2. Environmental Impacts of the Tente en el Aire Project and Committed Measures

Impact	Phase in which it occurs	Type of measure	Measures
Intervention of relevant nesting habitat for the nesting of the little tern Chanavayita	Construction, operation, and closure	Mitigation	Construction outside the breeding season of the Little Tern and installation of an automatic noise monitoring station outside the nesting area.
			Permanent environmental inspector during the construction phase
			Relocation of works near the "Chanavayita" site: installation of work sites 1 and linear works.
			Apply soundproofing measures during construction and operation: acoustic screens during construction and encapsulation of auxiliary pumping station during operation.
		Compensation	Management measures plan for the nesting site at the Chanavayita access: strengthen dog control at the municipal kennel; install allusive signage at the nesting site at the Chanavayita access; environmental education plan; and research program to characterize the habitat and reproductive dynamics of the little tern at the Chanavayita site.
Intervention of relevant nesting habitat for the nesting of sea swallows in the northern sector of the project.	Construction, operation, and closure	Mitigation	Prohibition of construction during the swallow's breeding season.
			Prohibition of mining exploitation during the operation phase
			Prohibition of removal of facilities during the reproductive season
			Extension of the protection buffer of the swallow nesting site "Pampa Hermosa".
			Extension of the exclusion area and prohibition of mining activities in the "Pampa Hermosa" nesting site, because of the previous measure.
			20m protection buffer around potential nesting sites with nesting records, close to the route of the project's linear works.
		Compensation	Compensation measure MC-4 "Protection of the Exclusion Area": the owner agrees not to explore or exploit this mining property or those in his name that are not included in the project; he agrees to require the constitution of encumbrances on the surface properties.
Alteration of archaeological cultural heritage	Construction and operation	Mitigation	MM1- Induction lectures in Paleontology
			MM2- Rescue of elements of paleontological interest and release of area (surface)
			MM3- Ongoing paleontological monitoring during construction in coastal sector
			MM4- Creation of archaeological cultural heritage protection areas
			MM5- Permanent archaeological monitoring during construction
			MM6- Induction lectures in archeology
		Compensation	MC1- Improvement or fitting out of the warehouse of the Saltpeter Museum Corporation for the conservation of cultural heritage pieces.
			MC2- Scientific-educational publication on local and regional paleontology.
Alteration of paleontological cultural heritage			MC3- Intensive archaeological survey and documentation
			MC4- Protection of the exclusion area

Source: based on RCA N°20210100112/2021

17.1.3 Waste Disposal Requirements and Plans

During mining operations, two types of waste are generated. Mineral and non-mineral waste.

Mineral wastes

Mineral waste or mining residues refer in this case to inert salts are called waste salts. These salts are transported to certain areas for deposit, piling up on the ground in the form of cakes.

For this purpose, the Nueva Victoria site has the Sectoral Permit for the Collection of Discarded Salts presented and approved by the authority in accordance with current regulations (article 339 of Supreme Decree No. 132/2002, Mining Safety Regulations of the Ministry of Mining, for the establishment of a landfill.), additionally, it has the corresponding environmental authorization.

Currently, the discarded salts are deposited in stockpiles in the industrial zone of Sur Viejo (in an area of approximately 1,328 ha that also includes storage areas for the final product). However, in the Tente en el Aire project (environmentally approved in November 2021), which expands the current operation of Nueva Victoria, a new deposit is contemplated to dispose of the discarded salts from the evaporation pools and the waste of the neutralization process. This new tank will have an area of 360 ha in which material accumulation cakes up to 50 m high will be placed, resulting in an estimated total capacity of 102,500,000 tons (4,997,000 t/y of discard salts and 110,150 t/y of gypsum), to test the project “Waste dump corresponding to deposits of discarded salts, project Tente en el Aire" la Res. Ex 424/2022. These salts are neutral and pose no health risks as declared by the authority.

Regarding the management of these deposits, it should be noted that the hygroscopic properties of the salts that compose them favor compaction and subsequent cementation.

Given these characteristics (salts that form a crust and the level of final impregnation in brine of the residue of the neutralization process is approximately 20%), no emissions of particles or gases are generated.

Regarding the management of possible effluents, the new tank will have a perimeter drainage system, which will allow, on the one hand, the collection of the solutions resulting from the runoff or runoff generated by the impregnation solutions, which will be channeled to 4 collection ponds for later pumping to the evaporation ponds and on the other hand, The function of this drainage system will be the channeling of rainwater.

The waste salt deposits are committed to being monitored annually to verify that they are in accordance with the design variables and at the closure of the mine the discard salts and residues of the brine neutralization process will be maintained.

Non-mineral waste

All types of waste can be classified as non-mineral waste, which in turn can be classified as Hazardous Waste and Non-Hazardous Waste according to the environmental and sectoral regulations in force in Chile.

Among the non-hazardous waste associated with this type of projects, we can mention solid waste assimilable to households, sludge from the wastewater treatment system, containers of non-hazardous inputs, non-hazardous discards, waste associated with maintenance and generated products of the actions carried out in contingencies, among others.

Hazardous waste (RESPEL) comes from process discards, used maintenance lubricating oil generated by changing equipment and machinery, batteries, paint residues, ink cartridges, fluorescent tubes, contaminated cleaning materials, among others.

The disposal of this type of waste has the current environmental and sectoral legal authorizations declared in section 17.3.

Additionally, the company in its 2020 Sustainable Development Plan contains a set of commitments, among which is to reduce the generation of industrial waste by 50% by 2025.

17.1.4 Monitoring and Management Plan Established in the Environmental Authorization

The contents of the Environmental Monitoring Plan agreed for the implementation of the Pampa Hermosa project include: Project Phase, Environmental Components to be measured and controlled, Associated Environmental Impacts, Monitoring Plan, Measurement Methods or Procedures, Location of Monitoring Points, Parameters that are used to characterize the state and evolution of said component, Permitted or committed levels or limits, Duration and frequency of the monitoring plan according to the stage of the project, Delivery of Report with monitoring results, Indication of the competent body that would receive such documentation, and Location in the evaluation history.

The Hydrogeological Environmental Monitoring Plan of the "Pampa Hermosa" Project is the same Environmental Monitoring Plan (PSA) of the Aducción Llamara Project (committed by RCA No. 32/05 and modified according to Resolution No. 097/07). In this way, the commitments of the PSA Aducción Llamara will be incorporated into the PSA Pampa Hermosa.

For the implementation of the "Tente en el Aire" project, a monitoring plan for the different components was committed. This plan states the following:

> Regarding the cultural heritage component the follow-up plan includes induction talks on paleontology; rescue of elements of paleontological interest and release of the area (surface); permanent paleontological monitoring during construction in the coastal sector; scientific-didactic publication on local and regional paleontology; creation of areas for the protection of archaeological cultural heritage; permanent archaeological monitoring during construction; induction talks on archaeology; and intensive archaeological prospection and documentation. Likewise, improvement or adaptation of the winery of the Saltpeter Museum Corporation for the conservation of pieces of cultural heritage.

Regarding the wild animal component, the monitoring plan includes the exclusion of the mining area at tern nesting sites; modification of layout and establishment of precautionary areas in linear works at tern nesting sites; Chanavayita little tern nesting site; protection of the exclusion area; study of the ecology, phenology and ethology of the tern (Procellariformes: Hydrobatidae) in the Pampa Hermosa; research program on the increase of habitat use in the nesting site "Pampa Hermosa".

17.1.5 Requirements and Plans for Water Management during Operations and After Closure

The extraction of water for the Nueva Victoria industrial operation is environmentally approved and totals 810 L/s, considering the use of 570.8 L/s of water approved in RCA 890/2010, a flow that is additional to the 120 L/s contemplated by the EIA “Lagunas” (RCA 58/1997) and the 120 L/s considered in the DIA “Extraction of Groundwater from Salar de Sur Viejo” (RCA 36/1997) and DIA “Expansion Nueva Victoria” (RCA 04/2005).

It should be noted that the last environmentally approved project (EIA "Tente en el Aire" - RCA 20210100112/2021), did not increase the projected freshwater requirement despite an increased rate of exploitation and processing of caliche, by relying on the use of 900 l/s of seawater.

The extraction is carried out from the 5 locations detailed in Table 17-3, located in the Salar de Sur Viejo, Salar de Llamara and the Pampa del Tamarugal (environmental protection area), comprising principally groundwater sources with a minor component of surface waters.

Table 17-3. Monthly Average Flow Period 2022 Nueva Victoria

Sur Viejo (l/s)	Llamara (l/s)	Iris (l/s)	Soronal (l/s)	CPC (l/s)	Total flow (l/s)
103	203.8	60.4	126	122.8	616
17%	33%	10%	20%	20%	100%

Table 17-4 shows how the water resources are distributed among the different sectors of the Nueva Victoria operation.

Table 17-4. Distribution of Freshwater Consumption Between the Various Components of the Nueva Victoria Operation.

Pozas (l/s)	Puquíos injection (l/s)	Mine (l/s)	Processing Plant (l/s)	Camp (l/s)	Leaching (l/s)
2.3%	4.6%	0.8%	1.3%	0.3%	90.7%

Information on water extraction n from natural sources is public, being reported to the Chilean Regulatory Authority through the reporting component of the Environmental Monitoring Plan (PES).

The PES fulfills the objective of monitoring the ecosystems that may be affected by a project, thus guaranteeing their conservation and the permanence of the ecosystem services they provide. Hydrogeological reports include groundwater levels, hydro chemical quality of groundwater and surface water, and cumulative pumping rates and volumes from supply wells and surface water extraction points.

The PES also documents the mitigation measure of injecting water to generate a hydraulic barrier to protect the Púquios wetlands against the lowering of the water table associated with the extraction of groundwater from the Llamara aquifer. The chemical quality of the injected water is monitored to ensure that the hydrochemistry of groundwater in the Púquios wetlands is not adversely affected. SQM is currently seeking regulatory authority approval to modify this mitigation measure in relation to the period of water injection into the aquifer and the operational rule to ensure the protection of the wetland ecosystem.

As stablished in the update of the Closure Plan (Exempt Resolution 814/2022) of the Nueva Victoria site, the works or actions contemplated for closure in relation to water resources are the removal of metal structures, pipes, and equipment, disabling of pumping wells, removal of steel pipes, removal of power lines, removal of substations and removal of waste.

The EIA Modification of the Injection System (under evaluation by the regulatory authority) would contemplate prolonging the injection of water by 15 years in the closure stage with respect to what was initially considered in the EIA of Pampa Hermosa (8 years).

ENVIRONMENTAL AND SECTORIAL PERMITS STATUS

The project has been submitted 13 times to the SEIA. In 9 cases the projects were submitted through Environmental Impact Statements (EIS) and in 4 cases through Environmental Impact Assessments (EIA) and in all cases the projects were authorized by the environmental authority. Chapter 17.1 contains the environmental authorization for each project.

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 17-5. Sectorial Permits Defined in the Environmental Resolutions

Name of the Sectorial Permit (PAS)	PAS Number	Sectorial Approval Resolution
Permit to carry out research fishing	119	RCA 20210100112 approved by Resolution No. 20210100112/2021.
Permit for archaeological excavations	132 or Ex 76	RCA 042/2008.Approved by Resolution No. 5175/2012; 4531/2014; 1493/2015; 548/2020 RCA124/2008. Approved by Resolution No. 659/2009 RCA 890/2010. Approved by Resolution No. 5416/2010; 6164/2010; 568/2011; 149 0/2011; 3738/2011; 5802/2011; 6613/2011; 2974/2012; 3851/2012; 1947/2014; 3502/2015; 1950/2018; 3772/2021; 28 48/2020. RCA 076/2012. Approved by Resolution No. 3885/2012 RCA 20210100112 Approved by Resolution No. 3395/2022 (paleontology); Resolution No. 5043/2022; 113/2023.
Permit for stockpiling mining waste	136 or EX 88	RCA 004/2005; RCA 173/2006; 042/2008; RCA 076/2012. Approved by Resolution No. 2552/2015, 2129/2020 (leaching piles); 2959/2016 (discarded stockpiles) RCA 890/2010 Approved by Resolution No. 2129/2020 (lix batteries); 2959/2016; 1570/2020 (discarded stockpiles) RCA 20210100112 approved by Resolution No. 424/2022. (discarded stock piles)
Approval of the mining closing plan	137	RCA 890/2010 Approved by Resolution No. 515/2012. RCA (036/1997; 058/1997; 04/2005; 032/2005; 173/2006; 094/2007; 042/2008; 070/2008; 076/2012) Approved by Resolution No. 1858/2015.amended by Res. No. 2817/2015. Resolution No. 814/2022, as amended by Res. No. 1511/2022 . (Update PdC. Includes ASD)
Permit for the construction, modification, and expansion of any public or private work for the evacuation, treatment, or final disposal of sewage water	138 or Ex 91	RCA 004/2005, Approved by Resolution No. 2543/2006 RCA 124/2008. Approved by Resolution No. 3428/2014 RCA 890/2010. Approved by Resolution No. 1970/2013; 3079/2011; 3427/2014; 339/2018.
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	Not requerid
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 or Ex 93	RCA 004/2005. Approved by Resolution No . 1813/2006; 2167/2014 RCA 124/2008. Approved by Resolution No. 2547/2010. RCA 890/2010. Approved by Resolution No. 1807/2016; 758/2018; 17581/2021; 2482/2019
Permit for the construction of a site for the storage of hazardous wastes	142	RCA 890/2010. Approved by Resolution No. 081/2018; 753/2018.
Permit for the hunting or capture of specimens of animals	146	RCA 20210100112 approved by Resolution No. 80/2022; -82/2022; -86/2022.
Permit for the construction of some hydraulic works	155	RCA 20210100112 Seawater pools. Approved by Res N°: Solar evaporation ponds in process.
Permit for the modification of a watercourse	156	RCA 20210100112. Approved by Resolution N°. 139/2022
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 or Ex 96	RCA 124/2008. Approved by Resolution N°. 577/2011
Permit for the qualification of industrial or warehousing establishments.	161	RCA 004/2005 Approved by Resolution N°. 686/2014

Source: Elaboration by SQM

Additionally, an authorization of the Exploitation Method and Processing Plants is required. These authorizations are:

Res. Annex 1447/2018. Exploitation method update – Office Iris

Res. Ex. 1646/2011. Approves the Project "Update of Operation Nueva Victoria ".

Res. 1602/2010. Approves Project "Stockpiles of discarded salts Sur Viejo."

Res. 621/2006. Increase in the exploitation of caliche in Nueva Victoria.

Res. 1469/2005. Regularization of the mine Exploitation Method and treatment of minerals and expansion of the Nueva Victoria mine and iodine plant.

Res.1351/2004. Regularization of the Exploitation Method and Processing Plants of the Iris office.

Res. Ex. 515/2012. Update Exploitation Method, Mineral Treatment and Closure Plan.

Res. Ex. 121/2022. Tea Project Benefit Plant.

SOCIAL AND COMMUNITY

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 Study period; no unforeseen environmental, social or community events disrupt timely approvals.

17.1.6 Plans, Negotiations or Agreements with Individuals or Local Groups

The company has established agreements with indigenous and non-indigenous organizations on different aspects that derive both from previous commitments and from programs associated with corporate policies on community relations, for example:

Registration of the community care line, as a permanent communication mechanism.

Instances of dialogue and collaboration with the social organizations of the commune: Work tables, periodic meetings and community attention office located in the town of Pozo Almonte.

Working groups with different communities and territories:

Bellavista Sector: there is a Memorandum of Understanding and Agreement that incorporates Voluntary Environmental Commitments (CAV), in the framework of the EIA "Tente en el Aire" (Digital Document 20210100112/19.10.2021). Regardless of the above, there were minutes in sight from September 2020 to June 2021, reporting on the progress of the working group in the context of the Work Plan (Memorandum and Agreement).

Huatacondo Quechua Indigenous Community: there is also a Memorandum of Understanding and Voluntary Environmental Commitments (CAV). In this context, there are minutes in sight - between December 2020 and June 2021 - regarding the implementation of an Environmental Education Center in the Llamara sector. This project was developed in coordination with the National Corporation for Forestry Development (Conaf).

- Aymara Indigenous Community of Quillagua: as in the previous cases, they are part of the Memorandum of Understanding and Voluntary Environmental Commitments (CAV). Consequently, minutes of meetings held between June 2020 and August 2021 were presented, in which topics such as: Report of the Environment Programmer; Chug Chug Park; Quillagua Development Plan; Algarrobo Park Project; land leasing; Foundation, and sector "Quebrada Amarga", among others.

It should be noted that, in general terms, and in accordance with the confidentiality clause, the final amount of the commitments signed by SQM with local organizations or communities is not available.

Notwithstanding the foregoing, a document or agreement was available in standard format, with contents such as the following: general background of the agreement; background on community relations; long-term relationship; validation of agreements; Contributions; accountability of funds; external audit; work table and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; conflict resolution; mechanisms for revising the agreement; Allocation of rights; anti-corruption clause; other commitments; termination of the agreement; domicile.

However, within the framework of the company's relationship policies, the following working groups are maintained:

IQUIQUE

1. Working Group of the Union of Fishermen N° 1 of Chanavayita.
2. Working Table of the Union of Fishermen N° 2 of Chanavayita.
3. Working Table of the Union of Fishermen N° 3 of Chanavayita.
4. Working Table of the Union of Fishermen N° 4 of Chanavayita.
5. Working Table of the Union of Fishermen N° 5 of Chanavayita.
6. Working table of the Fishermen's Guild N° 6 Chanavayita.
7. Working Group of Coastal Unions, which brings together: Union N° 1 of Caramucho, Union of Fishermen N° 2 of Caramucho and Union of Hemp Fishermen.
8. Working Group Fishermen's Union N°3 Caramucho

ALMONTE WELL

1. Working table of the Multiethnic Association Jehovah's Lands of Colonia Pintados
2. Working Group of the Aymara Indigenous Association Youth of the Desert
3. Working table Victoria Office Neighborhood Council.
4. Working table with GHPPI Familia Choque, Bellavista Sector, RNPT
5. Working table with the Sandra Vicentelo Family, Tamentíca.
6. Working Group Aymara Indigenous Association Campesinos Pampa del Tamarugal.
7. Working Group of Dairy Cooperatives and Dairy Producers of Tarapacá.

17.1.7 Purchasing Commitments or Local Contracting

Notwithstanding the foregoing, as part of its community relations policy, SQM has programs aimed at hiring local labor, such as:

Employability Workshops aimed at improving curriculum vitae for job interviews.

More Suppliers Program of Tarapacá.

Development Program of Agricultural Suppliers in the Province of Tamarugal.

Channel of diffusion with Municipal Office of Information Laboral of the Municipality of Pozo Almonte of labor offer of the company.

Channel of dissemination and follow-up with the organizations attached to the different instances of local collaboration (Work Tables) of labor offer of the company.

Educational support program with Liceo de Pozo Almonte for labor induction and professional practices

17.1.8 Social Risk Matrix

There is no specific risk matrix to assess these aspects at the corporate level. In the framework of the working meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects but that they lack a specific program or derive from a specific commitment or objective.

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 unit costs are as estimated in constant (or real) dollar terms, 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.

17.1.9 Closure, Remediation, and Reclamation Plans

During the stage of the Project, the measures established in the "Faena Nueva Victoria" Closure Plan approved by the National Geology and Mining Service (SNGM) will be maintained, through the update of the "Nueva Victoria e Iris" Mining Slaughter Plan (RPC -57.1 585), approved on May 16, 2022, through Exempt Resolution N° 814 and modified by Exempt Resolution N°. 1511, by the National Geology and Mining Service (SERNAGEOMIN). This update includes the following mining sites resolutions. Resolution N°. 1858 of 2015, as amended by Resolution N°. 2817 of 2015 implemented.

N°	Project Name	Resolution	Year
1	Regularization of the Exploitation Method and Plants Iris Office Benefit	1351	2004
2	Regularization of Mine and Mineral Treatment Method and Expansion of Nueva Victoria Mine and Iodide Plant	1469	2005
3	Modify RCA N°004/2005	88	2016
4	Increased Caliche Exploitation in Nueva Victoria	621	2006
5	Iris Slaughter Closure Plan	376	2009
6	Deposit of Discarded Salts Sur Viejo	1602	2010
7	Update Operation New Victoria	1646	2011
8	Pampa Hermosa: Update Exploitation Method, Mineral Treatment and Closure Plan	515	2012
9	Partial temporary shutdown of the Iris Iodine Plant	49	2014
10	Closure Plan for Nueva Victoria Mining Site	1858	2015
11	Modifies Exempt Resolution N°. 1858/2015	2817	2015
12	Update Exploitation Method – Iris Office Site	1447	2018
13	Discard salts as sterile dumps	424	2022
14	Approval of waste dumps corresponding to Depleted Leaching Piles "Faena Nueva Victoria"	2129	2020
15	TEA Project Benefit Plant	121	2022
16	Exploitation Methods TEA Project	47	2022

Among the measures to be implemented are the removal of metal structures, equipment, materials, boards and electrical systems, de-energization of facilities, closure of accesses and installation of signaling. The activities related to the cessation of operations of the Project will be carried out in full compliance with the legal provisions in force on the date of closure of the Project, especially those related to the protection of workers and the environment.

Closing measures

The following are the closure and post-closure measures for the main or remaining facilities, i.e., those that remain on the site after the end of the mine's useful life. The remaining facilities are the leach heaps, tailings ponds and solar evaporation ponds.

In the case of the waste collection, slope stabilization measures will be carried out in the post-closure phase. For the closure of the leaching piles, the removal of structures, equipment, electrical equipment, concrete structures, support structures and pipes, as well as the closure of accesses and installation of closing signals, will be considered. For the closure of the solar evaporation pools, measures were defined for the removal of nitrate-rich salts, removal of parapets, concrete structures, and support structures.

For the rest of the complementary and auxiliary installations, the measures are also aimed at protecting the safety of people and animals, and are basically the dismantling of structures, closure of roads, signaling installation, de-energization of the facilities and perimeter closures, and leveling of the land.

All measures are of the "Personal Security" type and the means of verification corresponds to photographic reports.

Risk Analysis

SERNAGEOMIN, in consideration of Law 20,551 and Supreme Decree N°41/2012, requests owners to carry out a risk assessment that considers the impacts on the health of people and the environment in the context of the closure of the mining site at the end of its useful life. This risk assessment was carried out considering the Risk Assessment Methodology for Mine Closure currently in force. The results of the assessment indicate that the risks associated with the remaining facilities of the Nueva Victoria Mine and TEA project are Low and Not Significant (see Table 17-6).

Table 17-6. Risk Assessment of the Main Facilities at the Nueva Victoria and TEA Project Mine

Register	Risk	Description of Risk	Level Nueva Victoria	Level Project Tea	Significance
Solar Evaporation Ponds					
PE1	PE1.P	To people due to failure in the slope of the pool, which exceeds the exclusion zone due to an earthquake.	LOW	LOW	Non- significant
	PE1.MA	To the Environment due to failure in the slope of the pool, which exceeds the exclusion zone because of an earthquake.	LOW	LOW	Non- significant
PE2	PE2.P	To persons for DAR infiltration	LOW	LOW	Non- significant
	PE2.MA	To the environment by DAR infiltration	LOW	LOW	Non- significant
Discard salt deposits					
DE1	DE1.P	To people due to groundwater contamination from rainfall (infiltration of solutions).	LOW	LOW	Non- significant
	DE1.MA	To the environment due to groundwater contamination caused by rainfall (infiltration of solutions).	LOW	LOW	Non- significant
DE2	DE2.P	To people due to groundwater contamination from floods/floods	LOW	LOW	Non- significant
	DE2.MA	To the environment due to groundwater contamination caused by floods/floods	LOW	LOW	Non- significant
DE3	DE3.P	To people due to particulate emissions into the atmosphere caused by wind.	LOW	LOW	Non- significant
	DE3.MA	To the environment due to particulate emissions to the atmosphere caused by wind	LOW	LOW	Non- significant
DE4	DE4.P	To people due to surface water pollution caused by heavy rainfall	LOW	LOW	Non- significant
	DE4.MA	To the Environment due to surface water contamination caused by heavy rainfall	LOW	LOW	Non- significant
DE5	DE5.P	To people due to surface water contamination caused by floods	LOW	LOW	Non- significant
	DE5.MA	To the Environment due to surface water contamination caused by floods	LOW	LOW	Non- significant
DE6	DE6.P	To people as a result of slope failure due to water erosion	LOW	LOW	Non- significant
	DE6.MA	To the Environment for slope failure due to water erosion	LOW	LOW	Non- significant
DE7	DE7.P	To people due to slope failure as a result of an earthquake	LOW	LOW	Non- significant
	DE7.MA	To the Environment due to slope failure caused by an earthquake	LOW	LOW	Non- significant
MINE					
MR1	MR1.P	To people due to failure of the pit slope, which exceeds the exclusion zone due to an earthquake.	LOW	LOW	Non- significant
	MR1.MA	To the environment due to failure of the pit slope that exceeds the exclusion zone because of an earthquake.	LOW	LOW	Non- significant
MR2	MR2.P	To people due to DAR infiltration from the mine	LOW	LOW	Non- significant
	MR2.MA	To the environment due to DAR infiltration from the mine	LOW	LOW	Non- significant

Source: Annex 10 of the Nueva Victoria and TEA project Mine Closure Plan Update (in process).

17.1.10 Closure Costs

The total amount of the closure of the mining site of the Nueva Victoria and Iris Project, considering closure and post-closure activities, amounts to 284,507 UF (272,271 UF for closure and 12,236 UF for post-closure). The following is a summary of the costs reported to the authority in the Update of the Closure Plan of the "Nueva Victoria e Iris" Mining Site (see Table 17-7 and Table 17-8).

Table 17-7. Nueva Victoria Mine Site Closure Costs

Item	Total (UF)
Total direct closing cost	173,333
Indirect Cost	17,333
Contingencies	38,133
VAT (19%)	43,472
Total	272,271

Source: Annex 5, Addendum 2 to the Closure Plan Update Nueva Victoria and TEA project mine (in process)

Table 17-8. Nueva Victoria Mining Site Post-Closure Costs

Item	Total (UF)
Direct Cost	7,789
Indirect Cost	779
Contingencies	1,714
VAT (19%)	1,954
Total	12,236

Source: Annex 5, Addendum 2 to the Closure Plan Update Nueva Victoria and TEA project mine (in process)

According to the technical report Useful Life presented technical and the constitution of the guarantees was made considering the total cost of the Closure Plan, and a useful life of 21 years, whose estimated operation would be until the year 2040. The following shows the development of the constitution of guarantees.

Table 17-9. General Background of Nueva Victoria

GENERAL BACKGROUND	
Discount Rate Used	1.55%
Certified End of Life	2040
Year of Closure of the Mining Site	2050

Table 17-10. Warranties by Installation of the Nueva Victoria Mine Closure Plan.

TABLE OF WARRANTIES BY INSTALLATION				
Installation	**Total Cost (UF)**	**Year Completion of Operations**	**Year Start of closure**	**End of Closure Year**
Mine (Caliche)	13,364	2040	2041	2050
Mine Operation Center (COM)	35,899			
Evaporation Pools and Neutralization System	11,711			
Sea Water Supply	51,824			
ND Iodide Plant	7,529			
TEA Iodide Plant	10,253			
NV Iodide Plant (TEA Project)	5,107			
Iodine Plant NV	4,690			
Iodide Plant - Iris Iodine	20,939			
Iodine Plant NV (TEA Project)	4,697			
Campgrounds and Offices	7,985			
Industrial Water Supply	47,442			
Mitigation Works Salar Llamara	1,290			
Hazardous Waste Yard	2,345			
Patio de Res. Non - Hazardous Industrial	703			
Roads	8,099			
Desenergization	43			
Signage	969			
Removal of Swimming Pools and Pools	10,701			
Withdrawal of inputs	26,681			
Contribution to the Post Closing Fund (UF)	**272,271**			

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 in constant (or real) dollar terms, projected labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

The main facilities for producing iodine and nitrate salts at the Nueva Victoria Site are as follows:

- Caliche Mining
- Heap Leaching
- Iodide & Iodine Plants
- Solar Evaporation Ponds
- Water Resource Provision
- Electrical Distribution System
- General Facilities

CAPITAL COSTS

The main facilities for the production operations of Iodine and nitrate salts, include caliche extraction, leaching, water resources, Iodide an Iodine production plants, solar evaporation ponds, as well as other minor facilities. Offices and services include, among others, the following: common areas, supply areas, powerhouse, laboratory, and warehouse.

Much of the primary capital expenditure in the Nueva Victoria Project has been completed. At the end of 2021, the capital cost invested in these facilities was reportedly about USD 831 million with the relative expenditure by major category as shown in Table 18-1

Table 18-1. Summary of Capital Expenses for the Nueva Victoria an Iris Operations

	Capital Cost	
	% Total	MM USD
Category	**100%**	**831,567**
Caliche Mining (*)	27%	222,929
Heap Leaching	17%	144,871
Iodide & Iodine Plant	20%	165,989
Solar Evaporation Ponds	20%	168,937
Water Resources Provision	10%	80,719
Electrical Distribution System	3%	23,833
Roads	3%	24,289

The net book value as of January 1, 2023, was reportedly about MUSD 245.2 and according to SQM will be depreciated over the next 5 years.

18.1.1 Caliche Mining

SQM produces salts rich in iodide, iodine and nitrate in Nueva Victoria and Iris, near Iquique, Chile, mineral caliche extracted from mines near Nueva Victoria.

Capital investment in the mine is primarily for the equipment including trucks, front loaders, bulldozers, drills, surface miners (Vermeer, Wirtgen), wheeldozers, motor graders. Other investment is in buildings and support facilities and associated equipment.

18.1.2 Heap Leaching

The leach piles are made up of platforms (normally 90 x 500 m, with perimeter parapets and with a bottom waterproofed with HDPE membranes), which are loaded with the necessary caliche and are irrigated with different solutions (water, mixture, or intermediate solution of piles).

The Mine Operation Centers (COM) are a set of leaching heaps that have brine accumulation ponds, recirculated “feeble brine” ponds, industrial water ponds and their respective pumping systems.

Primary capital expenditure is in the form of piping, electrical facilities and equipment, pumps, ponds, and support equipment.

18.1.3 Iodide and Iodine Plants

The main investment in the Iodide and Iodine Plants is found in tank and decanter equipment, pumps and piping, equipment and electrical facilities, buildings and well. primary investment in the Prilate Iodine Plant is found in piping and pumps, mechanical equipment (Reactor, Tank, Tower) and buildings.

18.1.4 Solar Evaporation Ponds

These ponds in the industrial area of Sur Viejo and receive the “Feeble Brine” fraction (BF) generated in the process of obtaining iodide, which is transported through 3 pipelines of approximately 20 kilometers each. The current area of evaporation ponds is 8.34 km², increasing to a total of 18.51 km² with TEA project.

18.1.5 Water Resources

Primary investment is in piping, pumps, buildings, and wells.

18.1.6 Electrical Distribution System

Primary investment is in transformers, substations, distribution systems and associated support facilities.

18.1.7 General Facilities

Investment in General Facilities include laboratories, fire detection systems, lighting, and warehouses.

FUTURE INVESTMENT

During 2020, progress was made in the development and environmental processing of the Tente en el Aire Project. In November 2021, the Environmental Assessment Commission of the Tarapacá Region agreed to classify favorably the "Tente en el Aire" project, presented by SQM.

With an investment of US$350 million, the initiative aims to incorporate new mining areas to produce iodide, iodine, and salts rich in nitrates at the Nueva Victoria Site, which entails an increase in the total amount of caliche extract, and in the use of water for said processes.

The project corresponds to a modification of the Nueva Victoria Faena consisting of:

a) New mining areas (approx. 43,586 ha), with a caliche extraction rate of 28 million t/y, resulting in a total of 65 Mt/y.

b) Two new iodide production plants (6,000 t/y each), resulting in a total of 23,000 t/y.

c) A new iodine production plant (12,000 t/y), resulting in a total of 23,000 t/y.

d) New Evaporation Ponds to produce nitrate-rich salts (1,950,000 t/y), resulting in a total of 4,000,000 t/y.

e) A new neutralization system, a seawater adduction (900 L/s maximum) from the Bahía Patillos sector to the mining area.

f) A new electric transmission line from the National Electric System.

Additional capital for the Long Term is estimated to be USD 549 million including capital associated with the TEA expansion project and sustaining capital for mining and leaching operations for equipment, improving aspects of quality, performance, sustainability and increasing production capacity. The distribution of the operating cost is presented in table 18-2:

Table 18-2 Estimated Investment

Investment (MUS$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	Total
Sea Water Pipeline	64	73	127					60											**324**
Nueva Victoria	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	**540**

OPERATING COST

The main costs to produce Iodine and Nitrates involve the following components: common production cost for iodine and nitrates, such as Mining, Leaching and Seawater, production cost of iodine in the plant, and the production cost of nitrate before processing at the Coya Sur site.

The production cost of nitrate at Coya Sur Plant and the processing of extra solar salt are added. To the costs indicated above, have been added the Depreciation and Others.

Estimated aggregate unit operating costs are presented in Table 18-3. These are based on historical unit operating costs for each of the sub-categories listed above.

Over the Long Term, total operating costs are expected to be almost equally apportioned amongst the three primary categories (Common; Iodine Production and Transport; Nitrate Production and Transport).

Table 18-3 Nueva Victoria Operating Cost

Cost Category	Estimated Unit Cost
Common (Mining / Leaching/ Seawater)	4,55 US$/Ton caliche
Iodine Production (including transport to ports)	19,470 US$/Ton iodine
Nitrates Production	82,31 US$/Ton nitrate
Nitrates Transport to Coya Sur	35,05 US$/Ton nitrate

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.

PRINCIPAL ASSUMPTIONS

Capital and operating costs used in the economic analysis are as described in Section 18. Sales prices used for Iodine and Nitrates are as described in Section 16. A 10% discount rate was used for the cashflow and is deemed reasonable to account for cost of capital and project risk. A 28% income tax rate was considerate, and all costs, prices, and values shown in this section are in 2022 US$.

PRODUCTION AND SALES

The estimated production of iodine and nitrates for the period 2022 to 2040 is presented in Table 19-1. The production shown does not consider the impact of the Pampa Orcoma Project which is presented in a separate TRS.

PRICES AND REVENUE

An average sales price of 40.0 USD/kg (40,000 USD/ton) was used for sales of Iodine based on the market study presented in in Section 16. This price is assessed as FOB port.

As a vertically integrated company, nitrate production from the mining operations is directed to the plant at Coya Sur to produce specialty fertilizer products. An imputed sales price of 333 USD/ton was assumed for nitrates salts for fertilizer based on an average sales price of 820 USD/ton for finished fertilizer products sold at Coya Sur, less 487 USD/ton for production costs at Coya Sur.

These prices and the revenue streams derived from the sale of iodine and nitrates is shown in Table 19-2.

Table 19-1. Nueva Victoria Long Term of Mine Production

MATERIAL MOVEMENT	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Nueva Victoria Sector Ore Tonnage	**Mt**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**128**
Iodine (I2) in situ	ppm	417	416	388	386	386	389	414	410	0	0	0	0	0	0	0	0	0	0	**401**
Average grade Nitrate Salts (NaNO3)	%	5.8%	4.7%	4.5%	4.0%	4.0%	4.2%	5.2%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**4.6%**
Tente en el Aire (TEA) Sector Ore Tonnage	**Mt**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**110**
Iodine (I2) in situ	ppm	403	403	420	400	429	404	405	394	364	403	404	0	0	0	0	0	0	0	**403**
Average grade Nitrate Salts (NaNO3)	%	4.3%	4.3%	5.4%	5.0%	5.2%	4.5%	4.1%	4.0%	4.0%	4.1%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**4.4%**
Hermosa Sector Ore Tonnage	**Mt**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**34**	**34**	**33**	**43**	**42**	**42**	**41**	**41**	**41**	**40**	**535**
Iodine (I2) in situ	ppm	482	460	478	464	466	441	459	428	423	424	425	418	421	417	422	422	415	422	**431**
Average grade Nitrate Salts (NaNO3)	%	6.6%	6.1%	6.4%	6.2%	6.6%	6.2%	5.8%	5.8%	5.9%	5.5%	5.4%	5.4%	5.3%	5.4%	5.3%	5.3%	5.4%	5.3%	**5.6%**
TOTAL ORE MINED (CALICHE)	**Mt**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**44**	**43**	**43**	**42**	**42**	**41**	**41**	**41**	**40**	**773**
Iodine (I2) in situ	kt	19.3	19.1	19.5	18.6	18.9	18.1	19.0	17.9	18.0	18.3	18.1	17.9	17.8	17.4	17.5	17.3	16.8	16.9	**326.4**
Yield process to produce prilled Iodine	%	55.6%	54.6%	53.0%	55.8%	59.9%	54.7%	55.2%	59.9%	59.2%	55.8%	55.2%	55.4%	56.0%	56.2%	56.9%	56.9%	57.2%	58.4%	**56.4%**
Prilled Iodine produced	**kt**	**10.7**	**10.1**	**10.6**	**11.1**	**10.3**	**10.0**	**11.3**	**10.8**	**10.1**	**10.1**	**10.1**	**10.0**	**10.0**	**9.9**	**9.9**	**9.9**	**9.8**	**9.8**	**184.6**
Nitrate Salts in situ	kt	2,586	2,344	2,398	2,261	2,343	2,228	2,422	2,097	2,377	2,331	2,306	2,286	2,260	2,241	2,212	2,188	2,174	2,143	**41,198**
Yield process to produce Nitrates	%	43.4%	46.9%	48.2%	58.2%	59.0%	59.0%	57.8%	58.2%	58.0%	59.8%	60.9%	61.1%	62.2%	63.0%	64.2%	65.2%	65.9%	67.3%	**58.7%**
Nitrate production from Leaching	kt	1,122	1,070	1,162	1,312	1,387	1,317	1,324	1,278	1,395	1,349	1,333	1,398	1,405	1,412	1,419	1,427	1,434	1,442	**23,985**
Ponds Yield to produce Nitrates Salts	%	54.2%	60.7%	68.5%	64.3%	65.9%	64.7%	66.3%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	**63.6%**
Nitrate Salts for Fertilizers	**kt**	**608**	**649**	**796**	**843**	**914**	**852**	**878**	**812**	**886**	**857**	**847**	**888**	**893**	**897**	**902**	**906**	**911**	**916**	**15,256**

Table 19-2. Nueva Victoria Iodine and Nitrate Price and Revenues

PRICES	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Iodine	US$/t	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	**40,000**
Nitrates delivered to Coya Sur	US$/t	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	**333**
REVENUE	**UNITS**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
Iodine	US$M	430	402	424	444	413	401	454	431	402	403	402	400	400	397	397	396	393	393	**7,384**
Nitrates delivered to Coya Sur	US$M	203	216	265	281	304	284	292	270	295	285	282	296	297	299	300	302	303	305	**7,987**
Total Revenues	**US$M**	**632**	**618**	**689**	**725**	**717**	**685**	**746**	**702**	**697**	**689**	**684**	**696**	**697**	**696**	**698**	**698**	**696**	**698**	**15,371**

OPERATING COSTS

Operating costs associated with the production of iodine and nitrates at Nueva Victoria are as described earlier in Section 18 and are incurred in the following primary areas:

1. Common

2. Iodine Production

3. Nitrate Production

Additional details on operating costs may be found in Section 18.3. Unit costs for each of these unit operations is shown in Table 19-3.

Table 19-3. Nueva Victoria Operating Costs.

COSTS	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
COMMON																				
Mining	US$M	122	122	122	122	122	122	122	122	122	121	120	119	118	116	115	114	113	112	**2,149**
Leaching	US$M	62	62	59	52	52	52	52	52	52	52	51	51	50	50	49	49	48	48	**946**
Seawater	US$M	0	0	6	25	25	25	25	25	25	24	24	24	24	23	23	23	23	22	**365**
Total Mining Costs	**US$M**	**184**	**184**	**188**	**200**	**200**	**200**	**200**	**200**	**200**	**198**	**196**	**194**	**192**	**190**	**188**	**186**	**184**	**182**	**3,460**
IODINE PRODUCTION																				
Solution Cost	US$M	149	147	142	151	147	151	149	153	149	149	147	143	141	139	136	134	132	130	**2,589**
Iodide Plant	US$M	31	29	31	32	30	29	33	31	29	29	29	29	29	29	29	29	29	29	**537**
Iodine Plant	US$M	20	19	20	21	19	19	21	20	19	19	19	18	18	18	18	18	18	18	**341**
Total Iodine Production Cost	US$M	**200**	**195**	**193**	**204**	**196**	**199**	**203**	**204**	**197**	**197**	**195**	**191**	**188**	**186**	**183**	**181**	**179**	**176**	**3,467**
Total Iodine Production Cost	**US$/kg Iodine**	**19**	**19**	**18**	**18**	**19**	**20**	**18**	**19**	**20**	**20**	**19**	**19**	**19**	**19**	**18**	**18**	**18**	**18**	**19**
NITRATE PRODUCTION																				
Solution Cost	US$M	35	37	45	48	52	49	50	46	51	49	48	51	51	51	51	52	52	52	**871**
Ponds and preparation	US$M	24	25	31	33	35	33	34	31	34	33	33	34	35	35	35	35	35	35	**591**
Harvest production	US$M	3	3	4	4	5	5	5	4	5	5	5	5	5	5	5	5	5	5	**81**
Others (G&A)	US$M	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	3	3	**42**
Transport to Coya Sur	US$M	21	23	28	30	32	30	31	28	31	30	30	31	31	31	32	32	32	32	**535**
Total Nitrate Production Cost	**US$M**	**85**	**90**	**111**	**117**	**127**	**118**	**122**	**113**	**123**	**119**	**118**	**123**	**124**	**125**	**125**	**126**	**127**	**127**	**2,120**
Total Nitrate Production Cost	**US$/t Nitrate**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**	**139**
Closure Accretion	US$M																		11	**11**
TOTAL OPERATING COST	**US$M**	**285**	**285**	**303**	**321**	**323**	**317**	**325**	**317**	**320**	**316**	**313**	**314**	**312**	**310**	**309**	**307**	**305**	**315**	**5,598**
TOTAL OPERATING COST	**US$/t Caliche**	**6.5**	**6.5**	**6.9**	**7.3**	**7.4**	**7.2**	**7.4**	**7.2**	**7.3**	**7.2**	**7.3**	**7.4**	**7.4**	**7.4**	**7.5**	**7.5**	**7.5**	**7.8**	**7.2**

CAPITAL EXPENDITURE

Much of the primary capital expenditure in the Nueva Victoria Project has been completed.

The most significant proposed future capital expenditure is for the seawater pipeline to support the proposed TEA Expansion Project. This investment is expected to need USD 263 million between 2023- 2025 and USD 60 million in year 2030.

Additional capital for the Long Term is estimated to be USD 549 million including capital associated with the TEA expansion project and sustaining capital for mining and leaching operations. for equipment, improving aspects of quality, performance, sustainability and increasing production capacity.

A closure costs of USD 11 million has been estimated in 2040 in the cashflow.

Additional details on capital expenditures for the Nueva Victoria Project can be found in Section 18.1 and Section 18.2. The estimated capital expenditure for the Long Term (2023 to 2040) is presented in Table 18-2.

CASHFLOW FORECAST

The cashflow for the Nueva Victoria Project is presented in Table 19-4.The following is a summary of key results from the cashflow:

- Total Revenue: estimated to be USD 15.37 billion including sales of iodine and nitrates.
- Total Operating Cost: estimated to be USD 5.59 billion.
- EBITDA: estimated at USD 9.77 billion
- Tax Rate of 28% on pre-tax gross income
- Closure Cost: estimated at USD 11 million
- Capital Expenditure estimated at USD 872 million
- Net Change in Working Capital is based on two months of EBITDA.
- A discount rate of 10% was utilized to determine NPV. The QP deems this to be a reasonable discount rate to apply for this TRS which reasonable accounts for cost of capital and project risk.
- After-tax Cashflow: The cashflow is calculated by subtracting all operating costs, taxes, capital costs, interest payments, and closure costs from the total revenue.
- Net Present Value: The after tax NPV is estimated to be USD 1.81 billion at a discount rate of 10%

The QP considers the accuracy and contingency of cost estimates to be well within a Prefeasibility Study (PFS) standard and sufficient for the economic analysis supporting the Mineral Reserve estimate for Nueva Victoria.

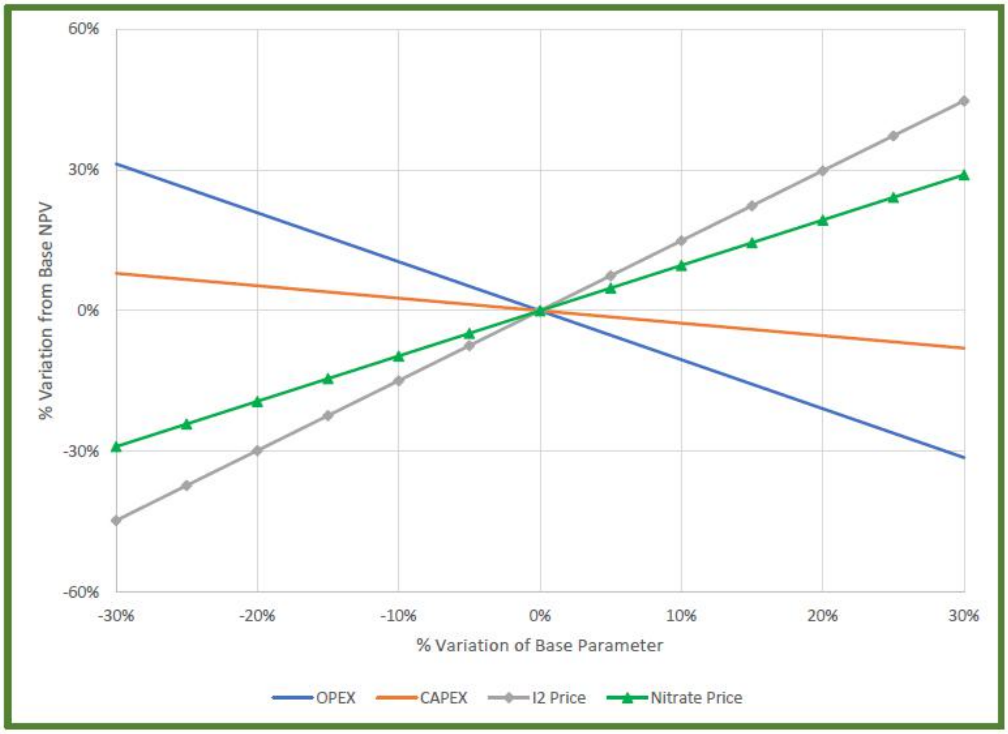
Table 19-4. Estimated Net Present Value (NPV) for the Period

REVENUE	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Total Revenue	**US$M**	**632**	**618**	**689**	**725**	**717**	**685**	**746**	**702**	**697**	**689**	**684**	**696**	**697**	**696**	**698**	**698**	**696**	**698**	**15,371**
COSTS																				
Total Mining Costs	US$M	184	184	188	200	200	200	200	200	200	198	196	194	192	190	188	186	184	182	3,460
Total Iodine Production Cost	US$M	200	195	193	204	196	199	203	204	197	197	195	191	188	186	183	181	179	176	3,467
Total Nitrate Production Cost	US$M	85	90	111	117	127	118	122	113	123	119	118	123	124	125	125	126	127	127	2,120
Closure Accretion	US$M																		11	11
TOTAL OPERATING COST	US$M	285	285	303	321	323	317	325	317	320	316	313	314	312	310	309	307	305	315	5,598
EBITDA	US$M	347	333	386	404	394	368	421	385	377	373	371	382	385	386	389	391	391	384	9,773
Depreciation	US$M	35	40	48	50	51	53	24	28	30	31	33	34	36	37	39	41	42	44	697
Interest Payments	US$M	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	540
Pre-Tax Gross Income	US$M	282	263	308	324	312	286	367	326	317	311	309	318	319	318	320	320	319	310	5,629
Taxes	28%	79	74	86	91	87	80	103	91	89	87	86	89	89	89	90	90	89	87	1,576
Operating Income	US$M	203	189	222	233	225	206	264	235	229	224	222	229	229	229	230	231	230	223	4,053
Add back depreciation	US$M	35	40	48	50	51	53	24	28	30	31	33	34	36	37	39	41	42	44	697
Add back closure accretion	US$M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
NET INCOME AFTER TAXES	US$M	238	230	270	283	276	258	288	263	258	256	255	263	265	267	269	271	272	278	4,761
Total CAPEX	US$M	94	103	157	30	30	30	30	90	30	30	30	30	30	30	30	30	30	30	872
Closure Costs	US$M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
Working Capital	US$M	2	-2	9	3	-2	-4	9	-6	-1	-1	0	2	0	0	1	0	0	-1	8
Pre-Tax Cashflow	US$M	252	232	220	370	365	342	382	300	348	343	341	350	354	355	358	360	361	344	5,976
After-Tax Cashflow	US$M	143	129	104	249	247	232	249	179	229	226	225	231	234	236	238	240	241	238	3,870
Pre-Tax NPV	US$M	2,858																		
After-Tax NPV	**US$M**	**1,811**																		
Discount Rate	**US$M**	**10%**																		

SENSITIVITY ANALYSIS

The sensitivity analysis was carried out by independently varying the commodity prices (Iodine, Nitrate), operating cost, and capital cost. The results of the sensitivity analysis are shown in Figure 19-1 shows the relative sensitivity of each key metric.

Figure 19-1. Sensitivity Analysis



As seen in the above figure, the project NPV is equally sensitive to operating cost and commodity price while being least sensitive to capital costs. This is to be expected for a mature, well-established project with much of its infrastructure already in place and no significantly large projects currently planned during the LOM discussed in this Study. Both iodine and nitrate prices have a similar impact on the NPV with nitrate prices having a slightly larger impact.

20 ADJACENT PROPERTIES

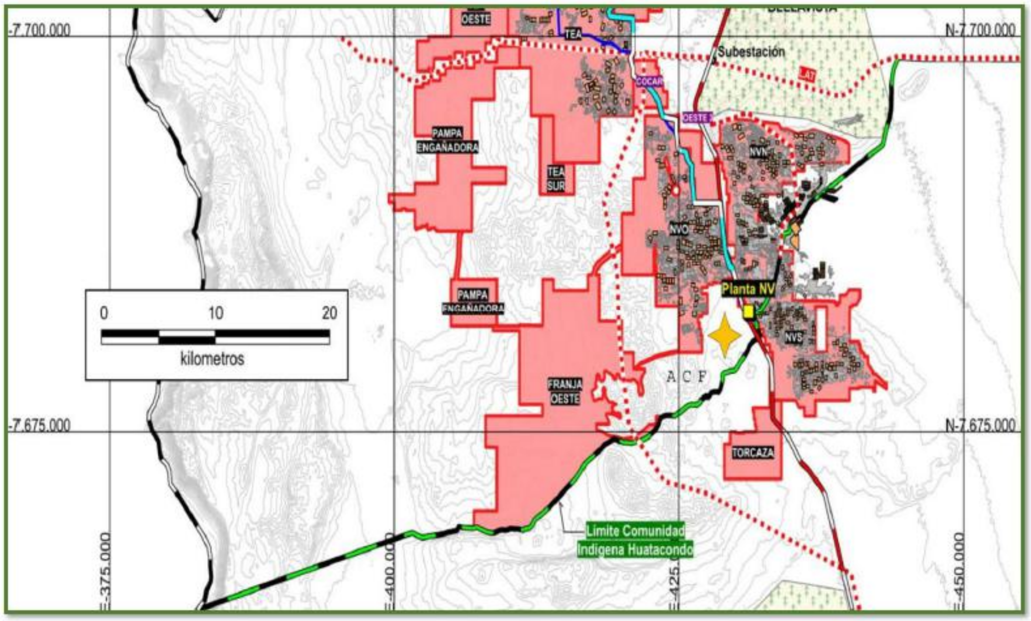
SQM has the right to explore and/or exploit caliche mineral resources in an effective area covering more than 1,539,177 hectares in Northern Chile's Regions I and II. Prospect deposits are located on flat land or "pampas".

- Hermosa Oeste
- Tente en el Aire Oeste.
- Pampa Hermosa
- Pampa Engañadora
- Hermosa
- Fortuna
- Cocar
- Coruña
- Hermosa Sur
- Los Ángeles
- Tente en el aire → (Tea Sur – Tea Central – Tea Felipe – Cop 5)
- Franja Oeste
- Iris Vigía
- Oeste III
- Torcaza
- Sur
- Oeste

All prospected areas have been explored and exploration program results have indicated that these prospects reflect a mineralized trend hosting nitrate and iodine. For the year 2022, a detailed exploration program of 5,250 ha in the Hermosa Oeste and Tente en el Aire Oeste sector is underway. On the other hand, exploration efforts are focused on possible metallic mineralization found underneath caliche. There is significant potential for metallic mineralization in the area, especially copper and gold. Exploration has generated discoveries that in some cases may lead to exploitation, discovery sales and future royalty generation.

Along SQM-Nueva Victoria's boundary, as shown in Figure 20-1, there are some small-scale mining rights. In total there are two mining lots (shown in green: North-east and south-east), which are close to the property boundary.

Figure 20-1. Nueva Victoria Adjacent Properties.



21 OTHER RELEVANT DATA AND INFORMATION

The QP is 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 Mineral Resources and the Long Term plan 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 forth in this sub-section including: geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction; grade continuity analysis and assumptions; Mineral Resource model Tonnes and grade and mine design parameters; actual plant feed 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; mining strategy and production rates; expected mine life and mining unit dimensions; prevailing economic conditions, commodity markets and prices over the Long Term period; regulatory framework is unchanged during the Study period and no unforeseen environmental, social or community events disrupt timely approvals; estimated capital and operating costs; and project schedule and approvals timing with availability of funding.

The Nueva Victoria Mine is a proven producer of both iodine and nitrate fertilizer products. Current exploration drilling has identified Mineral Resources and Mineral Reserves sufficient to continue production until 2040. To accomplish this, certain planned strategic investments must be implemented, including a sea water intake and supply system for the operation.

To reach this conclusion, has reviewed the available data on geology, drilling, mining, and mineral processing, and has concluded that Mineral Resources, costs, and recoveries are reasonable. The largest risks for the operation will lie in changes to market conditions or to the cost of operating inputs.

The work done in this report has demonstrated that the mine, heap leach facility and the iodine and nitrate operations correspond to those of a technically feasible and economically viable project. The most appropriate process route is determined to be the selected unit operations of the existing plants, which are otherwise typical of the industry.

The current needs of the nitrate and iodine process, such as power, water, labor, and supplies, are met as this is a mature operation with many years of production supported by the current project infrastructure. As such, performance information on the valuable nitrate and iodine species consists of a significant amount of historical production data, which is useful for predicting metallurgical recoveries from the process plant. Along with this, metallurgical tests are intended to estimate the response of different caliche ores to leaching.

Miss. Marta Aguilera QP of Reserves, concludes that the work done in the preparation of this technical report includes adequate details and information to declare the Mineral Reserves. In relation to the resource treatment processes, the conclusion of the responsible QP, Gino Slanzi, is that appropriate work practices and equipment, design methods and processing equipment selection criteria have been used. In addition, the company has developed new processes that have continuously and systematically optimized its operations.

The QP believes that mining and continued development of the Nueva Victoria project should continue and be integrated into SQM's corporate plans.

RESULTS

22.1.1 Geology and Mineral Resources

Nueva Victoria is a nitrate-iodine deposit located the intermediate depression, limited to the east by the Coastal Range (representing the Jurassic magmatic arc) and the Precordillera (associated to the magmatic activity originating from the mega Cu-Au deposits in northern Chile), generating a natural barrier for their deposition and concentration.

The Nueva Victoria geology team has a clear understanding of mineralization controls and the geological and deposit related knowledge has been appropriately used to develop and guide the exploration, modeling, and estimation processes.

Sampling methods, sample preparation, analysis and security were acceptable for mineral resource estimation. The collected sample data adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposits. Sampling is representative of the Iodine and Nitrate Grades.

As of December 31, 2022, the Inferred Resources (exclusive of Mineral Reserves) for iodine and nitrate in Nueva Victoria are 31.1 Mt with a 343 ppm mean grade of Iodine and 6.5% of nitrate. Note that because the caliche deposit is at the surface, all measured and indicated resources with environment permits has been converted into mineral reserves.

The average mineral resource concentrations are above the cutoff grades of 3.0 % of Nitrate, reflecting that the potential extraction is economically viable.

SQM holds a large property position with similar geology and geomorphology as the current operations. It is probable that SQM will continue to find additional mineral resources in the Nueva Victoria area.

22.1.2 Mining and Mineral Reserves

Nueva Victoria has been in operation since 2002 and is a stable enterprise that should continue producing into the future.

22.1.3 Metallurgy and Mineral Processing

According to Gino Slanzi Guerra, the QP in charge of metallurgy and resource treatment:

There is a duly documented verification plan for the cover system to limit infiltration during leaching. The document establishes installation and leak detection procedures in accordance with environmental compliance criteria.

Metallurgical test work performed to date has been adequate to establish appropriate processing routes for the caliche resource. The metallurgical test results show that the recoveries are dependent on the saline matrix content and, on the other hand, the maximization of this is linked to the impregnation cycle which has been studied, establishing irrigation scales according to the classified physical nature. The derived data are suitable for the purpose of estimating recovery from mineral resources.

Based on the annual, short- and long-term production program, the yield is estimated for the different types of material to be exploited according to the mining plan, according to their classification of physical and chemical properties, obtaining a projection of recoveries that is considered quite adequate for the resources.

In addition to the ROM mining methodology, there is a mining method called "Continuous Mining", which, according to the tests carried out with the reaming equipment, allows obtaining a smaller size mineral and more homogeneous granulometry, which implies obtaining higher recoveries for iodine and nitrate during leaching.

Reagent forecasting and dosing are based on analytical processes that determine ore grades, valuable element content and impurity content to ensure that the system's treatment requirements are effective. These are translated into consumption rate factors that are maturely studied.

Since access to water can be affected by different natural and anthropogenic factors, the use of seawater is a viable alternative for future or current operations. However, this may increase operating costs, resulting in additional maintenance days.

During operations, the content of impurities fed to the system and the concentration in the mother liquor is monitored to eventually detect any situation that may impact the treatment methodologies and the characteristics of its products.

RISKS

22.1.4 Mining and Mineral Reserves

As mining proceeds into new areas, such as TEA, the production, dilution, and recovery factors may change based on operating factors. These factors and mining costs should be evaluated on a sector-by-sector basis.

22.1.5 Metallurgy and Mineral Processing

The risk that the process, as currently defined, will not produce the expected quantity and/or quality required. However, exhaustive characterization tests have been carried out on the treated material and, moreover, at all stages of the process, controls are in place to manage within certain ranges a successful operation.

The risk that the degree of impurities in the natural resources may increase over time more than predicted by the model, which may result in non-compliance with certain product standards. Consequently, it may be necessary to incorporate other process stages, with the development of previous engineering studies, to comply with the standards.

22.1.6 Other Risks

The prices of iodine and fertilizers have been stable and increasing and though product price is a risk it is expected to be small.

There is a social and political risk that derives from the current process of constitutional discussion in Chile, which may change the actual regulation of the mining industry This could impact to mining property, taxes, and future royalties.

SIGNIFICANT OPPORTUNITIES

22.1.7 Geology and Mineral Resources

There is a big opportunity to improve the resource estimation simplicity and reproducibility using the block model approach not only in the case of smaller drill hole grids of 50 x 50 m and up to 200 x 200m, but also for larger drill hole grids to avoid separating the resource model and databases by drill hole spacing, bringing the estimation and management of the resource model to industry standards.

22.1.8 Mining and Mineral Reserves

Improve efficiency of mining by implementing selective mining criteria to improve produced grades. As the deposit is a single mining bench there is an opportunity to establish a smaller selective mining unit and mine irregular polygons to improve head grade delivered to the leach pads.

The advantages of continuous mining machines will offer better leaching recoveries and may be optimized with evaluation of cutter head designs and operating parameters. Care should be taken to evaluate the costs on a basis of final product production price.

22.1.9 Metallurgy and Mineral Processing

Determine the optimal mining levels by continuous mining that maximizes recovery and minimizes costs.

Improve heap slope irrigation conditions to increase iodine and nitrate recovery.

23 RECOMMENDATIONS

GEOLOGY AND MINERAL RESOURCES

Confirm the accuracy and precision of SQM internal laboratory implementing an external QA/QC check with a representative number of samples as a routine procedure.

Quality procedures for data maintenance should be implemented as well as a formal methodology for reviewing laboratory QA/QC information and flagging potential issues.

Expand the block model approach for resource estimation to larger drill hole grids to avoid separating the resource model and databases by drill hole spacing.

MINING AND MINERAL RESERVES

The conversion factors from indicated mineral resources to probable mineral reserves should be continuously reviewed and updated as preproduction drilling converts the indicated resources to measured. Expansion of the use of geostatistical block models (see above) will have an impact on these factors.

In cooperation with the processing group, an ore blending plan could optimize the cost and recovery balance in the future and should be studied soon to better forecast production and equipment needs for the life of mine.

METALLURGY AND MINERAL PROCESSING

From the point of view of the material fed to the heaps, a recovery study is necessary to establish optimal annual operating levels that maximize recovery and minimize costs. The study will allow defining the percentage of ore to be reamed during the life of the mine to increase recovery sequentially.

Regarding irrigation, alternatives that allow an efficient use of water should be reviewed, considering the irrigation of the lateral areas of the piles to increase the recovery of iodine and nitrates.

A relevant aspect is the incorporation of seawater in the process, a decision that is valued given the current water shortage and that ultimately is a contribution to the project, however, a study should be made of the impact of processing factors such as impurities from this source.

It is advisable to carry out tests to identify the hydrogeological parameters that govern the behavior of the water inside the pile. Review the properties of the mineral bed, which acts as a protector of the binders at the base of the piles, which is currently a fine material called "chusca", which could be replaced by classified particulate material, favoring the infiltration of the solutions.

It is considered important to evaluate the leachable material through heap leaching simulation, which allows the construction of a conceptual model of caliche leaching with a view to secondary processing of the riprap to increase the overall recovery.

It is contributive and relevant to work on the generation of models that represent heap leaching, the decrease in particle size (ROM versus Scarious granulometry) and, therefore, of the whole heap and the simultaneous dissolution of different species at different rates of nitrate iodine extraction.

With respect to generating material use options, detailed geotechnical characterization of the available clays within the mine property boundaries is suggested to assess whether there are sufficient clay materials on site to use as a low permeable soil liner bed under the leach pad.

Environmental issues include leachate or acid water management, air emissions management, tailings dump management, and leachate riprap.

All the above recommendations are considered within the declared CAPEX/OPEX and do not imply additional costs for their execution.

24 REFERENCES

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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) Mine and process operating costs.

3) Projected sales quantities and prices.

4) Marketing information and plans within the control of the registrant.

5) Environmental and social licenses

Exhibit 96.3

TECHNICAL REPORT SUMMARY OF THE PAMPA ORCOMA OPERATION
YEAR 2022

Date: April 2023

Summary

This report provides the methodology, procedures and classification used to obtain SQM's Nitrate an Iodine Mineral Resources a Mineral Reserves, at the Pampa Orcoma Site. The Mineral Resources a Reserves that are delivered correspond to the update as of December 31, 2022.

The results obtained are summarized in the following tables:

Mineral Resources 2022

Mining	Total Inferred Resource			Total Indicated Resource			Total Measured Resource		
	Tonnage Mt	Nitrate Grade %	Iodine Grade ppm	Tonnage Mt	Nitrate Grade %	Iodine Grade ppm	Tonnage Mt	Nitrate Grade %	Iodine Grade ppm
Orcoma				327	7.2	469			

Mining	**Proven Reserves (1)** (million metric tons)	**Average grade Nitrate** (Percentage by weight)	**Average grade Iodine** (Parts per million)	**Average Cut-off grade for the Mine (2)**
Pampa Orcoma				

Mina	**Probable Reserves** (million metric tons)	**Average grade Nitrate** (Percentage by weight)	**Average grade Iodine** (Parts per million)	**Average Cut-off grade for the Mine (2)**
Pampa Orcoma	309	6.9%	413	Nitrate 3.0 %

(1) The above tables show the Probable Reserves before losses related to the exploitation and treatment of the ore. Probable Reserves are affected by mining methods, resulting in differences between the estimated reserves that are available for exploitation in the mining plan and the recoverable material that is ultimately transferred to the leaching heaps. The average mining factor for each of our mines varies between 80% an 90%, while the average global metallurgical recovery of nitrate an iodine processes contained in the recovered material varies between 55% an 70%.

(2) Pampa Orcoma has not Proven Reserves due that the drill holes grid is greater than 100 T (100 x 50 m), so is possible to estimated only Indicated Resources and reported Probable Reserves.

(3) The cut-off grade of the Probable Reserves vary according to the objectives required in the different mines. The assigned values correspond to the averages of the different sectors.

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1 EXECUTIVE SUMMARY

1.1 Property Summary and Ownership

Pampa Orcoma, located in northern Chile's Tarapacá Region, covers a property area of 10,296 ha.

The Pampa Orcoma Project (the Project, or Orcoma Project), which includes the mine area as well as temporary and permanent facilities for the mining operation, involves a surface area of 7,387 ha. In the access sector to the area, there is a "BHP aqueduct easement," and in the surrounding area, there are the populated areas of Huara, Bajo Soga, Colonos Rurales, Pisagua, and the Pampa del Tamarugal Reserve.

1.2 Geology and Mineralization

Pliocene to Holocene alluvial and colluvial deposits overlie most of the Pampa Orcoma property's surface area, overlaying Jurassic volcaniclastic sequences with minor outcrops to the edges of the property, and outcrops of calcareous sedimentary units and evaporite deposits occurring to the northeast of the property.

Alluvial deposits host iodine and nitrate bearing caliche deposits, showing lateral continuity with an average thickness of 4 m throughout the property.

The property is located on Jurassic volcaniclastic sequences overlain by alluvial and colluvial sediments of Pliocene to Holocene age. The Jurassic volcaniclastics are exposed at the surface in the vicinity of the property limit and beyond. Calcareous sedimentary units and evaporite deposits occur to the northeast of the property, along the western edge of the Ruta 5 trunk road. Alluvial fans cover the solid geology on the eastern side of Ruta 5 and extend to the settlement of Negreiros to the west of Ruta 5.

1.3 Status of Exploration

Geologic exploration of Pampa Orcoma includes pit soil and drilling surveys mostly developed in the last seven years. The most recent pit soil survey in 2021, totals of 86 trenches that have been dug to improving geologic and physical characterization of the caliche deposit. Drilling surveys carried out in 2014 and 2022, total 2,781 drill holes differentiated mainly by grid spacing, with those carried out in 2014 comprising 400 x 400 m and 200 x 200 m RC drilling grids that cover most of the project's area as the basis for resource estimation, and a 50 x 50 m grid covering three localized areas. Findings from these surveys include iodine and nitrate grades, drill hole characteristics, rock cutting data, geomechanical descriptions, among others.

The 2021 drilling surveys included a diamond drilling campaign, showing core sample descriptions aiming at improving geologic and physical characterization of caliche deposits, and a current RC drilling grid of 100 m spacing in an E-W direction and 50m in a NW-SE for recategorization of the 400 x 400 m and 200 x 200 m grids. These campaigns are in the process of evaluation.

1.4 Mineral Reserve 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.

Since Pampa Orcoma currently has only a 200 x 200 borehole grid, it is possible to estimate the indicated resources by a three-dimensional block model using the inverse distance weighted interpolation (IDW) method.

The 100T grid (100 x 50 m) drill hole grid currently in process, will likely allow for a future updated Mineral Resource estimates that may result in upgrading a portion of the current Indicated Mineral Resources to a Measured level of confidence (SQM, 2021). The diamond drilling (DDH) campaign currently in process, will provide, when finished, a comparison of caliche depths and iodine and nitrate grades with respect to the 200 x 200 m grid Mineral Resource estimation.

The Mineral Resource Estimate, exclusive of Mineral Reserves, is reported in Table 1-1. Note that based on the application of modifying factors and that because the caliche deposits are at the surface, all Indicated Mineral Resources with environment permits has been converted into Mineral Reserves, as result, only Indicated Mineral Resources are reported in this Technical Report Summary (TRS). As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage or grades.

Table 1-1. In-Situ Mineral Resource Estimate, Exclusive of Mineral Reserves, effective December 31, 2022.

Resource Classification	Resources (Mt)	Iodine (ppm)	Nitrate (%)
Indicated	18	457	7.4

a) 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.

b) Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported Long Term was subtracted from the Mineral Resource inclusive of Mineral Reserves. All indicated Resources with environment permits has been converted into Mineral Reserves; as a result, only Indicated Mineral Resources are reported in this TRS.

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

d) The units “Mt” and “ppm” refers to million tons and parts per million respectively.

e) The Mineral Resource estimate considers a nitrate cut-off grade of 3.0 %, based on accumulated grades and operational average grades, as well as the cost and medium and long-term prices forecast for prilled iodine production (Section 16).

f) Marta Aguilera is the QP responsible for the Mineral Resources.

g) As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage or grades.

1.5 Mineral Reserve Statement

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, forecast or projections in the forward-looking information include any significant differences form 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 mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

A Probable Mineral Reserve estimate for Pampa Orcoma (Table 1-2) was evaluated using 3D blocks model and Inverse Distance Weighted (IDW) interpolation method is considered as medium level of geological confidence are qualified as Probable Mineral Reserves. Conversion factors used are less than one for iodine (0.90) and nitrate (0.85) grades.

Table 1-2. Mineral Reserve at the Nueva Victoria Mine (Effective 31 December 2022)

Reserve Classification	Resources (Mt)	Iodine (ppm)	Nitrate (%)
Probable	309	413	6.9

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 Long Term was subtracted from the Mineral Resource inclusive of Mineral Reserves.

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

(4) The units “Mt” and “ppm” refers to million tons and parts per million respectively.

(5) The Mineral Resource estimate considers a nitrate cut-off grade of 3.0% , based on accumulated cut-off grades and operational average grades, as well as the cost and medium and long-term prices forecast for prilled iodine production (Section 16).

(6) Marta Aguilera is the QP responsible for the Mineral Resources.

1.6 Metallurgy and Mineral Processing

1.6.1 Metallurgical Test Work Summary

Metallurgical test work performed to date on the project shows that the Pampa Orcoma ore outperforms the company's other resources based on its salt composition and leaching tests. SQM's analytical and pilot test laboratories perform the following chemical, mineralogical and metallurgical tests which constitutes the bank of tests carried out on operating projects: 1) Microscopy and chemical composition, 2) Determination of Physical properties: Tail Test, Borra test, Laboratory granulometry, Embedding tests, Permeability, and 3) Leaching tests

For Pampa Orcoma, tests were conducted in 2014 and during 2020-2021. During 2014, through the "Sumo Project (pits or calicatas)", leaching tests were conducted in Isocontainer, resulting in an average iodine yield of 67.7% and in the case of nitrate, a yield of 77.6%. The average soluble salt content of Pampa Orcoma in this test is defined as 49.1% on average.

Meanwhile, in 2020 and through the Diamantina Project (DDH), agitated leaching tests were carried out in vessels and successive stages, concluding that the recovery is favorable from a Soluble Salts content about than 50%. In these tests the soluble salts matrix was 46.5% and an iodine content of 75.7% was obtained.

On the other hand, this project contemplates the use of seawater as a leaching solution to replace industrial water. In this way, SQM previously developed a caliche leaching test plan with seawater, to determine the technical feasibility, positive and negative impacts or equivalence on recovery and metallurgical yield. By means of column leaching tests, the feasibility of the process was demonstrated in a pilot plant located at the Iris plant of the Nueva Victoria mine.

The test work developed was adequate to establish appropriate processing routes for the caliche resource and supports the future yield estimates indicated in the planning. Therefore, the deposit is considered favorable for the extraction process.

1.6.2 Processing Summary.

The Project aims to produce iodide, iodine, and nitrate-rich salts from caliche processing, which will be extracted from deposits rich in this mineral, located in the area known as Pampa Orcoma, commune of Huara. Mining and ore processing at the future Pampa Orcoma mining operation corresponds, in both cases, to conventional methods and stages usually employed by SQM in its other caliche operations.

The production process starts with caliche exploitation (mine) at a maximum rate of 20,000,000 tons per year (tpy), heap leaching and processing plants to obtain iodine as the main product, and salts rich in sodium nitrate and potassium nitrate as a by-product.

An iodate-rich solution will be obtained through leaching with seawater, or recirculated solutions (a fraction of Brine Feeble [BF] recirculated from the iodide plant, which are then treated in chemical plants to elemental iodine produced for sale as prill. After neutralization, the remaining solution is taken to evaporation areas to obtain sodium nitrate and other salts that will be sent to the Coya Sur Plant, located in the Antofagasta Region.

Pampa Orcoma, through its two iodide plants and one iodine (fusion) plant, is projected to begin operation in 2024 with an annual production of around 4,500 tons (t) of iodine and 600 kilotonnes (Kt) per year of nitrate salts, each one, with an average total recovery of 65.6% and 54.3%, respectively.

1.7 Mine Design, Optimization, and Scheduling

Pampa Orcoma Mining Plan considers caliche extraction at a first-year rate of 8.4 Million tons (Mt) per year (Mtpy) ramping up to a nominal 20 Mtpy. For the period 2024-2040, a total extraction of 287.4 Mt of caliche with an average grade of 408 parts per million (ppm) iodine and 6.7% nitrates is projected. The area to be mined is 6,886 ha.

Exploitation at the future Pampa Orcoma mine corresponds to SQM's usual method employed in its caliche mining operations, which consists of land preparation (soil and overburden removal), surface extraction of the mineral (caliches), loading, and transport of the mineral (caliche) for leaching heaps to obtain the solutions (fresh brine) enriched in iodine and nitrates.

Mining at Pampa Orcoma is superficial, removing a superficial layer of sterile material (soil + overburden), which is up to 1.0 m thickness (sandstones, breccias, and anhydrite crusts). The mineral (caliche) is then extracted, having a thickness of 1.0 m to 6.0 m (average of 3.2 m).

At Pampa Orcoma, between 20% to 30% of the material to be mined is classified as hard to semi-hard, and 70-80% as soft to semi-soft. It also has low clay content and thus favors the use of a continuous miner (CM) and better recovery rates in the leaching heaps (drainage in the heaps is improved).

In the mining processes, SQM considers an efficiency close to 90%, including material losses due to modifying factors and those inherent to the mining process, as well as for the mineral dilution processes. For this mining process performance, the heap leach load expected is a total of 117.3 kt of iodine (18.9 tonn per day of iodine) and 19,120 kt of nitrate salts (3,062 Tdp of nitrates). For an average load of 0.86 Mt of caliche in heap leach, there is an average load of 313 t of iodine and 51,908 t of nitrate salts per heap leach for the 2024-2040 period.

In the heap leaching processes, the total seawater demand averages 207 liters per second (L/s) (743 cubic meters per hour [m^3/h]). Considering the projected heap leach yields (65.3% for iodine and 52.6% for nitrates), a flow of enriched solutions (Brine flow) of 907 m^3/h is expected, which means a hydraulic efficiency near of 78%. Average unit consumptions are set at 0.52 cubic meters per ton (m^3/t). For the Mining Plan elaborated by SQM (2024-2040 period), the production of Iodine in piles is planned to be 76.6 kt (12.3 Tdp) and 10,206 Kt of nitrates (1,645 Tdp).

SQM has planned acquisition of the necessary equipment to achieve caliche production, complete the mining and construction of the heap leach, and obtain the enriched liquors that will be sent to the treatment plants to obtain the final products of iodine and nitrate.

Pampa Orcoma mining operation will be staffed with 155 professionals for mining and heap leaching operations. It is planned that a total of 45 professionals will be employed for heap leach and associated pit maintenance. The unit cost of mining production at Pampa Orcoma is set at 2.13 United States Dollars per ton (USD/t) of caliche mined, including leach heap drainage construction; and the cost of solutions enriched in Iodine and nitrates are set at 1.63 USD/t of caliche mined.

1.8 Capital Cost, Operating Costs and Financial Analysis

1.8.1 Capital and Operating

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 Orcoma Project contemplates:

- Open pit exploitation of mining deposits.
- Enabling support facilities called the Mining Operations Center (COM).
- Construction of an iodide production plant, with a capacity of 2,500 tpy (of equivalent iodine).
- Construction of an iodine plant, to process up to 2,500 tpy.
- Construction of evaporation ponds to produce salts rich in nitrate at a rate of 320,325 tpy.
- Construction of a seawater adduction pipe from the northern sector of Caleta Buena to the mining area, to meet the water needs during the operation phase.
- Connection of the industrial areas of the Project to the Norte Grande Interconnected System (SING), in order to provide sufficient energy for their electrical requirements.

Orcoma's operating cost comprises the cost to produce the base solution, the cost of iodine production, and the cost of transport the brine nitrate concentrated to the Coya Sur site.

The Iodine variable cost is 16 USD per iodine kilogram (kg).

The salt variable cost (including transportation to Coya Sur) is 143 USD per nitrate ton (salts for fertilizer).

1.8.2 Financial Analysis

To obtain the flow of costs, which considers operating and non-operating costs, unit costs have been included for the different production stages, which considers common production cost for iodine and nitrates, such as Mining, Leaching and Seawater. In addition, the production costs directly associated with the production of iodine in the plant, and the production of nitrates before processing at the Coya Sur site were added.

To the costs indicated above, those related to Depreciation and Others have been added, which include, among other costs, marketing, and exportation.

The key valuation assumptions used in the financial model consider a discount rate of 10% and a tax rate of 28%.

The estimated production of iodine and nitrates for the period 2024 to 2040 corresponds to the Mining Plan of SQM, which implies a total production of 79.4 kt prilled iodine and 6,134 kt of nitrate salts for fertilizer. Nitrate concentrate brine produced in Pampa Orcoma complex will be transported to Coya Sur plant to mix with KCl from Salar de Atacama to produce Potassium Nitrate Fertilizers and Solar Salts.

The economic analysis considers the unit costs for prilled iodine and nitrate concentrate brine production and a unit value for the prilled Iodine selling price and a unit internal price for the nitrate concentrate brine produced in Pampa Orcoma complex.

The estimated Net Present Value (NPV) Base Case imply a Net Present Value (NPV) before Financial Cost (FC) & Taxes (kUSD) of $799; and a NPV after FC and Taxes (kUSD) of $509.

For the whole of the iodine and nitrate business, the financial analysis is presented in Table 1-3.

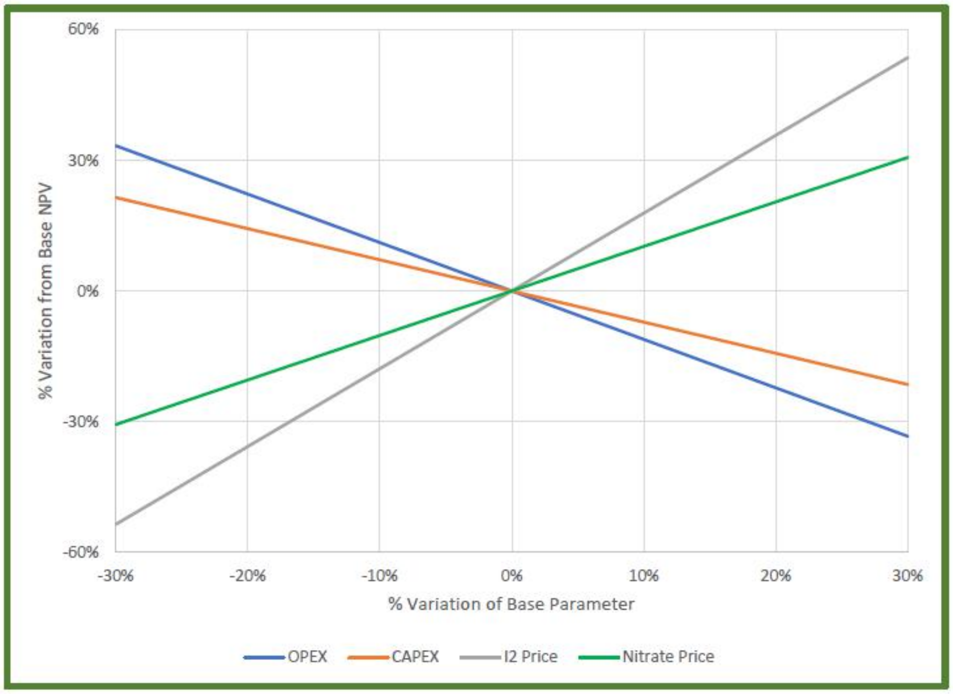
Table 1-3. Estimated Net Present Value (NPV) for the Period

REVENUE	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Total Revenues	**US$M**	**0**	**23**	**96**	**108**	**156**	**289**	**284**	**376**	**387**	**378**	**386**	**389**	**391**	**392**	**388**	**392**	**394**	**389**	**5,217**
COSTS																				
Total Mining Costs	US$M	0	8	34	34	34	81	81	81	81	81	81	81	81	81	81	81	81	81	1,157
Total Iodine Production Cost	US$M	0	10	38	37	37	90	88	90	89	90	89	89	90	89	89	90	90	90	1,287
Total Nitrate Production Cost	US$M	0	3	13	17	27	46	48	63	66	64	66	66	66	67	66	66	66	66	876
TOTAL OPERATING COST	US$M	0	13	52	55	64	136	136	153	155	153	155	156	156	156	155	156	156	155	2,163
EBITDA	US$M	0	11	44	53	92	153	148	223	232	225	231	233	235	236	232	236	238	234	3,055
Depreciation	US$M	0	6	11	15	16	16	16	17	17	17	18	18	18	18	18	19	19	19	278
Interest Payments	US$M	0	1	5	5	4	4	3	2	2	1	0	0	0	0	0	0	0	0	26
Pre-Tax Gross Income	US$M	0	4	28	33	72	134	129	204	213	207	213	215	217	218	214	217	219	214	2,751
Taxes	28%	0	1	8	9	20	37	36	57	60	58	60	60	61	61	60	61	61	60	770
Operating Income	US$M	0	3	20	24	52	96	93	147	153	149	153	155	157	157	154	156	157	154	1,980
Add back depreciation	US$M	0	6	11	15	16	16	16	17	17	17	18	18	18	18	18	19	19	19	278
NET INCOME AFTER TAXES	US$M	0	9	32	39	67	112	109	164	170	166	171	173	175	175	172	175	176	174	2,258
Total CAPEX	US$M	31	116	136	100	6	6	6	18	6	6	6	6	6	6	6	6	6	6	480
Bank Loan	US$M	20	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93
Loan Amortization	US$M	0	2	10	10	11	11	12	13	13	11	0	0	0	0	0	0	0	0	93
Working Capital	US$M	0	2	6	1	6	10	-1	13	1	-1	1	0	0	0	-1	1	0	-1	39
Pre-Tax Cashflow	US$M	-11	-37	-112	-63	64	122	128	178	209	208	224	227	229	230	227	229	231	228	2,509
After-Tax Cashflow	US$M	-11	-38	-120	-73	44	84	92	121	150	150	164	166	168	169	167	168	170	168	1,739
Pre-Tax NPV	US$M	799																		
After-Tax NPV	**US$M**	**509**																		
Discount Rate	**US$M**	**10%**																		

As seen in the above figure, the project NPV is more sensitive to product price while being least sensitive to capital and operational costs.

Sensitivity analysis gives visibility to the assumptions that present the key risks to the value of the Project. The analysis also identifies the relative impact of each assumption in terms the net present value (Figure 1-1).

Figure 1-1. Sensitivity Analysis of the Pampa Orcoma Project



1.9 Conclusions and Recommendations

Miss Marta Aguilera, Qualified Person (QP) for Mineral Reserves, concludes that the work performed in the preparation of this Technical Report Summary (TRS) includes adequate details and information to declare the Mineral Resources and Reserves.

In relation to the resource treatment processes, the conclusion of the responsible QP, Gino Slanzi, is that appropriate work practices and equipment, design methods and processing equipment selection criteria have been used.

In addition, the company has developed new processes that have continuously and systematically optimized operations. Some recommendations are given in the following areas:

Continue with the improvements begun to be implemented in 2023, leading to improving the quality control program; these improvements are directly related to the implementation of Acquire System, which with its final implementation will allow us to position ourselves at the industry level.

Continue SQM's internal laboratory accuracy and accuracy confirmation process with an external one; during the year 2022 the implementation of this improvement becomes difficult, due to the almost zero number of external laboratories that perform iodine nitrate analysis and the need for these to replicate the analysis procedures used by SQM laboratory.

With the ongoing implementation of the Acquire Platform, the recommended improvement for the management, traceability and safeguarding of the SQM drilling database is resolved. The implementation is scheduled for this operation in March 2023.

Infilling RC drill hole grids with 100T m spacing, which is currently in progress, has the potential to upgrade the Mineral Resource estimates from Indicated to Measured Mineral Resources, and in turn upgrade Mineral Reserves from Probable to Proven. It is recommended to re-estimate Pampa Orcoma’s Mineral Reserves when Mineral Resource have been updated based on the additional drilling

All the above recommendations are considered within the declared capital and operating expenditures and do not imply additional costs for their execution.

2 INTRODUCTION

This Technical Summary Report (TRS) was prepared by SQM's team of professionals and external advisors for Sociedad Química y Minera de Chile (SQM), in accordance with the requirements of Regulation SK, Subpart 1300 of the United States Securities Exchange Commission (SEC), hereinafter referred to as SK 1300.

2.1 Terms of Reference and Purpose of the Report

When the Pampa Orcoma site becomes operational in the year 2024, SQM will produce iodide, iodine and nitrate derived by-products (nitrate-rich salts, sodium nitrate and potassium nitrate), through heap leaching and its process plants. This TRS provides technical information to support the Mineral Resource and Mineral Reserve estimates for SQM's operations at the Pampa Orcoma project.

The date of this TRS Report was March 30, 2023, while the effective date of the Mineral Resource and Mineral Reserve estimates was December 31, 2022. 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 December 31, 2022.

This TRS uses English spelling and Metric units of measure. Nitrate grades are presented in weight percent (wt.%) and iodine grades in parts per million (ppm). Costs are presented in constant US Dollars (USD) as of December 31, 2022.

Except where noted, coordinates in this TRS are presented in metric units using the World Geodesic Reference System (PSAD) 1956 Universal Transverse Mercator (UTM) ZONE 19 South (19S).

The purpose of this TRS is to report Mineral Resources and Mineral Reserves for SQM's Pampa Orcoma Project.

2.2 Source of Data and Information

This TRS is based on information from SQM and public domain data. All information is cited throughout this document and is listed in the final "References" section at the end of this report. Table 2-1 provides the abbreviations (abbv.) and acronyms used in this TRS.

Table 2-1. Abbreviations and Acronyms

Acronym/Abbv.	Definition
'	minute
"	second
%	percent
°	degrees
°C	degrees Celsius
100T	100 truncated grid
AA	Atomic absorption
AAA	Andes Analytical Assay
AFA	weakly acidic water
AFN	Feble Neutral Water
Ajay	Ajay Chemicals Inc.

Acronym/Abbv.	Definition
AS	Auxiliary Station
ASG	Ajay-SQM Group
BF	Brine Feble
BFN	Neutral Brine Feble
BWn	abundant cloudiness
CIM	Centro de Investigación Minera y Metalúrgica
cm	centimeter
CM	continuous miner
CU	Water consumption
COM	Mining Operations Center
CSP	Concentrated solar power
CONAF	National Forestry Development Corporation
DDH	diamond drill hole
DGA	General Directorate of Water
DTH	down-the-hole
EB 1	Pumping Station No. 1
EB2	Pumping Station No. 2
EIA	environmental impact statement
EW	east-west
FC	financial cost
FNW	feble neutral water
g	gram
G	gravity
GU	geological unit
g/cc	grams per centimeter
g/mL	grams per milliliter
g/ton	grams per ton
g/L	grams per liter
GPS	global positioning system
h	hour
ha	hectare
ha/y	hectares per year
HDPE	High-density Polyethylene
ICH	industrial chemicals
ICP	inductively coupled plasma
ISO	International Organization for Standardization
kg	kilogram
k_h	horizontal seismic coefficient
kg/m^3	kilogram per cubic meter
km	kilometer
k_v	vertical seismic coefficient

Acronym/Abbv.	Definition
kN/m^3	kilonewton per cubic meter
km^2	square kilometer
kPa	Kilopascal
kt	kilotonne
ktpd	thousand tons per day
ktpy	kilotonne per year
kUSD	thousand USD
kV	kilovolt
kVa	kilovolt-amperes
$L/h\text{-}m^2$	liters per hour square meter
$L/m^2/d$	liters per square meter per day
L/s	liters per second
LR	Leaching rate
LCD/LED	liquid crystal displays/light-emitting diode
LCY	Caliche and Iodine Laboratories
LdTE	medium voltage electrical transmission line
LIMS	Laboratory Information Management System
LOM	life-of-mine
m	meter
M&A	mergers and acquisitions
m/km^2	meters per square kilometer
m/s	meters per second
m^2	square meter
m^3	cubic meter
m^3/d	cubic meter per day
m^3/h	cubic meter per hour
m^3/ton	cubic meter per ton
masl	meters above sea level
mbgl	meter below ground level
mbsl	meters below sea level
mm	millimeter
mm/y	millimeters per year
Mpa	megapascal
Mt	million ton
Mtpy	million tons per year
MW	megawatt
MWh/y	Megawatt hour per year
NNE	north-northeast
NNW	north-northwest
NPV	net present value
NS	north south

Acronym/Abbv.	Definition
O^3	ozone
ORP	oxidation reduction potential
PLS	pregnant leach solution
PMA	particle mineral analysis
ppbv	parts per billion volume
ppm	parts per million
PVC	Polyvinyl chloride
QA	Quality assurance
QA/QC	Quality Assurance/Quality Control
QC	Quality control
QP	Qualified Person
RC	reverse circulation
RCA	environmental qualification resolution
RMR	Rock Mass Rating
ROM	run-of-mine
RPM	revolutions per minute
RQD	rock quality index
SG	Specific gravity
SEC	Securities Exchange Commission of the United States
SSE	South-southeast
SEIA	Environmental Impact Assessment System
MMA	Ministry of Environment
SMA	Environmental Superintendency
SNIFA	National Environmental Qualification Information System (SMA online System)
PSA	Environmental Following Plan (Plan de Seguimiento Ambiental)
SEM	Terrain Leveler Surface Excavation Machine
SFF	specialty field fertilizer
SI	intermediate solution
SING	Norte Grande Interconnected System
S-K 1300	Subpart 1300 of the Securities Exchange Commission of the United States
SM	salt matrix
SPM	sedimentable particulate matter
Sr	relief value, or maximum elevation difference in an area of 1 km^2
SS	soluble salt
SX	solvent extraction
t	ton
TR	Irrigation rate
TAS	sewage treatment plant
TEA project	Tente en el Aire Project
tpy	tons per year
t/m^3	tons per cubic meter

Acronym/Abbv.	Definition
tpd	tons per day
TRS	Technical Report Summary
ug/m^3	microgram per cubic meter
USD	United States Dollars
USD/kg	United States Dollars per kilogram
USD/ton	United States Dollars per ton
UTM	Universal Transverse Mercator
UV	ultraviolet
VEC	Voluntary Environmental Commitments
WGS	World Geodetic System
WSF	Water soluble fertilizer
wt.%	weight percent
XRD	X-Ray diffraction
XRF	X-ray fluorescence

2.3 Details of Inspection

The most recent site visit dates for each Qualified Person (QP) are listed in Table 2-1:

Table 2-1. Summary of site visits made by QPs to Nueva Victoria in support of TRS Review

Qualified Person (QP)	Expertis	Date of Visit	Details of Visit
Marta Aguilera	Geology	dic-22	Drilling Campaigns, Deposit Extension, Shafts to see Lithological Units
Marco Lema	Mining	dic-22	Pampa Orcoma Mine and Facilities

During the site visits to the Pampa Orcoma Property, the QPs, accompanied by SQM technical staffs:

- Visited the mineral deposit (caliche) areas.
- Inspected drilling operations and reviewed sampling protocols.
- Reviewed core samples and drill holes logs.
- Assessed access to future drilling locations.
- Reviewed and collated data and information with SQM personnel for inclusion in the TRS.

2.4 Previous Reports on Project

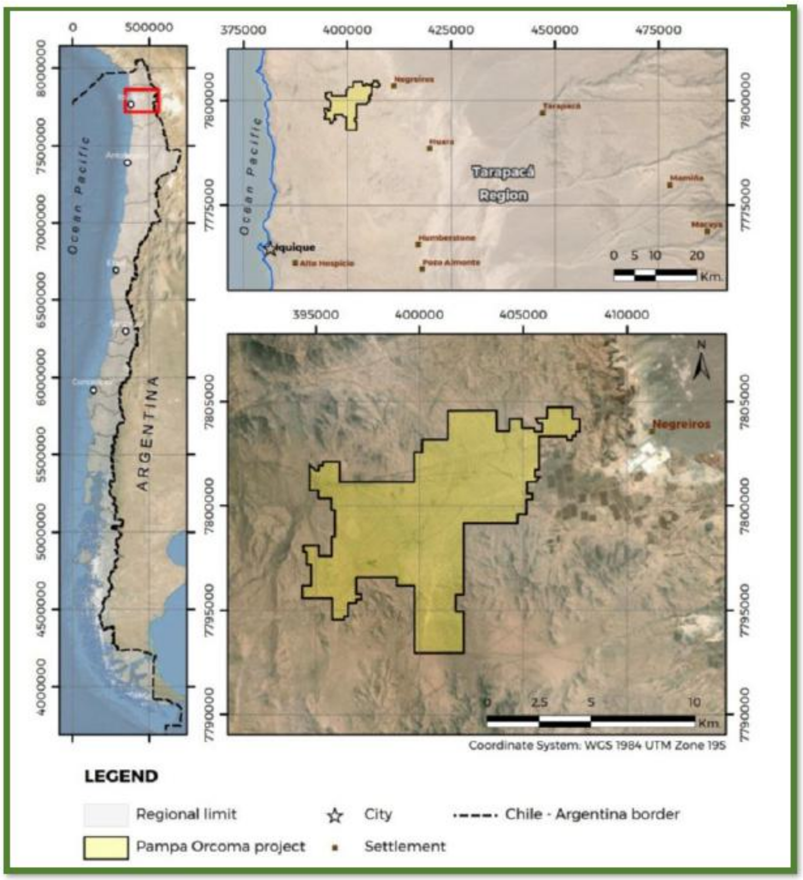
Technical Report Summary prepared by WSP Consulting Chile (WSP), March 2022.

3 DESCRIPTION AND LOCATION

3.1 Location

The Pampa Orcoma Project is in the Tarapacá Region of northern Chile. It is situated 99 kilometers (km) to the northeast of the city of Iquique, in the community of Huara. The property is centered on Latitude 19° 53’ 58’’ S, Longitude 69° 56’ 58’’ W (Figure 3-1).

Figure 3-1. General Location Map



3.2 Area of the Property

The mining property comprises 43 mining concessions covering a total area of 10,296 ha. The Pampa Orcoma project covers 7,387 ha including the mine area of 6,883 ha, as well as temporal and permanent facilities for the mining operation.

3.3 Mineral Titles, Claims, Rights, Leases and Options

SQM currently has four areas for the generation of Resources and Mineral Reserves located in the I and II Region of Chile, including Pampa Orcoma, covering an area of approximately 291,080 ha with a prospecting grid of less than or equal to 400 x 400 m. Pampa Orcoma covers a mine area of 6,883 ha. Figure 3-2 shows the outline Pampa Orcoma's mining property and concessions, within which the area considered for resource estimations is contained.

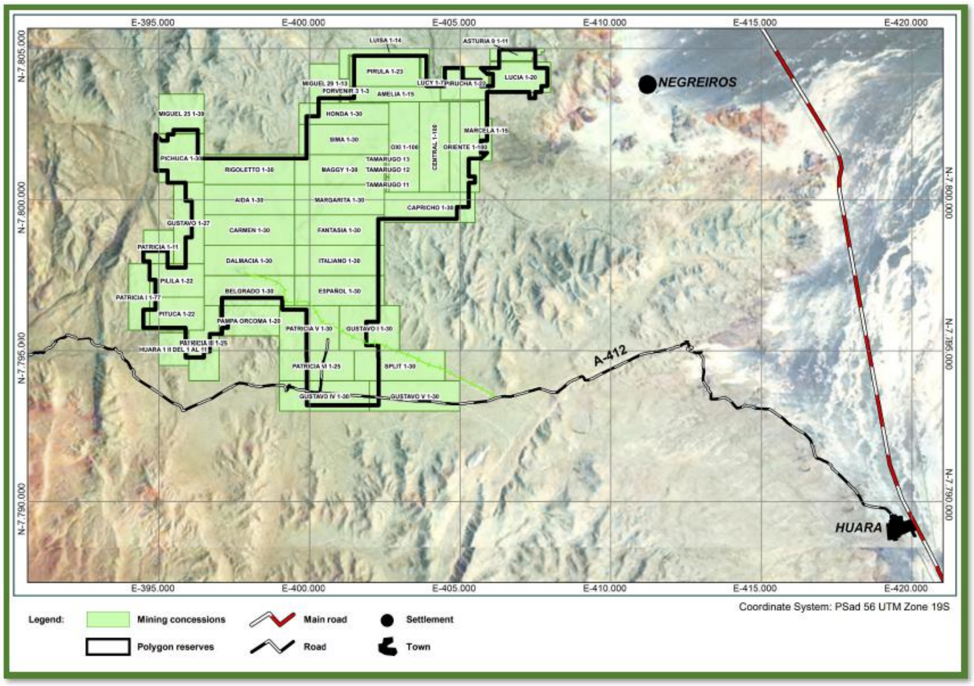
The Pampa Orcoma property comprises 43 mining concessions (Table 3-1) without expiration date, which are maintained through payment of an annual mining patent fee, all of them belong to SQM.

Tabla 3-1. Pampa Orcoma Project Concessions

Rol Nacional	Nombre Concesión	Nombre Titular	Situación	Año de Inscripción
01404-0333-4	SILVIA 124 1/5	ORCOMA SPA	CONSTITUIDA	2011
01206-1602-1	PORVENIR 3 1/3			2010
01206-1215-8	MIGUEL 29 1/13			2003
01206-1207-7	MIGUEL 25 100/103			2014
01206-1206-9	MIGUEL 25 40/99			2003
01206-1205-0	MIGUEL 25 1/39			2003
01206-1204-2	MIGUEL 24 91/150			2003
01206-0923-8	PAMPA ORCOMA 1/20			1999
01206-0816-9	LUISA 1/14			1996
01206-0815-0	JAVIER 1/30			1996
01206-0814-2	YANINA 1/24			1996
01206-0812-6	LUCY 1/7			1996
01206-0477-5	PILILA 1/22			1989
01206-0476-7	PITUCA 1/22			1989
01206-0475-9	PICHUCA 1/30			1989

Rol Nacional	Nombre Concesión	Nombre Titular	Situación	Año de Inscripción
01206-0474-0	PIRULA 1/23	ORCOMA SPA	CONSTITUIDA	1989
01206-0473-2	PIRUCHA 1/22			1989
01206-0459-7	HONDA 1/30			1988
01206-0458-9	SIMA 1/30			1988
01206-0410-4	LUCIA 1/20			1988
01206-0409-0	MARGARITA 1/30			1988
01206-0408-2	AMELIA 1/15			1988
01206-0407-4	MAGGI 1/30			1988
01206-0405-8	RIGOLETTO 1/30			1988
01206-0404-K	ITALIANO 1/30			1988
01206-0403-1	FANTASIA 1/30			1988
01206-0402-3	ESPANOL 1/30			1988
01206-0401-5	DALMACIA 1/30			1988
01206-0400-7	CARMEN 1/30			1988
01206-0399-K	CAPRICHO 1/30			1988
01206-0398-1	BELGRADO 1/30			1988
01206-0397-3	AIDA 1/30			1988
01206-0348-5	MARCELA 1/15			1987
01206-0265-9	OXI 1/100			1985
01206-0264-0	ORIENTE 1/100			1985
01206-0258-6	CENTRAL 1/100			1985
01201-1875-7	PATRICIA V 1/30			1997
01201-1873-0	PATRICIA III 1/25			1997
01201-1872-2	PATRICIA II 1/30			1997
01201-1871-4	PATRICIA I 1/77			1997
01201-1870-6	PATRICIA 1/11			1997
01201-1865-K	GUSTAVO I 1/30			1997
01201-1864-1	GUSTAVO 1/27			1998

Figure 3-2. Location of Pampa Orcoma Property.



3.4 Mineral Rights

As of the end of 2022, SQM has the right to explore and/or exploit the caliche mineral resources by the Environmental Qualification Resolution (Comisión de Evaluación Ambiental Región de Tarapacá, 2017) RCA N° 75/2021. The approved area covers more than 1,539,177 ha in the north of Chile, Region I and II. The Company mines annually under 1% of the total area in which it has property rights.

3.5 Environmental Impacts and Permitting

Environmental permits for mining operations were approved in 2017, as Sectorial Environmental Plans or PAS under the common RCA N° 75/2021. The permit covers water and electricity supply, as well as the infrastructure required for the mining operation. The current PAS are listed in Table 3-2

Table 3-1. Summary of Current Permits

Name of the Sectorial Permit (PAS)	NO Number	Resolution of Sectoral Approval
Permission for indicated rescue and relocation activities in the Marine Envirnment Monitoring Plan	119	RCA 75/2017
Permission to carry out archaeological, anthropological and paleontological excavations	132	RCA 75/2017; Res.2673/2021 (archaeology); Res. 233/2022 (paleontology) RCA 20220100167/2022; Res. 5003/2022
Permission to establish a dump of sterile or accumulation of mining	136	Resolution 1985/2021
Permit for approval of a mine closure plan	137	Resolution 1067/2022
Permit for the construction, repair, modification and extension of any public or private work intended for the evacuation, treatment or final disposal of drains, sewage of any nature	138	RCA 75/2017 Resolutions: 6536/2022; 6269/2022; 6528/2022; 6206/2022; 8537/2022; 6216/2022
Permit for the construction, repair, modification and expansion of any waste and waste treatment plant of kind or for the installation of all place intended for the accumulation, selection, industrialization, trade or final disposal of garbage and waste of any kind	140	RCA 75/2017 Res. 2101641476/2022 (debris) Res. 2201163229/2022 (Rises)
Permission for any site intended for Waste storage dangerous	142	RCA 75/2017 Res. 2201163301/2022
Permit for the hunting or capture of specimens of animals protected species for research purposes, for the establishment of breeding centers or hatcheries and for the sustainable use of the resource	146	Resolutions: 672/2021 ; 673/2021 ; 676/2021
Permit for the construction of certain hydraulic works	155	Resolution 3537/2022
Permission to made modifications of channel	156	Resolution 140/2022
Permission to subdivide and develop rural land or to constructions outside urban limits	160	In process

It should be noted that the project began its construction stage in 2022. Currently sectoral permits are being processed. It is important to mention that to avoid the expiration of the environmental resolution the construction of the project must start before September 2022.

SQM has informed of a new environmental impact assessment (EIA) study, currently under execution, that will submit to the Environmental Impact Assessment System (SEIA) in 2023. The new project has as objective to expand Orcoma's operation with respect to its current environmental authorization. The new project is expected to be authorized by mid-2025.

3.6 Other Significant Factor and Risks

Certain normal risk factors are associated with the properties, which may affect SQM's business, financial condition, cash flows, or results of operations. There are no other known factors or risks that affect access, title, entitlement, or ability to perform work on the property such that they would have a material impact on the statement of resources.

The factors or risks include, among others, the following:

- The risk of obtaining final environmental approvals from the necessary authorities promptly. There are cases where obtaining permits may cause significant delays in the execution and implementation of new projects.
- The risk of obtaining all necessary licenses and permits on acceptable terms, promptly, or in their entirety. Obtaining regulatory approvals, including environmental permits, as well as opposition from political, environmental, and local and/or international ethnic groups, particularly in environmentally sensitive areas or in areas inhabited by indigenous populations, may consequently affect operating projects.
- Risks associated with governmental regulation concerning exploitation. Changes in policies involving natural resource exploitation, taxation, and other industry-related matters may adversely affect the business, financial condition, and results of operations.
- The risk from changes in laws Under current Chilean law, indigenous groups must be notified and consulted before any project is developed on land defined as indigenous. Failure to consult when required by law can result in the revocation or cancellation of regulatory approvals, including environmental permits already granted.
- The risk that activities on adjacent properties will have an impact on the project.
- The risk for the process, as currently defined, will not produce the expected quantity and/or quality required. However, extensive testing has been performed and all process steps are conventional and commonly used in the industry.
- The risk of estimation methods involves numerous uncertainties in reserve quantity and quality, whether expressed in upward or downward changes. A downward shift in reserve estimates and/or quality could affect future production volumes and costs.
- The risk of impurity levels in natural resources increasing over time more than predicted by the model may result in non-compliance with certain governmental or customer product standards. Consequently, the cost of production may increase to comply with the standards.

Risks associated with rising raw material and energy prices as well as difficulties and disruptions in supply chains, directly impact costs and production capacity.

Market and competitive risk factors could negatively affect market prices and the company's market share, which in turn could have a material adverse effect on business, financial position, and results of operations. World prices for lithium, fertilizers, and other chemicals vary depending on the relationship between supply and demand at any given time and in recent years, new and existing competitors have increased the supply of iodine, potassium nitrate, and lithium, and this has had an impact on the prices of both products. Additional production increases could harm prices.

3.7 Royalties and Agreements

SQM has no obligations to any third party in respect of payments related to licenses, franchises or royalties for its Orcoma Property, as they do not apply to caliche production.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography Elevation and Vegetation

The mining property is located at an elevation of 1,147 masl, within the range of 976 and 1,244 masl. Specifically, the mining area and industrial area are located mainly in the Cordillera de la Costa.

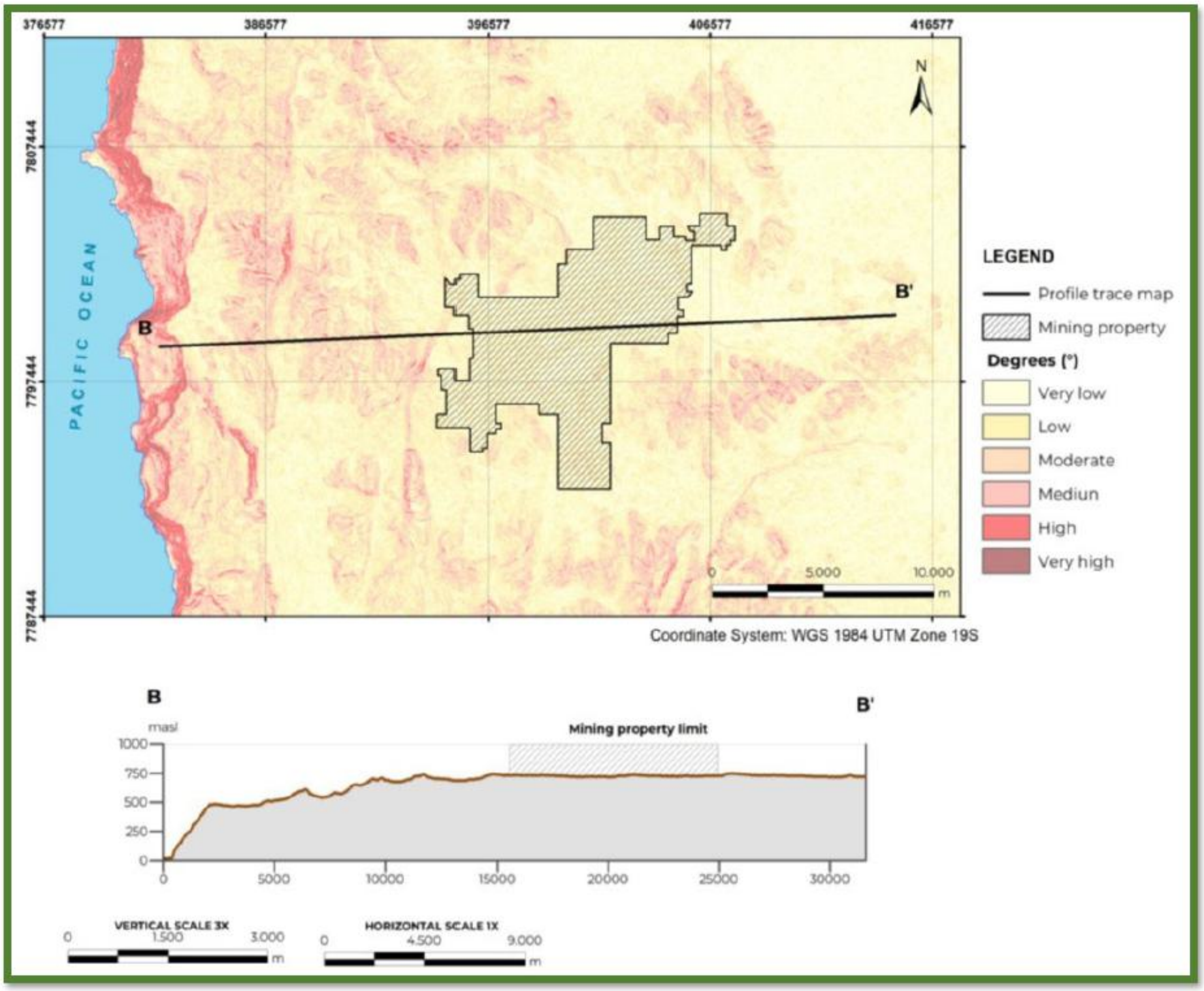
Topographic relief on a regional scale contains slopes ranging between 0 to 39°, with the steepest slopes observed close to the coast, due to the coastal scarp. In Pampa Orcoma relief is almost flat (Figure 4-1), the lower slopes imply a low relief factor Sr, close to zero, especially in the Exploration Area.

Regarding vegetation, during the field campaign carried out in July 2015, the absence of vegetation in the project area was indicated. According to studies carried out in 2010, called "Study of Coastal Flora, Tarapacá Region", it is stated that for the project area, the necessary conditions to name the area as an oasis, as well as the presence of vascular plants, have not been documented since 2002 (Pinto, 2010).

4.2 Accessibility and Transportation to the Property

The Pampa Orcoma Property is situated 40 km north-northeast (NNE) of the coastal city of Iquique, the capital of the Tarapacá Region. There are multiple daily flights between Iquique Airport and Santiago Airport. From Iquique, the Pampa Orcoma Property is reached by road, traveling 46 km east on the paved Ruta 16 (Route 16), then 26.5 km north on the paved Ruta 5 (Route 5) to the town of Huara, from where the access control checkpoint of the property lies 24 km to the northwest and west along local gravel roads.

Figure 4-1. Slope Parameter Map Sr and Elevation Profile Trace BB"



From inspection of Figure 4-1, it can be appreciated that the Nueva Victoria Property presents slopes that vary from very low (near flat) to moderate or medium. The steepest slopes are observed in the western sector, close to the coast, due to the coastal scarp.

4.3 Climate and Length of Operating Season

The Tarapacá region is characterized as a mostly arid climate. The temperature tends to decrease as the terrain presents higher elevations, since geomorphologically this region can be divided into three main morphologies to include the Altiplanic zone, the intermediate zone, and the coastal zone. The records of the highest temperatures fall in the field of this last, and they tend to decrease toward the east. In the Cordillera de los Andes sector, the records indicate average temperatures between 11 degrees Celsius (°C) and 13°C, in the intermediate zone the average temperatures oscillate between 15°C and 17°C for the coastal zone. In this last zone, the oceanic influence can be noticed, which generates a non-negligible number of days with high cloudiness and the presence of coastal fog, on the other hand, in the sectors of the Altiplano, the atmosphere is arid with large variation thermal

In relation to rainfall, there are records that indicate that in the coastal area there is a very low fall of water (only a few millimeters per year). On the other hand, in the Altiplano area, the "Bolivian winter" controls the rainfall generated in the summer seasons, which often exceeds 100 millimeters per year (mm/year).

According to the Köppen classification, the climate in the sector where the Project is located is classified as arid with abundant cloudiness (BWn).

4.4 Infrastructure Availability and Sources

Infrastructure is currently being built on the property, to start up mining activity during 2024. The facilities contemplated for future operations are temporal or permanent based upon their function in the mining operation.

Temporal facilities refer to infrastructure with the purpose of backing up construction of other facilities, such as those destined for stockpiling supplies and personnel involved in construction work. Permanent facilities refer to infrastructure required for extraction and processing of minerals during the mining operation, such as the supply of water and electricity, and facilities associated to the mining zone and industrial area.

The source of water for industrial use is planned to be seawater, which will be extracted, supplied, and delivered through a system of suction, adduction tubes, auxiliary and pumping stations, decantation chambers, and emergency and collection pools. Seawater will be extracted at a depth of 20.2 m below sea level (mbsl), through a filter anchored to the ocean floor. 30 km of pipeline will carry water from the point of extraction to two pools with a volume of 26,000 m^3 each, designed for 3 days of operation.

Electricity supply is planned to take place through medium voltage (33-kilovolt [Kv]) power lines with a length of 37 km and supported by eight electrical substations, originating from the Cóndores-Parinacota power line belonging to the company Transelec.

The mining zone is projected to include the following infrastructure:

Centers for mining operations located in the northern, southern and plant sectors, comprised of ore stockpiles for leaching processes and pools for brine accumulation and other solutions.

Workshop for mechanical maintenance of mine trucks and storage.

Facilities for waste disposal, including areas destined for debris, non-hazardous and hazardous industrial waste, and clay and mud.

Powder keg storage area and silo for ammonium nitrate storage.

The industrial area, destined for production of iodide, iodine, and nitrate salts, is projected to include the following infrastructure:

Solar evaporation pools.

Iodide, iodine, and neutralization plants.

5 HISTORY

There has been no previous mining operation of the property.

In 1995, background information was received from a previous drill hole prospecting campaign by the Minera Mapocho Company. There are no details available to SQM pertaining previous exploration campaigns for preparation of the Mineral Resource estimate, or for inclusion in this TRS.

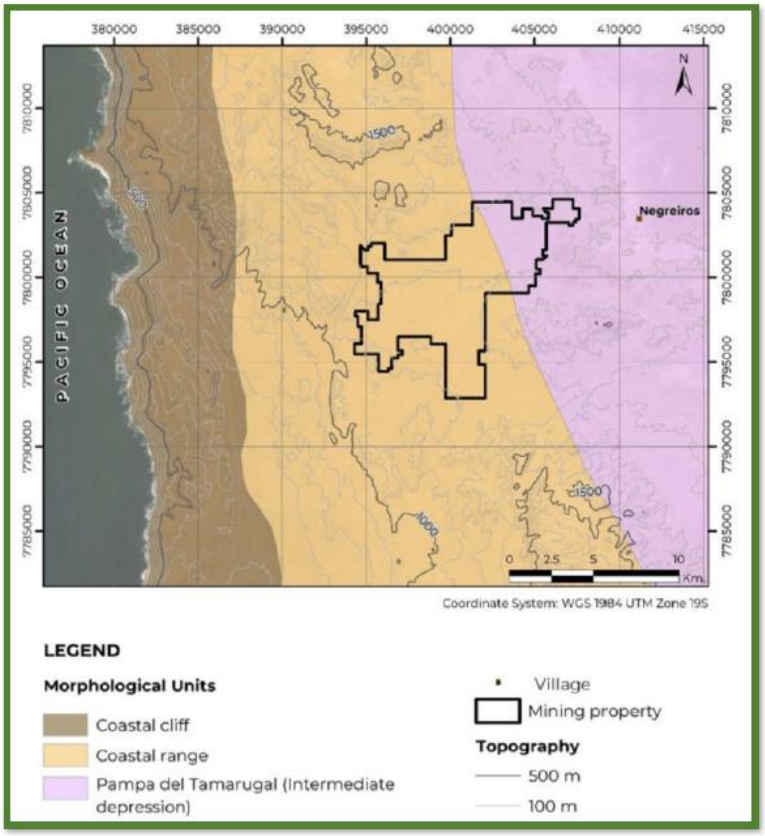
6 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

6.1 Geomorphological Setting of the Pampa Orcoma Property

Figure 6-1 presents a map of the regional geomorphology of the study area. The study area straddles the boundary between the Coastal Range and the Intermediate Depression. The Pampa Orcoma Property is of gentle topographic relief with slopes typically not exceeding 3°.

The Intermediate Depression is occupied by the Pampa del Tamarugal, named for the drought and salinity resistant Tamarugo trees which are endemic to this plain. A forest of Tamarugo trees located along the Ruta 5 trunk road, approximately 6 km to the northeast of the Pampa Orcoma Property limit constitutes part of the Reserva Nacional Pampa del Tamarugal, a national ecological reserve. To the east of the plain of the Intermediate Depression, the land slopes up toward the Cordillera de los Andes.

Figure 6-1. Geomorphological Map of The Exploration Area Project Pampa Orcoma.



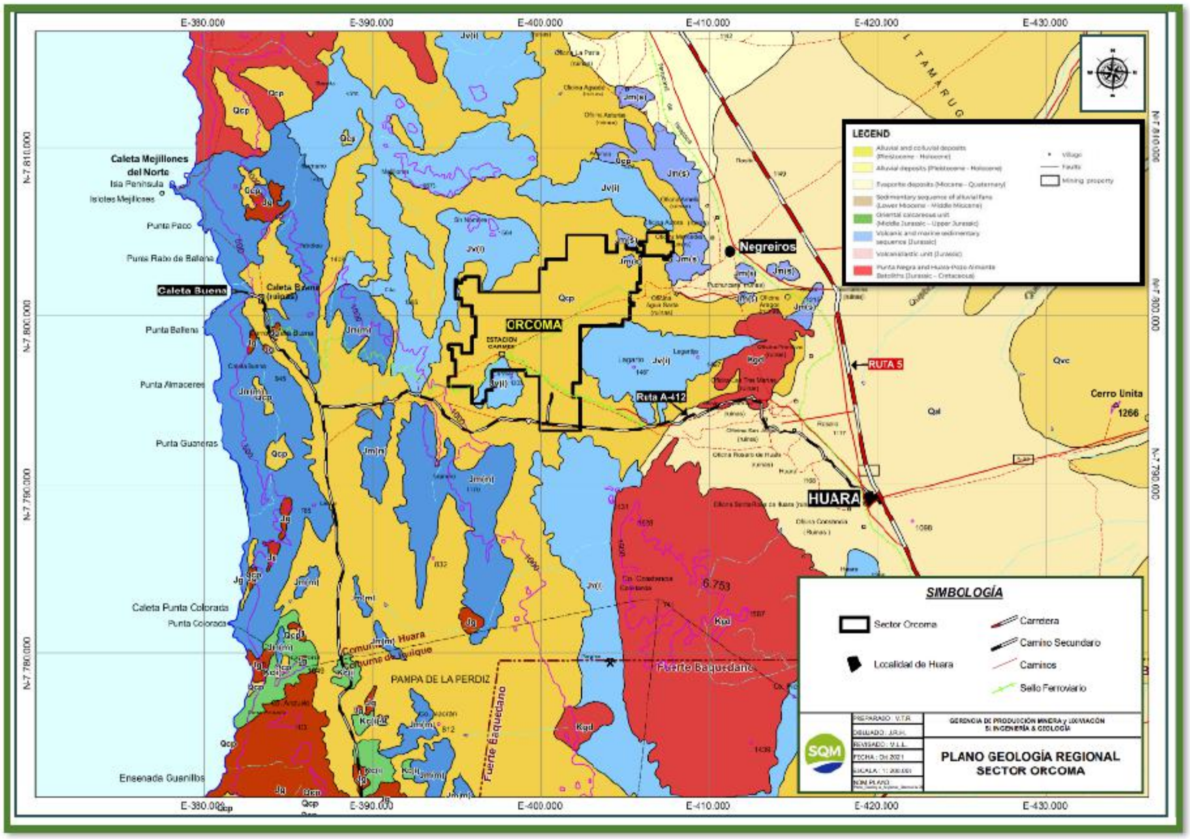
6.2 Regional Geology

Figure 6-2 presents a regional-scale geological map of Pampa Orcoma Property. The property is located on Jurassic volcaniclastic sequences. These are overlain by alluvial and colluvial sediments of Pliocene to Holocene age. These unconsolidated sediments cover most of the property and extend along the local gravel-surfaced access road between the town of Huara and the property. The alluvium has a fine grainsize and the colluvium is identified by its wider range of grainsizes and predominance of angular clasts. The Jurassic volcaniclastics are exposed in the vicinity of the property limit and beyond.

Calcareous sedimentary units and evaporite deposits occur to the northeast of the property, along the western edge of the Ruta 5 trunk road. Alluvial fans cover the solid geology on the eastern side of Ruta 5 and extend to the settlement of Negreiros to the west of Ruta 5.

Jurassic age volcanic sequences and marine sedimentary units crop-out to the west of the property; the volcanic comprise andesites, volcanic breccias and andesitic tuffs. Granodioritic batholiths of Jurassic to Cretaceous age, the Punta Negra and Huara-Pozo Almonte batholiths, crop-out to the northwest and southeast of the property.

Figure 6-2. Regional Geological Map



6.3 Local Geology

Figure 6-3 presents a geologic cross section of the Pampa Orcoma project area. Figure 6-4 presents a representative stratigraphic column for the project area.

There are four geologic units present at Pampa Orcoma; these include modern sands, silts, and clays that make up the sedimentary filling of ravines; old alluvial piedmont deposits, which are cross-cut by modern alluvial deposits; volcanoclastic rocks; and calcareous rocks.

The alluvial sediments, which host caliche deposits, comprise modern silts, sands and clays and older piedmont deposits of gravel, sand and silt. They are followed by Calcareous rocks, which correspond to marine calcareous rocks of Jurassic age located west of the study area, and the volcaniclastic rocks correspond to rocks volcanic and sedimentary Jurassic age. (Figure 6-3). The lithological description of each unit is detailed below.

Alluvial and colluvial deposits: Continental alluvial and colluvial sedimentary sequences, from the Pleistocene - Holocene age. Composed of abundant fine, angular clasts and a saline crust. This sequence is widely distributed throughout the exploration area and overlaps the other units.

Oriental calcareous unit: Coastal marine sedimentary sequences, Middle Jurassic - Upper Jurassic. Composed of oolitic gray-reddish limestones, gray sandstones, limestones with high content of fines and evaporites. Located to the east of the exploration area.

Volcanic and marine sedimentary units: Volcanic and marine sequence belonging to the Jurassic, composed almost entirely of andesitic volcanic breccia and andesitic tuff. It stretches along the coast.

Volcanoclastic unit: continental and marine volcanic sequences of Jurassic age. Composed of sandstones and breccias, shales and limestones, and toward the lower portion are lavas and breccias. This unit has a wide distribution and borders the mining area and industrial area.

Figure 6-3. Local Geology Map

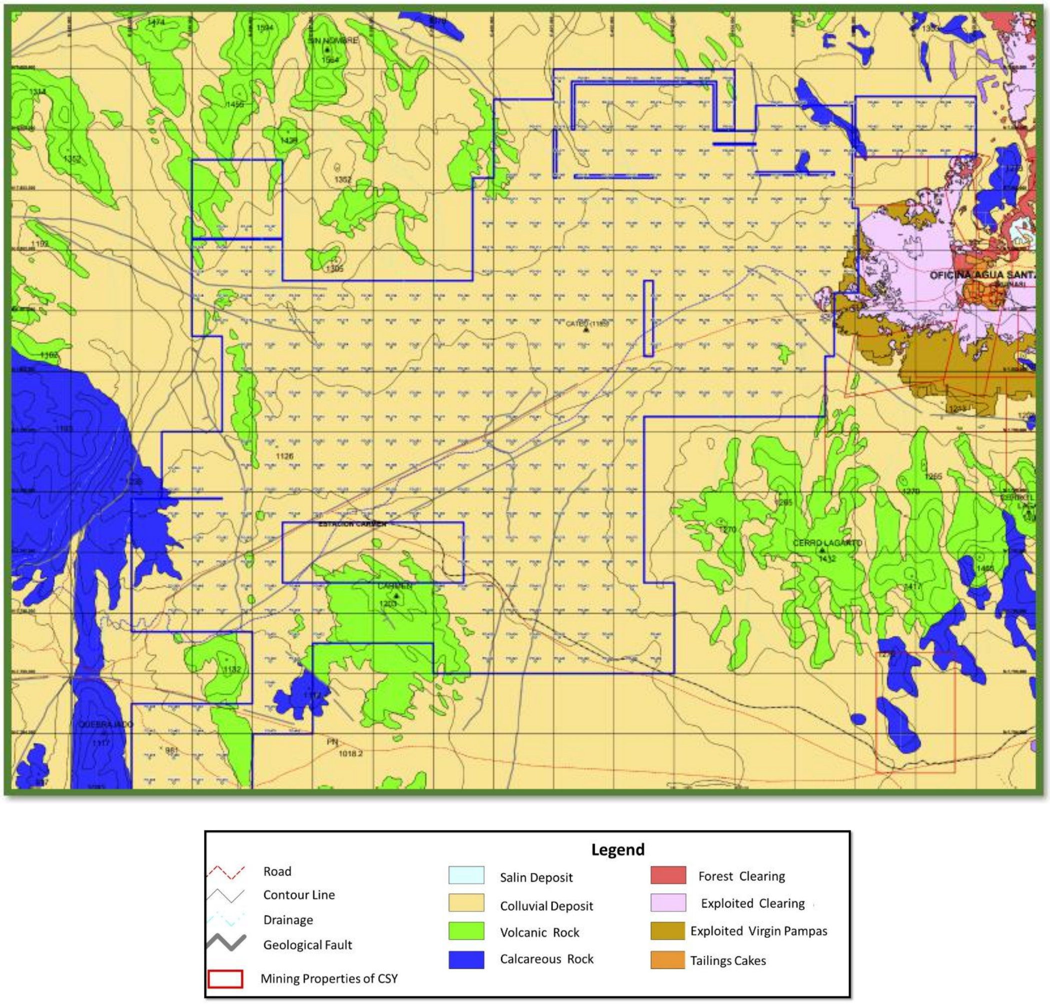
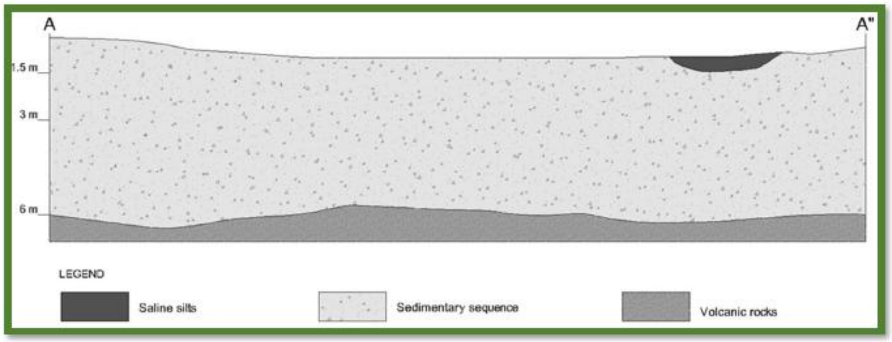
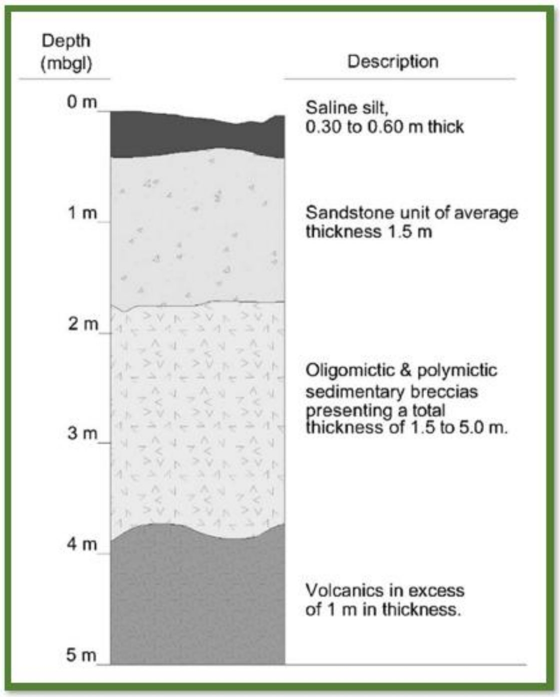


Figure 6-4. Stratigraphic Column of Pampa Orcoma





6.3.1 Subsurface Units (within the Surface Unit Alluvial and Colluvial Deposits)

Numerous investigation pits (trial pits or test pits), trenches and boreholes distributed over the surface of the Pampa Orcoma project have been geologically logged by SQM. Figure 6-4 presents a representative schematic of the uppermost part of the stratigraphic column based on the geological logs obtained. The 4 units depicted are described below.

6.3.2 Sedimentary Units

Silt Unit

Silt to fine sand sized sediments, with minor gravel-sized clasts, friable at the surface, becoming more consolidated with depth. The composition of this unit is of quartz, feldspar, gypsum and anhydrite composition. Its thickness over the Pampa Orcoma Property varies between 30 and 60 centimeters (cm). These silts are known locally as “Chuca” or “Chusca” (Chong, 1994; Geobiota, 2015).

Sandstone Unit

Light brown, poorly sorted (well graded) gravelly sandstone, composed of sub-rounded to rounded grains of fine to very coarse sand size, with clasts of up to 10 millimeters (mm) in diameter (medium gravel size). The average thickness of this unit at Pampa Orcoma is around 1.5 m. It overlies the Oligomictic Sedimentary Breccia.

Oligomictic Sedimentary Breccia

Brown to light gray matrix-supported sedimentary breccia with a composition dominated by subangular andesitic clasts ranging in diameter from 2 to 100 mm (very coarse sand to cobble size). This breccia can be described as oligomictic, that is, composed of clasts of one main composition (porphyritic andesite). It is a matrix-supported breccia, the andesite clasts being supported by a matrix of fine sand with some clay content. The average thickness of this unit at Pampa Orcoma is around 1.5 m. It overlies the Polymictic Sedimentary Breccia.

Polymictic Sedimentary Breccia

Dark brown matrix-supported sedimentary breccia with a polymictic composition (composed of clasts of several rock types) of angular to subangular porphyritic andesite, tonalite & diorite clasts with plagioclase and to a lesser degree quartz crystal. The average thickness of this unit at Pampa Orcoma is around 5 m. It overlies the volcanic basement.

6.3.3 Volcanic Rocks

Andesite

Volcanic rock of a red and lilac tones, of porphyritic texture, with 1% of subhedral phenocrysts of plagioclase with sizes from 1 to 5 mm approximately, in an aphanitic mass. This rock is found underlying the sedimentary deposits, with a thickness of 1.5 m measured in a single borehole. The rock also has veinlets filled with chlorides and sulfates.

Tuff

Volcanic rock of a dark gray color, with a fragmental texture, formed by 90% of an ash-size matrix and 10% of lapilli-size pyroclasts, composed of lithics of andesites and diorites, and crystals of plagioclase, micas and amphibole, it also presents veinlets filled with chlorides and sulfates. The rock is classified as andesitic lithic ash tuff and is found underlying sedimentary deposits. Its thickness measured in a single borehole indicates a power of 1 m.

6.4 Deposit Types

The caliche has good lateral continuity as a deposit and approximately 4 m thickness on average. The lithology presented by the deposit is mostly sandstones, fine conglomerate sandstones, and breccia with angular clasts of volcanic origin and a sand-size matrix cemented by salts.

7 EXPLORATION

7.1 Surveys and Investigations

Geologic exploration of Pampa Orcoma has been developed through pit soil surveys and drilling, mostly throughout the last eight years. The procedures and results of these investigations are presented in the following subsections.

7.1.1 Trial Pit Exploration

Non-drilling exploration work within the Project area is via piques and Calicatas (Trenches). The Trenches excavation work was performed during two campaigns. The first occurred in 2015 with a more recent one in 2021. In the 2015 campaign, 13 trenches were dug with ample distance between the pits, distributed from coast to the Tamarugal Pampa. Only 6 of those pits are found in the project area, with general geologic and soil descriptions available for each of them (Figure 7-1).

In 2021, 5 trenches were dug in the southeastern sector of Pampa Orcoma (Figure 7-1), as part of an ongoing exploration campaign planned to generate 86 pits, with the objective of improving the geologic and physical characterization of the caliche deposit. Pit walls were geologically and geomechanically mapped through identification of lithologies, color, clasts, alteration type and intensity, and mineralization, as well as resistance of pit walls to geologic pick. The results of mapping of pit walls show an overburden unit of 30 cm to 60 cm thickness, composed of silt with powdery anhydrite, overlaying sandstones with an average thickness of 1.5 m. The sandstone's resistance was measured as moderately resistant, with an approximate value of 25 – 50 megapascals (MPa) (ARVI Mining, 2021).

The 1996 soil pit exploration campaign conclusions indicate that presence of iodine does not follow a specific lithologic pattern, with it being identified indistinctively from lithology within the sedimentary sequence (SQM(b), 2014).

7.1.2 Borehole Exploration

There's a total of 2,781 drill holes located within of the project area. (Figure 7-1). A drilling campaign for 11,000 holes in 100T grid is currently under development, to recategorize the south and central portion of Orcoma to proven reserves. Drill holes in Pampa Orcoma belong to different groups, defined by drilling campaign characteristics and grid spacing. Initial drilling was performed on a widely spaced grid which over time evolved to a narrower spacing between drill holes. This closer spaced drilling better captured geological continuity and thus was a key element in establishing higher reliability of geological models and resultant Mineral Resource estimates. Drill hole campaigns are described as follows:

PO: Year 2014 reverse circulation (RC) drilling campaign, making up a grid of 445 drill holes with a spacing of 400 x 400 m, the grid of widest spacing in Pampa Orcoma.

O: Year 2014 RC drilling campaign, making up a grid of 1,365 drill holes with 200 x 200 m spacing. The 200 m grid represents an infill of the 400 x 400 m grid to a narrower spacing between drill holes.

PS: Year 2014 RC drilling campaign, making up three grids of 21 drill holes each, with 50x50 m spacing. These grids are distributed as “stamps” between the wider grids defined by “O” and “PO” drill holes.

O-DDH: Year 2021 diamond drilling campaign, of which 60 drill holes have been perforated, with the objective of obtaining a general prospect of geological and physical characteristics of caliche in Orcoma. Drill holes are distributed without a specific grid spacing.

OR: Year 2021 RC drilling campaign, making up the 100T grid of 950 drill holes. These drill holes comprise a truncated grid of 100m spacing in an E-W direction and 50m in a NW-SE direction, providing infill to the 400 x 400 m and 200 x 200 m grids covered by “PO” and “O” drill holes respectively, in the southeastern sector of Orcoma. This campaign is currently in the evaluation stage.

A Recategorization campaign to 100T grid, the south and central portion of the project, is currently under development. The campaign considers the execution of 11,000 drillings, equivalent to 45,000 meters.

Before drilling, the shallow material covering Pampa Orcoma’s surface is removed with a backhoe until a depth of higher resistance to excavation is reached. This shallow unit is composed of non-consolidated sand and sulfates, overlaying a sedimentary sequence comprised of alluvial deposits. Drilling is done on the ground after excavation of the shallow material, with the first drilled unit being categorized as a geologic overburden unit of no economic interest, defined based on geomechanical mapping of the drill hole. If the material is mapped as a unit of low geomechanical quality, either as leached or rough (Section 7.3) then it is defined as overburden.

Other criteria applied to define overburden are related to the weight of the sample, which must be less than 8 kg and greater than 5 kg for it to be considered as overburden (in this case it is still considered as overburden despite of iodine grades). On the other hand, if the sample weights less than 5 kg, the section is defined as "not recovered" (completely leached material). Geologic overburden can also be defined for units with a low degree of compaction.

Total overburden is then defined as the unit comprised of the shallow material removed by backhoe and geologic overburden.

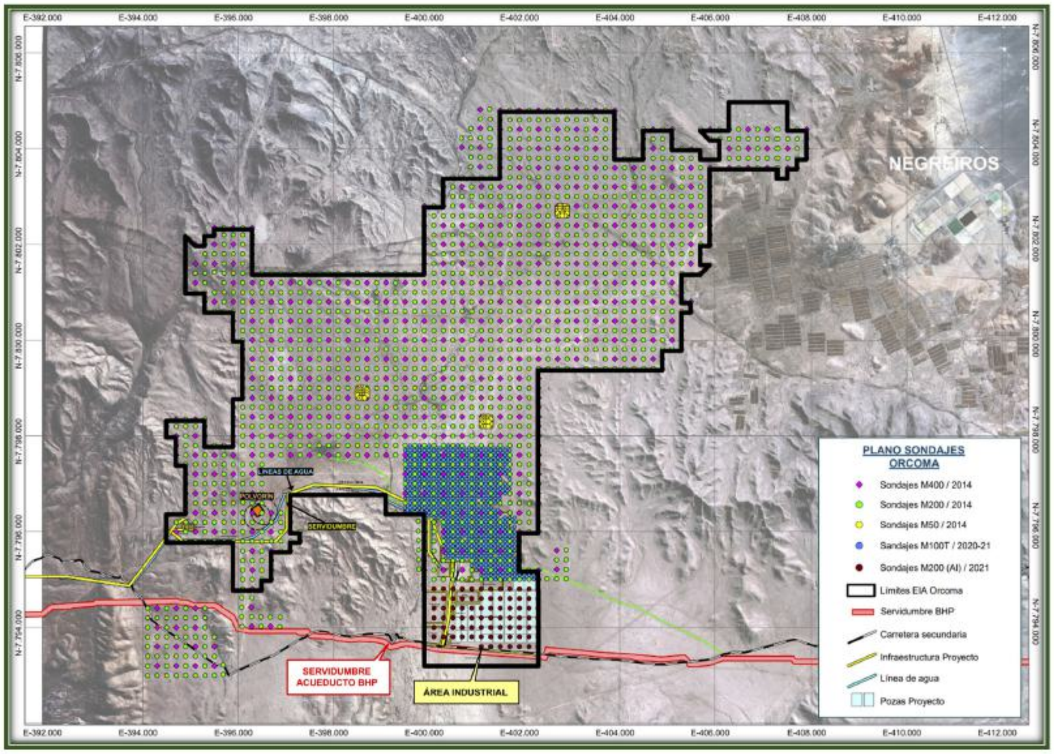
7.1.3 400 x 400 m and 200 x 200 m, Grids Drilling Campaign Results

The objective of drill hole campaigns in Pampa Orcoma, is the estimation of geologic resources and reserves. The drill holes covering the largest area are the 400 x 400 m and 200 x 200 m grids, were drilled with a 5 ¼’ diameter drill hole and sampled every 0.5 m. The maximum drilling depth accounted for in the wider grids is 8 m, with an average overburden thickness of 0.4 m. “PO” drill holes have an average recovery of 89% of material from the caliche deposit, and their geologic description shows a thickness of the overburden unit, that tends to increase 1.0 to 1.5 m to the northeast, with intermediate sectors of values lower than 0.5 m.

Caliche mineralization, as described in "PO" and "O" drill holes, has a range of average thicknesses when considering different iodine cut-off grades. For cut-off grades of 200, 300 and 400 ppm, average thicknesses are 4.0 m; 2.9 m, and 2.3 m, respectively. Findings from the "PO" drilling campaign indicate that mineralization is continuous horizontally and has a larger thickness in north-northwest (NNW), north-south (NS), and east-west (EW) directions, with values between 2.0 and 4.0 m. Lower thicknesses are present in the northeastern sector of Orcoma, with values lower than 1,0 m. The mineralized deposit has a 6 to 8% Nitrate grade associated to iodine grades larger than 400 ppm, generally with a direct correlation between grades of both compounds.

Data from the 400 x 400 m and 200 x 200 m grids show that caliche mantle is made up of sandstone, fine conglomeratic sandstone, sedimentary breccia with angular clasts generally of volcanic origin and a sandy matrix cemented by salts. Sedimentary breccia comprises 94.6% of the mineralized unit. The unit underlaying the mineralized zone is composed of a polymictic conglomerate with a compacted sand matrix, and toward the outer areas of the properties, the underlaying unit is made up of volcanic rocks with no mineralization.

Figure 7-1. Distribution of Exploration Drill Holes and Soil Pits



Findings from the two campaigns executed in 2014, for grids of 400 x 400 and 200 x 200 and 50 x 50 m spacing, show abundant information for each drill hole, has been compiled into a digital database. The database for the 200 x 200 m grids is used for evaluated using 3D blocks model and Inverse Distance Weighted (IDW) interpolation method is considered as medium level of geological confidence are qualified as Probable Mineral Reserves. Conversion factors used are less than one for iodine (0.90) and nitrate (0.85) grades.

The estimation of geologic resources in Pampa Orcoma , while the 50 x 50 m grid's localized area is used as a reference for geologic and physical characterization of the deposit. Relevant information available in the database is described in Table 7-1.

Table 7-1. Data Available for 400 x 400; 200 x 200; and 50 x 50 m Drill Hole Grids

Information available	Description
Geographic information	Elevation in meters above sea level, and coordinates in coordinate system PSAD 56 UTM Zone 19S.
Iodine and Nitrate Grades	Iodine and nitrate grades for every section of the drill hole under scraped soil, indicating sample identification.
Drill hole and rock Cutting Data	General information of the drill hole, such as diameter, drilling method and grid spacing. Geologic data obtained from perforation and rock cuttings, including scrape and overburden depth, lithology and degree of compaction, among other variables indicated for every section of the drill hole. Sections used for blank sampling are also indicated.
Geomechanical Description	Geomechanical description based on geologist's visual evaluation of the degree of integrity of the wall of the drill hole.
Chemical Concentrations	Concentrations of various compounds and elements analyzed in rock samples, including sodium nitrate (%), iodine (ppm), sodium sulfate (%), calcium (%), magnesium (%), potassium (%), potassium perchlorate (%), sodium chloride (%), sodium (%) and boric acid (%). Insoluble and soluble salt percentage is also indicated. Concentrations are shown generally for each drill hole, without specifying the section of the drill hole for which the result is presented.
Drill Hole Data for given Iodine cut-off grades	Overburden and caliche thickness in drill holes are indicated for iodine cut-off grades of 200, 300 and 400 ppm.

7.1.4 Diamond Drilling (DDH) Campaign Results

The DDH campaign of 2021 have been geologically described from core samples. The core samples allow for description only of consolidated deposits, due to drilling method. The sequence is incomplete in most core samples, generally showing a sequence of sandstone overlaying polymictic breccia, present in 53% of drill holes, followed by sandstone overlaying oligomictic breccia and polymictic breccia in the base for 18 % of drill holes, and finally solely polymictic breccia in 18% of drill holes. Isolated drill holes show a few lithological differences, such as andesite or tuff in the base, or slight variations in the sedimentary sequence (ARVI Mining, 2021).

The database containing information, includes the depth of the base of caliche mineralization, and chemical data for core samples every 0.5 m. The database shows concentrations of various compounds and elements relevant for characterization of soluble and insoluble salts in the deposit, including Iodine (ppm), Sodium Nitrate (%), Calcium (%), Boric Acid (%), Potassium (%), Potassium Perchlorate (%), Magnesium (%), Sodium (%), Sodium Chloride (%), Sodium Sulfate (%), and Sodium Carbonate (%).

7.1.5 M100T Grid Drilling Campaign Results

Findings for the 100T grid are shown in its database, with the main information it contains described in Table 7-2.

Table 7-2. Data Available for 100T Drill Hole Grid

Information available	Description
Geographic information	Elevation in meters above sea level, and coordinates in coordinate system PSAD 56 UTM Zone 19S.
Drill hole data	Lithologic description of drill holes.
Assays	Sample identification and results for each drill hole, including concentrations of iodine (ppm), sodium nitrate (%), calcium (%), boric acid (%), potassium (%), potassium perchlorate (%), magnesium (%), sodium (%), sodium carbonate (%), as well as degree of compaction and labeling of duplicate samples.

7.2 Topographic Survey

Detailed topographic mapping was created in the different sectors of Pampa Orcoma by aerial photography, using an unmanned aircraft operated by remote control, Wingtra One (Figure 7-2. Wingtra One Fixed-Wing AircraftFigure 7-2); equipment with 42 Mega pixels resolution, maximum flight altitude 600 m, flight autonomy 40 minutes. The accuracy in the survey is 15 to 10 cm.

The measurement was contracted to STG since 2015.

Figure 7-2. Wingtra One Fixed-Wing Aircraft

7.3 Hydrogeology

Two main hydrogeological units are defined, called Sedimentary Fill and Hydrogeological Basement, which are described below:

Sedimentary Fill Unit: Fill of colluvial - alluvial origin, distributed in the mine zone and industrial area. In the first meters it is composed of a polymictic sandy gravel/breccia, supported matrix, well consolidated and highly cemented by salts. Although permeability tests have not been performed with this unit, due to its high cementation and absence of fractures, low permeability is inferred.

Hydrogeological Basement Unit: Intrusive from the Jurassic-Cretaceous with volcanic sequences and marine sedimentary from the Jurassic, distributed in the surrounding of the mine and industrial area. These rocks have almost zero permeability, being irrelevant from the hydrogeological point of view.

The Pampa del Tamarugal aquifer occurs approximately 2 km east of the exploration area. This hydrogeological body is in contact with the Hydrogeological Base Unit and Landfill Unit. In this sector, within the domain of the Pampa del Tamarugal aquifer, the Negreiros iodine mine (COSAYACH) has in operation deep wells, which are the closest wells to the area of influence of the Orcoma Project.

The exploration area is mostly on the sedimentary fill, located in a zone of very low hydrogeological importance, this was determined in-situ by direct observation when analyzing the completely dry drill holes. In addition, the excavated soil pits did not show the presence of water in the first meters from the surface,

7.4 Geotechnical Data, Testing, and Analysis.

The geomechanical units are define through the observation and direct measurement of physical properties from drill holes. This are smooth, rough, intercalation A (more than 75% smooth), intercalation B (half rough and half smooth) and intercalation C (more than 75% rough) of said drill holes. Additionally, for each section of the drill hole, its degree of compaction was determined according to one of the following three categories: leached, semi-compact or compact.

Mapping of geomechanical units is carried out by manually checking the walls of the drill hole, to describe the different levels of roughness throughout the column, and thus be able to determine the degree of diameter loss of the drill hole wall. If the drill hole walls collapse, this does not allow mapping below the collapsed interval. The degree of compaction refers to the level of compaction that the well presents at the time of drilling.

The degree of weathering of the sedimentary rocks described is between IV and V (heavily weathered to completely weathered rocks) in the ISMR weathering classification (1981). With the exception for the andesites that exhibits a grade II (slightly weathered rock). The clay contents associated with weathering grades IV and V are low.

The resistance in semi-compact and smooth sandstones and breccias is less than 50 MPa. This is lower than in compact and smooth volcanic rocks, which have a resistance between 100 and 250 MPa. Rock resistance is estimated by correlation of the rebound of a Schmidt hammer to rock density and hammer orientation with respect to the assayed plain (Miller, 1965).

Tests were carried out to determine the rock quality index (RQD), determining that the sandstones have a RQD of less than 25%, indicating a very poor rock quality. For the vast majority of breccias, their RQD is less than 50%, indicating poor rock quality. The RQD values for the andesite range from75% to 90%, indicating a good quality compared to the tuffs, which returned RQD values between 25% and 50%, indicating a poor-quality rock.

Discontinuities are characterized by direct observation, considering the parameters of length, opening, roughness, filling and alteration that were observed. In described drill holes, discontinuities ranging from 1 to 3 m, with a width of 1 to 5 mm, are estimated, those that present rough textures, do not present fill and are slightly altered. In the case of andesites and tuffs, these exhibit within their cavities a hard filling less than 5 mm wide.

Finally, the RMR system (Rock Mass Rating by Bieniawski, 1989) is used to classify rock qualities, resulting in a general range of 41 to 60 points, both for sandstones and breccias, indicating that they are rocks of mostly average quality. For the Andesites, one section presents a range of 41 to 60 points, indicating a rock of medium quality, a second section indicates a range of 61 to 80 points, indicating a rock of good quality. Finally, the tuff is classified as medium quality rock with 41 to 60 points.

Based on all the empirical approximation systems used for the geomechanical classification of the rocks present in the Pampa Orcoma sector, it is concluded that the rocks described in most of the drill holes are of medium to poor quality, except for the cores that show a medium quality, and are mostly smooth.

Geotechnical considerations for the mining operation and leach heaps are described in Section 13.1.

8 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The utilized sampling methods in Pampa Orcoma pertain mainly to reverse circulation drilling and diamond drilling. Samples are collected during perforation, selected, and prepared according to internal procedures for sample handling, and sent for chemical analysis in laboratory. Core samples are also analyzed for the diamond drilling campaign currently in process. The main ions and compounds analyzed are listed and correspond to chemical species of economic interest and salts relevant for geologic resource estimation. Each analyte is analyzed in the laboratory using the detection methods agreed by the industry.

8.1 Site Sample Preparation Methods and Security

Analytical samples informing Pampa Orcoma Mineral Resources were prepared and assayed at the Iris plant and Internal Laboratory located in city of Antofagasta.

All sampling was completed by the external operators. Based on review of the procedures during the site visit and subsequent review of the data, it is the opinion of the QP that the measures taken to ensure sample representativeness were reasonable for estimating Mineral Resources.

8.1.1 RC Drilling

The RC drilling is focused on collecting lithological and grade data from the “Caliche mantle”. RC Drilling was carried out with a 5 ½ inch diameter by an external company "Perforations RMuñoz" under the supervision of SQM, both parties were coordinate to establish the drilling points. Once the drilling point was designated, the positioning of the drilling machine was surveyed, and the drill rig was set up on the surveyed drill hole location. (A and B).

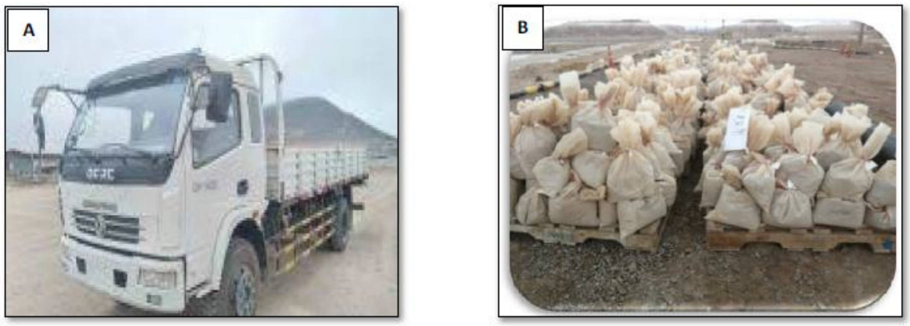
Once set up, drilling commenced (Figure 8-1 C). At the beginning of each drill hole, the drilling point was cleaned or uncovered, eliminating the soft overburden, or chusca, with a backhoe.

Samples were collected from the cyclone at continuous 50 cm intervals in plastic bags. The samples were weighed and quartered at the platform. A cutting sample was taken and left on the floor as a control sample. The sample bag was tied, and a number card was inserted. (Figure 8-1 D).

Figure 8-1. A) Drilling Point Marking B) Drill Rig Positioning C) RC Drilling D) RC Samples at Platform

Samples were transported by truck to the plant for mechanical preparation and chemical analysis. Samples were unloaded from the truck in the correct correlative order and positioned on Pallets supplied by the plant manager. (Figure 8-2).

Figure 8-2. A) Transportation Truck. B) Pallets with RC Samples



8.1.2 Sample Preparation

Mechanical sample preparation was carried out by Pilot Plant Iris V7 located at Nueva Victoria. Sample preparation includes (Figure 8-3)

Division of the sample in a cone splitter into 2 parts, one of which corresponds to discard. The sample obtained should weigh between 1.0 to 1.8 kg.

Drying of the sample in case of humidity.

Sample size reduction using cone crushers to produce an approximately 800 gr sample passing a number8 mesh (-#8).

Division of the sample in a Riffle cutter of 12 slots of ½" each. The sample is separated in 2, one of them corresponds to rejection and the other sample must weigh at least 500 gr.

Sample pulverizing.

Packaging and labeling, generating 2 bags of samples, one will be for the composites in which 200 gr are required (original) and the other will be for the laboratory, in which 150 gr are required. Figure 8-3).

Insertion points for quality control samples in the sample stream were determined. Standards samples were incorporated every 60 samples and duplicates every 20 samples, including the first sample. Samples were shipped in boxes containing a maximum of 65 samples (weighing approximately 15 kg) to the Caliche Iodine Internal laboratory.

Figure 8-3. Process Sequence from Initial Sample, Reduction and Final Sample.

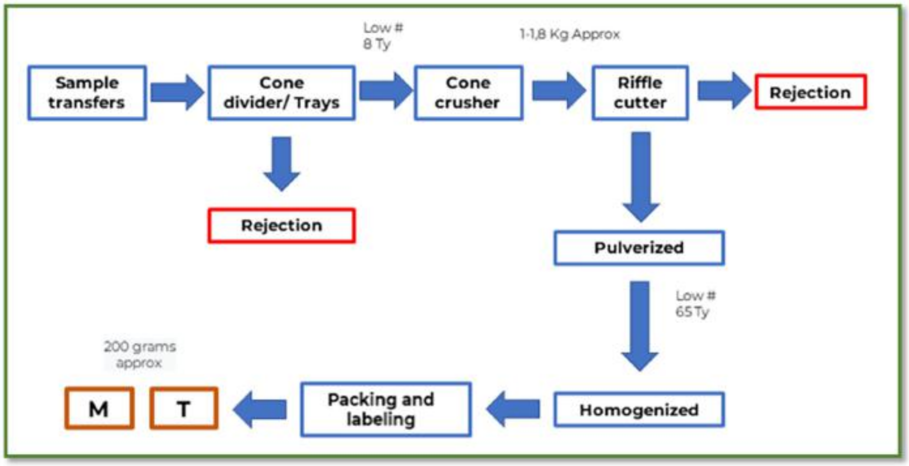
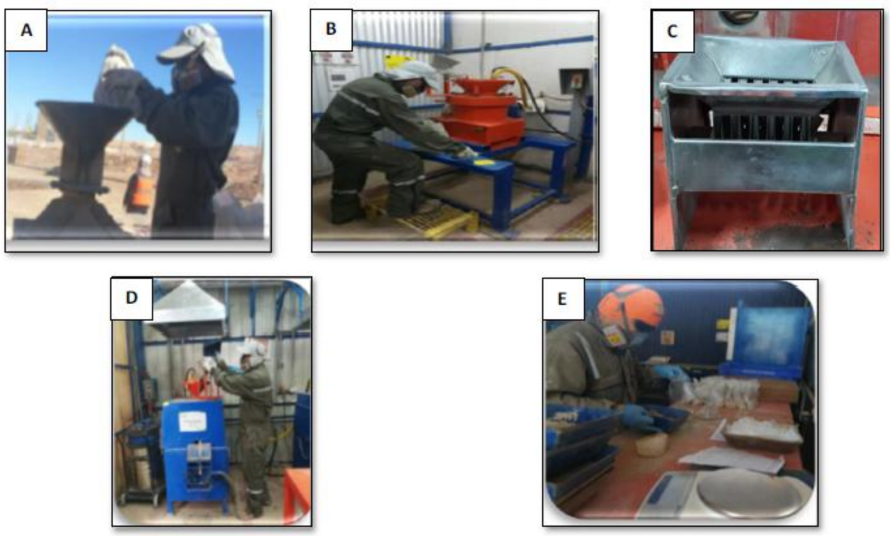


Figure 8-4. A) Sample Division B) Cone Crusher C) Riffle Cutter D) Sample Pulverizing E) Packaging



8.2 Laboratories, Assaying and Analytical Procedures

Chemical analysis for NO_3 and iodine was performed at the Caliche Iodine laboratory, located in Antofagasta, which is ISO 9001:2015 certified in shippable iodine, replicated in caliche and drill holes**.**

The Caliche Iodine Laboratory has capacity to analyze 200 samples/day for nitrate and iodine analysis. Sample handling, from receipt to analysis, is performed in 3 areas:

- Receiving and pressing area.
- Nitrate area.
- XRF Equipment Area.

Nitrate analysis was performed by UV-Visible Molecular Absorption Spectroscopy. The minimum concentration entered into the Laboratory Information Management System (LIMS) system was 0.001g/L, the result was expressed in g/L of $NaNO_3$. Iodine analysis was performed by Redox volumetric. The minimum concentration reported to the LIMS system was 0.002 g/L.

8.3 Results, QC Procedures and QA Actions

8.3.1 Laboratory Quality Control

To validate the results of the laboratory analysis, the following control measures were carried out (Figure 8-3)

Iodine:

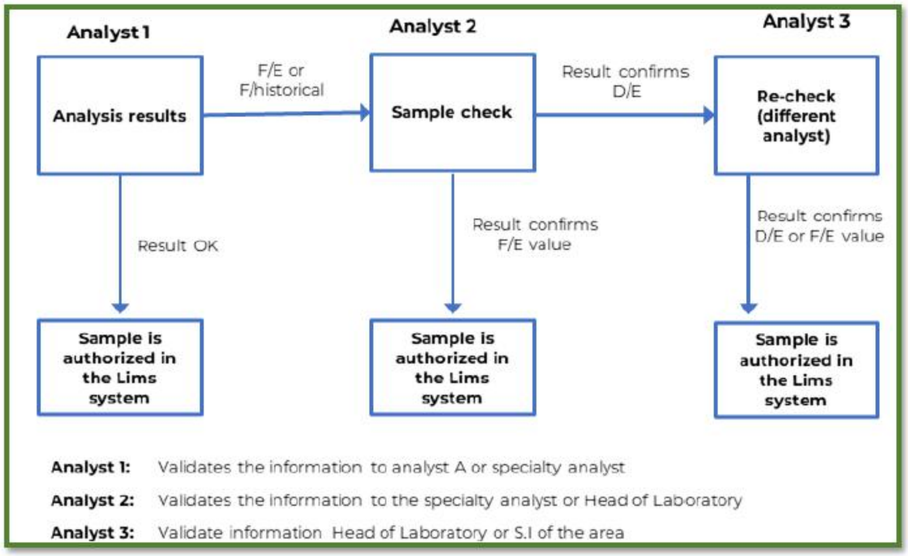
- Prepare a reference standard.
- Measure the reference standard and the reagent blank to ensure the quality of the reagents used.
- Verify that the results are within the 2-sigma range of the standard control chart. control of the standard.

Nitrate:

Analyze at the beginning of the sample set a standard solution.

- Every 5 samples a QC of 8 g/L prepared with a solution of 1 mg/L of a $NaNO_3$ salt is measured, the variation of the obtained result should not exceed 5% of the nominal value of the QC, otherwise the variables should be revised, and the analysis of the batch should start from the beginning.

Figure 8-5. Flow Chart for Approval of Laboratory Chemical Analysis Results.



8.3.2 Quality Control and Quality Assurance Programs (Qa-Qc)

Qa/Qc programs were typically set in place to ensure the reliability and trustworthiness of the exploration data. They include written field procedures of aspects such as drilling, surveying, sampling and assaying, data management, and database integrity.

Analytical control measures typically involved the internal laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. Assaying protocols typically involve regular duplicate assays and insertion of Qc samples

SQM has a systematic QA/QC program controlled by Acquire; which included the insertion of different control samples into the sampling stream:

Coarse duplicate → 2% (1 every 50).

Analytical duplicate → 5% (1 per 20).

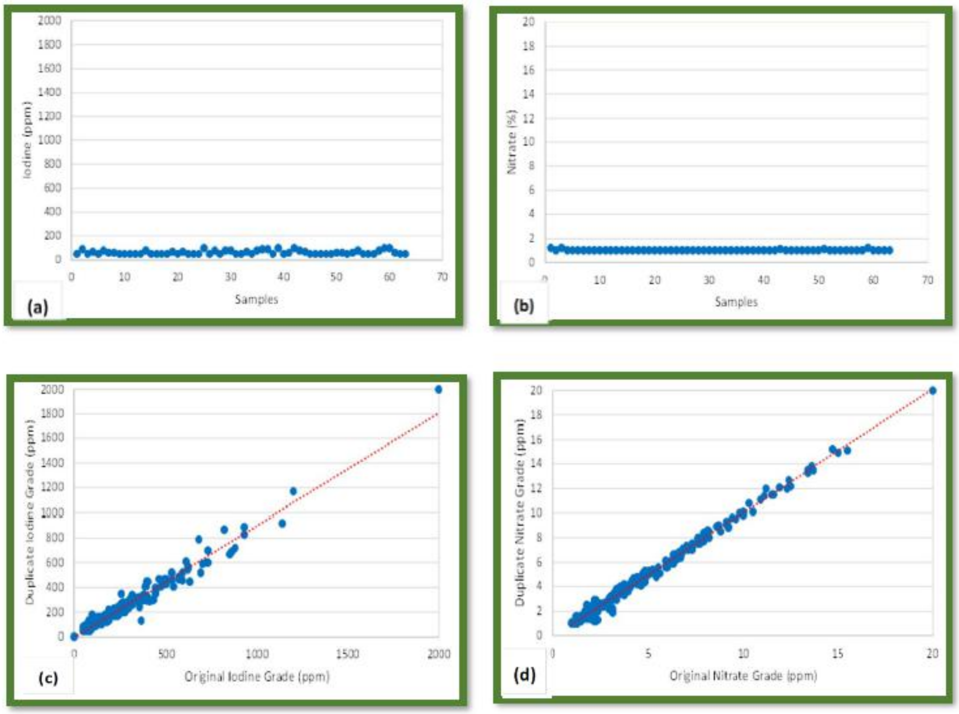
Standard → 1.7% (1 per 60).

Acquire and LIMS software managed the quality control by automatically checking the refined control samples and the Standards entered into the system, generating warnings at the time of analysis.

Pampa Orcoma 2014

For drill holes from the 400 x 400 m grid, 63 blank samples and 212 duplicates were collected. Blank samples were found to have a low dispersion of data, with nitrate grades between 1 and 1.2% and iodine grades between 50 and 100 ppm. Duplicate versus original samples have concentrations, showing a low dispersion of original versus duplicate concentrations (Figure 8.3-1 and Table 8.3-1), with iodine having an average relative error of 14.9% and correlation index of 0.982 and nitrate grades an average relative error of 8.2% and correlation index of 0.996 (2014).

Figure 8-6. Result of 400 x 400 m Drill Hole Grid Sample Quality Control.



Note: (a) iodine grades in blank samples, (b) nitrate grades in blank samples, (c) original versus duplicate iodine grades, (d) original versus duplicate nitrate grades.

Table 8-1. Statistics of Iodine and Nitrate Grades in Original versus Duplicate Samples of the 400x400 m Drill Hole Grid (N= 212)

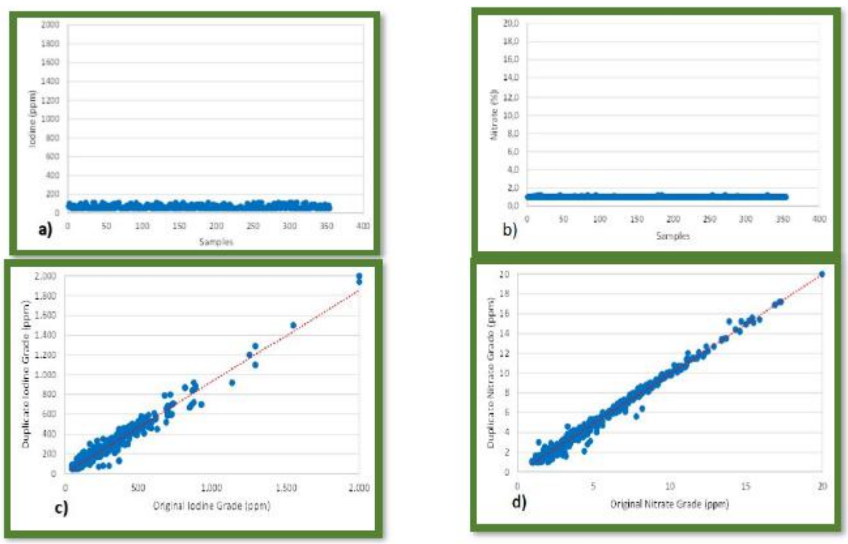
Mont	Iodine grade (ppm)		Nitrate grade (%)	
	Original	Duplicate	Original	Duplicate
Mean	305	270	5.0	5.0
Standard Deviation	244	223	3.49	3.53
Minimun	50	50	1.0	1.0
25" Percentile	150	140	2.2	2.2
Median	240	200	4.0	4.1
75" Percentile	370	320	7.0	7.1
Maximun	2,000	2,000	20.0	20.0

Another quality control assessment was done on the total of drill holes perforated in the 400 x 400, 200 x 200, and 50 x 50 m grids, collecting 354 blanks and 511 duplicates.

Blank samples were found to have a low dispersion of data, with nitrate grades between 1 and 1.2% and iodine grades between 50 and 110 ppm. Duplicate versus original samples have concentrations showing a low dispersion of original versus duplicate concentrations (Figure 8.3-2 and Table 8.3-2), with iodine having an average relative error of 15.1% and correlation index of 0,979 and nitrate grades an average relative error of 10% and correlation index of 0.994, (2014).

The T Statistic is 2,2 against a threshold of 3, signifying that the difference is not significant.

Figure 8-7. Results of 400 x 400; 200 x 200 and 50 x 50 m Drill Hole Grid Sample Quality Control.



Note: (a) iodine grades in blank samples, (b) nitrate grades in blank samples, (c) original versus duplicate iodine grades, (d) original versus duplicate nitrate grades.

Table 8-2. Statistics of Iodine and Nitrate Grades in Original versus Duplicate Samples of the 400 x 400; 200 x 200 and 50 x 50 m Drill Hole Grid (N= 511)

Statics	Iodine grade (ppm)		Nitrate grade (%)	
	Original	Duplicate	Original	Duplicate
Mean	282	264	4.9	4.7
Standard Deviation	224	212	3.42	3.46
Minimun	50	50	1.0	1.0
25" Percentile	150	140	2.2	2.1
Median	220	210	4.0	3.8
75" Percentile	340	320	6.7	6.5
Maximun	2,000	2,000	20.0	20.0

8.3.3 Sample Security

SQM maintains strict control over sampling, mechanical sample preparation and chemical analysis. In each of the stages, the safety and chain of custody of the samples was safeguarded, using protocols that describe the steps to be followed for this purpose. All these controls are managed and controlled through the Acquire platform, in process of implement by SQM since Q3 2022, according to the follow sections. This section highlights your current processes and procedures and introduces data management processes.

recommended for deployment in GIM Suite.

The following workflow architecture demonstrates the data flow and object requirements of GIM Suite.

8.3.3.1 Planning RC Drilling.

Current Situation: The drillings are planned by the geology area using modeling software, which generates an Excel file containing a previous identification of the drilling, which will later be modified for the final identification, along with the east and north coordinates and the planned depth are also indicated. This planning file is delivered to the outsourced company that will drill the drilling of the drilling in the field. Below is an example of a planning file:

Id	Este	Norte	Profundidad
TEAO_0001	408,750	7,701,050	6.00
TEAO_0002	408,850	7,701,050	6.00
TEAO_0003	408,950	7,701,050	6.00
TEAO_0004	409,050	7,701,050	6.00
TEAO_0005	409,150	7,701,050	6.00
TEAO_0006	409,250	7,701,050	6.00
TEAO_0007	409,350	7,701,050	6.00
TEAO_0008	409,450	7,701,050	6.00
TEAO_0009	409,550	7,701,050	6.00
TEAO_0010	409,650	7,701,050	6.00
TEAO_0011	409,750	7,701,050	6.00
TEAO_0012	409,850	7,701,050	6.00
TEAO_0013	408,800	7,701,100	6.00
TEAO_0014	408,900	7,701,100	6.00
TEAO_0015	409,000	7,701,100	6.00

Solution to executed:

The proposed solution includes the following workspace objects:

Objects	Description
Import Planned Driliing	This import task into Arena should allow the user to import the planned drill hole data from the file. Coordinates must be entered in PSAD56. The object must enter the status of the drilling as Planned at the time of import, as well as store the identification of the probing planning in a virtual field. Template file for importing planned drillholes,
See planned drilling	Task in "Arena" that will show the information of the planned drillings.

8.3.3.2 Header:

Current Situation:

In general, a drilling planning can take up to 30 thousand meters of drilling, where between 4 thousand and 5 thousand meters per sector is applied, each drilling equipment in general works for 1 month and a half, the contractor company executes the drilling and monthly delivers to the geology area the file with the information taken in the field, some drilling that was planned may eventually not be executed due to poor conditions of the premises.

Each sheet of the Excel file corresponds to a drilling equipment, from this file the data of the following columns are taken.

Data	Description
Drilling	Final identification of Drill
Date	Date of execution
Diameter	Diameter of Drill
Accounting account	Project Cost Center
Grid	Spacing of Drill
Sector	Identification of drilled sector
Sample	Identification of original field-generated sample
From	Start section Sample Original
To	Final stretch original sample
Weight	Sample mass
Hardness	Compaction of the perforated section
Start time	Sampling start time
Completion Time	Sampling completion time
RPM	Revolutions per minute
Pull Down	Measure of force exerted by equipment to execute drilling
Sample Original	Identification of the parent sample of the duplicate terrain
Sample Cheq	Identification of duplicate terrain

The original samples are taken at a depth after the highlight section, thus considering that the samples are not taken at the zero depth of the drilling, the samples usually have sections of 50 cm.

In this file they are also indicated in which samples were made the checks of field duplicates, these duplicates are indicated by the company that carried out the drilling, in the protocol the duplicates are made every 5 drilling.

The correlative of the samples is controlled by a checkbook used in the field that is delivered by the geology team before starting the drilling campaign, with this if they indicate the identifications of the originals, being that for the identification of the duplicate it is always applied as the last correlative associated with the drilling.

PROYECTO	SONDAJE	N_REPLANTEO	SUP	FECHA	DIAM	ESTE	NORTE	COTA	COD.CAM	CTACTBLE	MALLA	TIPO	GEOL	SECTOR
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87854L	TZ-238	A.C	11/27/2021	5.25	433,300	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA
RECATEGORIZACION TORCAZA	87855L	TZ-239	A.C	11/27/2021	5.25	433,350	7,672,450	SD	01-21	12IO46701	T50	SONDAJE	??	TORCAZA

FECHA	DESTAC	SOBCAR	MUESTRA (extension TEA)	FROM	TO	PESO	COMP	TPO INI HH	TPO INI MM	TPO INI SS	TPO FIN HH	TPO FIN MI	TPO FIN	RPM	P. DOWN
??	0.20	0.00	-1												
??	0.20	0.00	835354	0.20	0.70	15.0	2	0	0	0	0	2	33	98	500
??	0.20	0.00	835355	0.70	1.20	15.0	2 -3	0	2	33	0	6	16	94	900
??	0.20	0.00	835356	1.20	1.70	17.0	3	0	6	16	0	8	29	94	900
??	0.20	0.00	835357	1.70	2.20	15.0	3	0	8	29	0	9	59	94	900
??	0.20	0.00	835358	2.20	2.70	17.0	3	0	9	59	0	11	23	96	700
??	0.20	0.00	835359	2.70	3.20	15.0	3	0	11	23	0	13	0	96	700
??	0.20	0.00	835360	3.20	3.70	15.0	3	0	13	0	0	14	21	96	700
??	0.20	0.00	835361	3.70	4.20	15.0	3	0	14	21	0	16	53	96	700
??	0.20	0.00	835362	4.20	4.70	17.0	3	0	16	53	0	18	17	96	700
??	0.20	0.00	835363	4.70	5.20	13.0	3	0	18	17	0	19	45	96	700
??	0.30	0.00	-1												

Example sample book occupied in the field with sample identification.

Continuing with the collar data, once the drilling is done, the surveying company performs the final coordinates of the drilling, delivering as a final result an Excel file with the north, east, elevation data for each drilling executed. The final coordinates cannot have a difference greater than 10% of distance from their planned coordinate.

In the file the surveyor indicates that the drilling was not found in the field, indicating that they were eliminated.

Example file delivered by surveying company.

	NORTE	ESTE	ELEVACION	N° SONDAJE		
1	7686548.66	422244.349	1095.84	90097L	Corrido en terreno	
2	7686598.96	422293.23	1093.309	90096L	Corrido en terreno	
3	7686547.89	422341.558	1089.559	90098L	Corrido en terreno	
4	7686598.77	422393.755	1088.889	90095L	Corrido en terreno	
5	7686547.11	422443.379	1086.939	90099L	Corrido en terreno	
6	7686597.94	422493.942	1087.362	90094L	Corrido en terreno	
7	7686546.85	422533.12	1085.654	90100L	Corrido en terreno	
8	7686599.43	422579.95	1083.569	89892L	Corrido en terreno	
9	7686548.05	422634.1	1082.192	90808L	Corrido en terreno	Revisar N° de placa
10	7686597.14	422684.165	1080.857	89895L	Corrido en terreno	
11	7686547.19	422734.838	1078.775	90802L	Corrido en terreno	Revisar N° de placa
12	7686448.38	422732.532	1079.186	90804L	Corrido en terreno	Revisar N° de placa
13	7686499.13	422683.097	1080.583	90503L	Corrido en terreno	Revisar N° de placa
14	7686448.96	422632.374	1081.936	90883L	Corrido en terreno	
15	7686495.32	422587.789	1084.154	90104L	Corrido en terreno	
16	7686448.84	422535.13	1084.244	90882L	Corrido en terreno	
17	7686492.91	422483.54	1084.822	90805L	Corrido en terreno	Revisar N° de placa
18	7686449.78	422433.478	1085.25	90888L	Corrido en terreno	
19	7686498.2	422383.787	1087.035	90806L	Corrido en terreno	Revisar N° de placa
20	7686448.74	422333.377	1088.694	90880L	Corrido en terreno	
21	7686498.52	422282.956	1091.434	90807L	Corrido en terreno	Revisar N° de placa
22	7686502.79	422184.806	1096.079	90508L	Corrido en terreno	Revisar N° de placa
23	7686458.28	422247.164	1093.016	90509L	Corrido en terreno	Revisar N° de placa
24	7686398.3	422282.357	1090.277	MOACF 101	Corrido en terreno	Placa ilegible

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Import Final Drills	Object of import in acQuire 4 that allows the user to import the collar data of the final drillings, also considering the import of the original samples and their respective duplicates of terrain. Due to the geology having the same stretch as the geological mapping, it is indicated to occupy the compound of blastholes for the storage of this data.
Data Capture Collar	Data Capture of Sand based on Blastholes, which will be used in the field for the capture of collar and sample data, where you must indicate the sounding that the duplicate ground sample can take, the section of the first sample will be entered manually by user, once it must consider the highlight section of the drilling, The subsequent sections may be indicated automatically by the application, considering as a protocol that the samples original is usually 50 cm in size. The correlative of the samples will continue to be controlled by the checkbooks occupied in land, the user must manually enter the correlative of the first sample taken in the field, the correlative of the subsequent samples will be entered automatically by the application. In this Data Capture, the user can also change the status of the probe as Canceled, thus identifying the drilling that was not executed in the field.
Import Final Coordinates	With this importer object of the AcQuire 4, the user will enter the final coordinates data of the drillings, the importer will validate if the final coordinates contain a difference in meters greater than 10% in relation to the planned coordinates, indicating a message to the user at the time of data entry.
Consult probing collar	Task in "Arena" that will show the information of the necklace of the soundings.
Dashboard Planned vs Executed Meters	Dashboard in Sand that presents a graph and grid with information of the planned meters on the perforated meters, thus providing additional information to control the meters of the drilling campaigns. The data can be filtered by date of execution of the drilling and sector of the mine.
Choose Sample Correlates	Data Entry object in AcQuire 4 that will allow the user to enter a range of correlative samples making it possible to choose which samples will be printed the labels. Occupy METAIMPORTALISES table to manage the data entered for the printing of samples. The Fields will be entered as follows: CATEGORY = TAGS; SUBCATEGORY= GENERATED, PRINTED; SOURCE VALUE = Value of the initial SAMPLE ID; ALIAS VALUE = Value of the final SAMPLE ID. The object must appear with an ERROR message if there are samples generated with some SAMPLE ID within the range indicated by the user. The object must indicate the initial SAMPLE ID to be printed, so that user error is avoided.
Sample Label Report	Report in acQuire 4 that allows the user to print sample labels in the format of the checkbook, the report will be applied on an A4 or Letter size paper, considering that the printing will be made on a cardboard paper. The label will have the barcode with the identification of each sample, thus enabling the user to read the barcode with the tablet camera when entering the identification of the first sample

8.3.3.3 *Geological mapping*

Current Situation:

The mapping is done offline where the geologist occupies a spreadsheet entering the geological data associated with the data delivered by the drillers, the geology is entered associated with each section of sample generated in the drilling.

In the geological mapping, data on lithology, clasts, clays, color, sulfate, salt crust, anhydrite crust, sulfate destace, percentage of clasts and observation are captured.

In the same file, geomechanical mapping is also performed, where a code that is related to the intercalations of the rock in the wall of the drilling is captured.

ropuesto	Sobrecarga	Total muestras	Muestra	from	to	Litología	Clastos	Arcillas	Color	Sulfato	Costra salina	Costra anhidrita	Sulfato destace	% clastos aprox.	observacion
HSE-522	0.1	10	1	0.1	0.6	2	5	1	3	1		COSTRA ANHIDRITA		30	
HSE-522	0.1	10	2	0.6	1.1	2	5	1	3	1				40	
HSE-522	0.1	10	3	1.1	1.6	2	5	1	3	1				40	
HSE-522	0.1	10	4	1.6	2.1	2	5	1	3	1				40	
HSE-522	0.1	10	5	2.1	2.6	2	5	1	3	1				30	
HSE-522	0.1	10	6	2.6	3.1	2	5	1	3	1				40	
HSE-522	0.1	10	7	3.1	3.6	2	5	1	3	1				40	
HSE-522	0.1	10	8	3.6	4.1	2	5	1	3	1				40	
HSE-522	0.1	10	9	4.1	4.6	2	5	1	3	1				>50	
HSE-522	0.1	10	10	4.6	5.1	2	5	1	3	1				>50	
HSE-521	0.2	10	1	0.2	0.7	2	5	1	2	1		COSTRA ANHIDRITA		10	
HSE-521	0.2	10	2	0.7	1.2	2	5	1	2	1				10	
HSE-521	0.2	10	3	1.2	1.7	2	5	1	3	1				>50	
HSE-521	0.2	10	4	1.7	2.2	2	5	1	3	1				>50	
HSE-521	0.2	10	5	2.2	2.7	2	5	1	3	1				>50	
HSE-521	0.2	10	6	2.7	3.2	2	5	1	3	1				>50	
HSE-521	0.2	10	7	3.2	3.7	2	5	1	2	1				40	
HSE-521	0.2	10	8	3.7	4.2	2	5	1	2	1				40	
HSE-521	0.2	10	9	4.2	4.7	2	5	1	2	1				40	
HSE-521	0.2	10	10	4.7	5.2	2	5	1	2	1				40	

MAPEO GEOMECANICO INTERCALACIONES

10	LIXIVIADO	50	INTERCALACION B
20	USO	60	INTERCALACION C
30	RUGOSO	XY	MIXTO
40	INTERCALACION A	9	ATERRADO

C O D I G O S

COMPACTACION	ARCILLAS	SULFATO	LITOLOGIA		COLOR	
1.- NO COMPACTADO	1.- BAJO	1.- BAJO	1.- LIXIVIADO	10.- ARENISCAS CONGLOMERADICAS	1.- PARDO CLARO	7.- AMARILLO
2.- SEMI COMPACTADO	2.- MEDIO	2.- MEDIO	2.- BRECHA SEDIMENTARIA	11.- FALLAS	2.- PARDO	8.- ROJO
3.- COMPACTADO	3.- ALTO	3.- ALTO	3.- CONGLOMERADOS	12.- OTROS	3.- PARDO OSCURO	9.- VERDE
			4.- ARENISCAS	13.- METASEDIMENTITA	4.- GRIS CLARO	10.- LILA
			5.- ANDESITA	14.- ANHIDRITA	5.- GRIS	11.- NARANJA
			6.- TOBAS	15.- SEDIMENTARIO KT	6.- GRIS OSCURO	12.- BLANCO
			7.- INTRUSIVOS	16.- BRECHA HIDROTERMAL		
			8.- ARCILLOLITAS	17.- ROCA VOLCANICA ALTERADA		
			9.- LIMOLITAS	18.- SIN CUTTING		

Sondaje	Propuesto	Fom	To	Codigo
85218L	HSE-522	0	0.1	10
85218L	HSE-522	0.1	5.1	20
85217L	HSE-521	0	0.2	10
85217L	HSE-521	0.2	1.4	40
85217L	HSE-521	1.4	3.6	30
85217L	HSE-521	3.6	5.2	20
85216L	HSE-520	0	0.1	10
85216L	HSE-520	0.1	5.1	20
84978L	HSE-511	0	0.1	10
84978L	HSE-511	0.1	5.1	20
85220L	HSE-523	0	0.1	10
85220L	HSE-523	0.1	1.3	20
85220L	HSE-523	1.3	3.6	30
85220L	HSE-523	3.6	4.4	20
85220L	HSE-523	4.4	5.1	30
84980L	HSE-513	0	0.2	10
84980L	HSE-513	0.2	2	40
84980L	HSE-513	2	5.2	20
84979L	HSE-512	0	0.3	10
84979L	HSE-512	0.3	5.3	20
84981L	HSE-501	0	0.2	10
84981L	HSE-501	0.2	5.2	20
85190L	HSE-502	0	0.1	10

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Geological Mapping	Data capture in "Arena" that allows the user to perform the geological mapping of the drillings, this tool must allow the user to perform the mapping in the field so that it is not connected to the mine network. The task will occupy Blasthole as the task type.
Import Gologic Mapping	Importer in "Arena" that allows to enter the geological mapping data carried out in the field.
Geomechanic Mapping	Data capture in "Arena" where the geomechanical data of the drilling will be captured. For the data not related to the samples, this data capture must be of the Drillholes type.
Import Geomechanic Mapping	mporter in "Arena" that allows to enter the geomechanical mapping data carried out in the field
Consult Geology of Drilling	Task in "Arena" that will show the information of the geology of the drillings.
Consult Geomechanic of Drilling	Task in "Arena" that will show the information of the geomechanics of the drillings.

8.3.3.4 Dispatch of samples for mechanical preparation

Current Situation:

Once the mapping and sampling is finished, the samples are sent to mechanical preparation, the detail of these samples is in a document that is sent to the pilot plant.


MEMORAMDUN

A Sr.:

De Sr.:

REF. ENVIO DE MUESTRAS A LABORATORIO

DE Nº 831539 al Nº 832142

DE Nº 834151 al Nº 834232

DE Nº al Nº

DE Nº al Nº

Muestras sin recuperación:

Total de muestras enviadas a Laboratorio 686 muestras

Observaciones:

Atte. a Ud.

Recibido Conforme Laboratorio — Conductor Camion — Supervisor de Sondaje

At the time of receipt of the samples in the pilot plant, the responsible person enters in an Excel file the identifications of each of the samples, in this file that manages the sequence of the samples and also indicates the position in which the duplicates will be taken, the file considers that every 20 samples a duplicate of pulp is generated.

Pulp duplicates have their own sample identification that is distinct from samples delivered by geology, by convention the nomenclature of the pulp sample carries a correlative as a prefix then a hyphen followed by the correlative of the original sample. The chemical results of the sample generated in the pilot plant are returned from the chemical laboratory, then these results are stored in the geology database.

2	Duplicados		Código de Muestra	N° Caja	Preparadas	Enviadas a Laboratorio	CC	N° Muestra
3	N	Detalle						
4	1	Duplicado	847410		x	x		1
5			847411		x	x		2
6			847412		x	x		3
7			847413		x	x		4
8			847414		x	x		5
9			847415		x	x		6
10			847416		x	x		7
11			847417		x	x		8
12			847418		x	x		9
13			847419		x	x		10
14			847420		x	x		11
15			847421		x	x		12
16			847422		x	x		13
17			847423		x	x		14
18			847424		x	x		15
19			847425		x	x		16
20			847426		x	x		17
21			847427		x	x		18
22			847428		x	x		19
23			847429		x	x		20
24	2	Duplicado	847430		x	x		21
25			847431		x	x		22
26			847432		x	x		23

Solution to executed:

The proposed solution includes the following workspace objects:

Object	Description
Create dispatch order for Physical Sample Preparation	In this object the user can generate the order of dispatch of samples for physical preparation. Create a correlative and identifier for the office number. Example for identification. F2022-0001 where, F = Physical dispatch prefix, 2022 = Year of Shipment, 0001 = Correlative controller per year.
Print dispatch order for Physical Sample Preparation	Object that will allow to execute the printing of the report of shipment order to physical preparation.
Physical Office Reception	Script object in Acquire that allows the user to indicate the samples received in the pilot plant, the object must be filtered by physical dispatch number where it will make available the samples associated with this dispatch, thus enabling the user to select the samples and indicate in the system that these samples were received. The object must indicate and automatically create the pulp samples indicating the position where each one was generated.
Consult Drilling Dispatch to Preparation	Task in Sand that will show the information of the dispatch of the samples of the drilling that were sent to mechanical preparation.
Consult Pulp Samples	Task in Arena that will have the information of the pulp samples in a grid of data associated with the number of the physical dispatch received by the pilot plant

In the drilling stage, before drilling begins, the drill rod was marked to indicate the distance for sampling. The drilling machine was equipped with a cyclone to slow down the particle velocity, under it, a bag is placed to collect the samples.

The collected sample from the cyclone is carefully stored in a plastic bag, then it was identified with a sequential card with a barcode and tied. The Supervisor oversaw requesting a revision to a determined sample of the drilling (coarse sample), originating another sample and of noting the weights obtained in the balance for each cut sample. This data collection is done through the Acquire platform.

The samples were loaded daily onto the truck that will transport them to the sample plant, the following steps are followed:

SQM Supervisor delivers a dispatch guide with the drill holes and the total number of samples to be collected and mentions to the person in charge of the sample plant, the number of samples and the number of samples without recovery, if any. This dispatch guide is generated for Acquire platform.

Samples are loaded sequentially according to the drilling and unloaded in the same way.

Upon arrival at the plant, the corresponding permit must be requested from the area manager, who will provide an unloading guideline, which contemplates how the samples should be positioned on the pallets.

The pallets with samples are moved to the sample preparation area from their storage place to the place where the Cone Splitter is located.

During all stages of sample preparation, special care was taken to maintain the identification of the samples and to clean the equipment after use. The samples already packed and labeled were collected following the instructions for filling boxes of "caliche" samples, respecting the correlative order of the samples, the order in which they must be deposited in the box and the quantity of samples according to the capacity of the box.

The trays were labeled indicating the corresponding information and date (Figure 8-11) are then transferred to the storage place at Testigoteca (core Warehouse) Iris and Testigoteca TEA located at Nueva Victoria (Figure 8-12), either transitory or final, after being sent to the laboratory.

Figure 8-8. A) Samples Storage B) Drill Hole and Samples Labeling

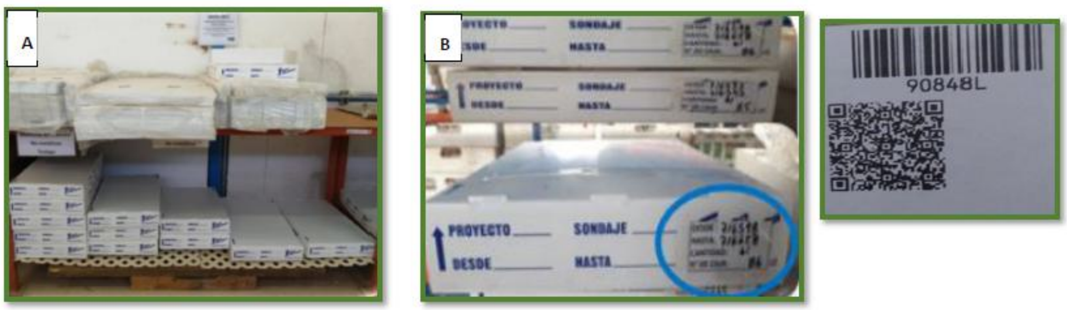


Figure 8-9. Iris – TEA Warehouse at Nueva Victoria

Assay samples were collected by appropriately qualified staff at the laboratories. The analysis results of the samples were reported by the specialty analyst to the LIMS software system, integrated to platform Acquire.

Automatically LIMS triggering an e-mail to the users and only to those who are authorized to send the information.

8.4 Opinion of Adequacy

The competent person considers that in what corresponds to the preparation, analysis, safety of the samples and procedures used by SQM in Pampa Orcoma complies with the appropriate standard without showing relevant deficiencies that may alter the obtaining of the results derived from the procedures.

9 DATA VERIFICATION

9.1 Data Verification Procedures

Verification by the QP covered drilling, sample collection, handling, and quality control, geologic mapping of drill cores and cuttings, and laboratory quality assurance and analytical procedures. Based on the review of SQM procedures and standards, protocols are deemed adequate for ensuring the quality of data obtained from drilling campaigns and laboratory analysis.

9.2 Data Management

Data management is done in **Acquire**, in process of implementby SQM since Q3 2022, presenting the required information for the 400 x 400 m, 200 x 200m, and 50 x 50 m database, with chemical analysis data. Regarding such data, iodine and nitrate grades are shown adequately, for each section of the drill hole; however, other chemical species concentrations are shown for each drill hole without specifying the section of the drill hole for which the result is shown.

"DDH" diamond drilling's database and the 100T grid database (RC drilling in process), are also managed with Acquire, showing the available data to date in the first case. The 100T grid database on the other hand, shows available information to date from its block model and chemical analysis of original samples, and duplicate sample results.

9.3 Technical procedures

The QP reviewed data collection procedures, associated to drilling, sample handling and laboratory analysis. The set of procedures seek to establish a technical and security standard that allows field and lab data to be optimally obtained, while guaranteeing worker's safety.

9.4 Quality Control Procedures

The competent person indicates that in SQM Quality Control ensures the monitoring of samples accurately from the preparation of the sample and the consequent chemical analysis through a protocol that includes regular analysis of duplicates and also insertion of samples for quality control.

9.4.1 Quality Control Measures and Results

Quality control (QC) samples are incorporated for lab analysis, with the objective of monitoring the precision, accuracy, and potential contamination during analytical processes and sample handling. These controls comprise duplicate sampling to monitor precision, internal standard samples to establish an internal comparative framework, and blank sampling to identify potential contamination.

Standard samples and duplicates are incorporated every 60 and 20 samples respectively (SQM(f), 2021), and sent from the Iris plant. The sample chosen as a standard is selected randomly, divided into six samples and analyzed three times, obtaining iodine and nitrate concentrations whose average and standard deviation define the certified value, allowing for results with a tolerance of ±2 standard deviations with respect to such value (2021).

A lab specialist reviews and validates the information obtained from standard samples, and from comparison of duplicates with respect to the original sample, admitting a maximum discrepancy of ±0.0014 ppm for iodine and ±0.4% for sodium nitrate. The LIMS system randomly sorts the duplicates and standard samples, identifying deviations which are reviewed by the head of the laboratory, subsequently soliciting a checkup of the samples (SQM, 2018).

9.4.2 Quality Assurance Measures.

Protocols for quality assurance (QA) in the lab encompass measures for nitrate and iodine values. For iodine grades, the standard sample is checked to be within a defined range of ±0.4; another measure involves selecting 5 samples that are analyzed by volumetry and XRF, applying a correction factor if necessary or calibrating the corresponding equipment if values are not within their expected range (SQM, 2018).

For nitrate grade analysis, the mass balance is checked daily for a standard 20g mass certified with an error range of ±0.0002 g. A comparative analysis is also done once in each lab shift, analyzing the same samples with another spectrophotometer. If the sample has a slight yellow color, readings are checked with a distiller equipment using the Kjeldahl method. Every 10 samples, readings are compared to the quality control and standard samples (2021).

9.5 Precision Evaluation

Regarding the Accuracy Assessment, the Competent Person indicates that the iodine and nitrate grades of the duplicate samples in the 400 x 400 and 200 x 200 grid have good correlation with the grades aws of the original samples; However, it is recommended to always maintain permanent control. In this process, in order to prevent and detect in time any anomaly that could happen.

9.6 Accuracy Evaluation

The QP reviewed results of iodine and nitrate grades from blank sampling in the 400 x 400 m and 200 x 200 m drill hole grids. Blank sample concentrations are within acceptable margins, with a maximum of 110 ppm and 1,2% of iodine and nitrate grades.

9.7 Laboratory Certification

The Nitrate-Iodine Laboratory is ISO 9001:2015 certified by the international certification organism TÜV Rheinland, from the 16 of March 2020, to the 15 of March 2023 (TÜV Rheinland(a), 2019) (TÜV Rheinland(b), 2019). There's no previous certification available.

9.7.1 Quality Person´s Opinion of Data Adequacy.

In the Pampa Orcoma duplicate data, the duplicate samples, although analyzed by the same method in the same lab consistently measure slightly lower for iodine, although calculation of a Student T value shows it to be insignificant. This difference in not seen in the Nueva Victoria samples analyzed by the same laboratory. The QP recommends that SQM undergo an audit of the sample preparation and splitting procedures and that attention also be focused on certified reference materials.

The data available from the 400 x 400 and 200 x 200 m grids, regarding analytical results of geotechnical and chemical analysis of caliche in Pampa Orcoma, is adequate for estimation of geologic resources and reserves present in the project area.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

SQM nitrates have been operating mines and heap leaching facilities to produce ore, iodine, and nitrates from caliche at its Nueva Victoria process plants since 2002. Therefore, the operations and form of ore treatment proposed for the Pampa Orcoma project are based on extensive operating experience.

Additionally, since 2009, SQM Nitrates has carried out a caliche characterization plan through laboratory tests to continuously improve the yield estimation. These efforts emphasized on the chemical and physical characterization of caliche, have allowed the development of a set of strategies that give way to better recovery prediction.

In 2016, faced with water scarcity in northern Chile, the industry seeks to incorporate seawater in its processes. In this way, a caliche leaching test plan is generated with seawater, to determine the technical feasibility and impacts on recovery. The test plan demonstrated the feasibility of the process in a pilot plant located in the Iris sector of the Nueva Victoria mine.

After reviewing the available data, it has been determined that there is sufficient information as background to the definitive feasibility study. The records of the operations in aspects such as performance and consumption of reagents, as well as the historical test work developed by the company. It has been determined that there is sufficient information to:

- Support current operations and mineral processing.
- Support Pampa Orcoma's future exploitation project, along with plant and process equipment design.

Summaries of the analytical and experimental procedure and the main test results are presented below.

10.1 Metallurgical Testing

The metallurgical tests, as detailed below, are intended to estimate the response of different minerals to leaching. The pilot plant laboratory is in charge of generating test data to form the characterization and recovery database of composites.

The tests have the following objectives:

- Determine if the analyzed material is reasonably suitable for concentration production using separation and recovery methods established in the plant.
- Optimize process to guarantee a recovery that inherently will be linked to a mineralogical and chemical characterization, including physical and granulometric characterization of the mineral to treat.
- Determine deleterious elements to establish mechanisms in the operations so that these can be kept below the limits that guarantee certain product quality.

SQM's analytical and pilot test laboratories perform the following chemical, mineralogical and metallurgical tests which constitutes the bank of tests carried out on operating projects:

Microscopy and chemical composition

Physical properties: Tail test, borra test, laboratory granulometry, embedding tests, and permeability

Leaching test

Historically, SQM through its Research and Development area, executed the following tests at the plant and/or pilot scale that have allowed improving the recovery process and quality of the product: Iodide solution cleaning tests, Iodide oxidation tests with Hydrogen Peroxide (H_2O_2), Incorporation of Chlorine in the Iodine Plant. Tests that have finally allowed to obtain a successful scheme of operations applied to other sites of the company, and that have great maturity of knowledge. Currently, the Research Vice-Presidency is conducting plant scale tests for the optimization of heap leach operations using the CM method of mining. This material has preliminarily resulted in higher recoveries.

At the industrial level, it is intended to monitor the recovery to establish annual sequential mining levels and/or define for each year the percentage of minerals to be reamed during the life of the mine to increase the recovery.

To develop the tests, two different CM equipment have been acquired and evaluated in terms of:

Availability in the rolling system.

Design of the cutting system.

Sensitivity to rock conditions.

Productivity variability.

Consumption and replacement of components.

The present review will focus on the physicochemical and leach response characterization of Pampa Orcoma ores, and how this knowledge contributes to the recovery estimation.

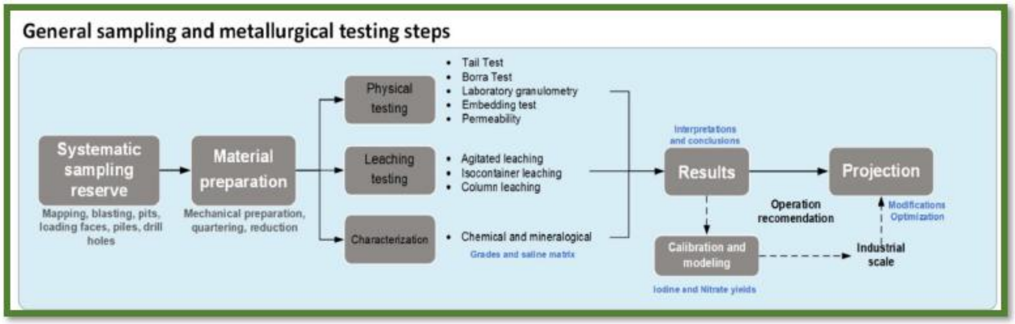
In the following sections, a description of sample preparation and characterization procedures, for metallurgical tests, and process and product monitoring/control activities of the operations through chemical analysis is given.

10.1.1 Sampling and Sample preparation

The sampling methods are related to the different drilling methodologies used in the several campaigns to obtain samples for analysis (see Section 7.1.2. Borehole Exploration) With the material sorted from the trial pits, loading faces, piles, drill holes and diamond piles, composite samples are prepared to determine iodine and nitrate grades, and to determine physicochemical properties of the material to predict its behavior during leaching.

As for the processing of samples, these are segregated according to a mechanical preparation guide, which aims to provide an effective guideline for minimum required mass and characteristic sizes for each test, to optimize in the best possible way any available material. In this way, it is possible to achieve successful metallurgical tests of interest, ensuring their validity and reproducibility. The method of sampling and development of metallurgical tests on samples from Pampa Orcoma, for the projection of future mineral resources, consists in summary of the stages outlined below.

Figure 10-1. General Stages of the Sampling Methodology and Development of Metallurgical Test at Pampa Orcoma.



As for the development of metallurgical, characterization, leaching and physical properties tests, these are developed by teams of specialized professionals with extensive experience in the mining-geo-metallurgical field. The work program in metallurgical tests contemplates that the samples are sent to internal laboratories to perform the analysis and test work according to the following detail:

Analysis Laboratories located in Antofagasta provide chemical and mineralogical analysis.

Pilot Plant Laboratory, located in Iris- Nueva Victoria, for completion of the physical and leaching response tests.

Details of the names, locations and responsibilities of each laboratory involved in the development of the metallurgical tests are reported in section 10.4 Analytical and Testing Laboratories. The reports documenting the drilling programs provide detailed descriptions of sampling and sample preparation methodologies, analytical procedures meeting current industry standards. Quality control is implemented at all stages to ensure and verify that the collection process occurs at each stage successfully and is representative.

For Pampa Orcoma tests were conducted in 2014 and during 2020:

2014 Sumo Project (piques or calicatas).

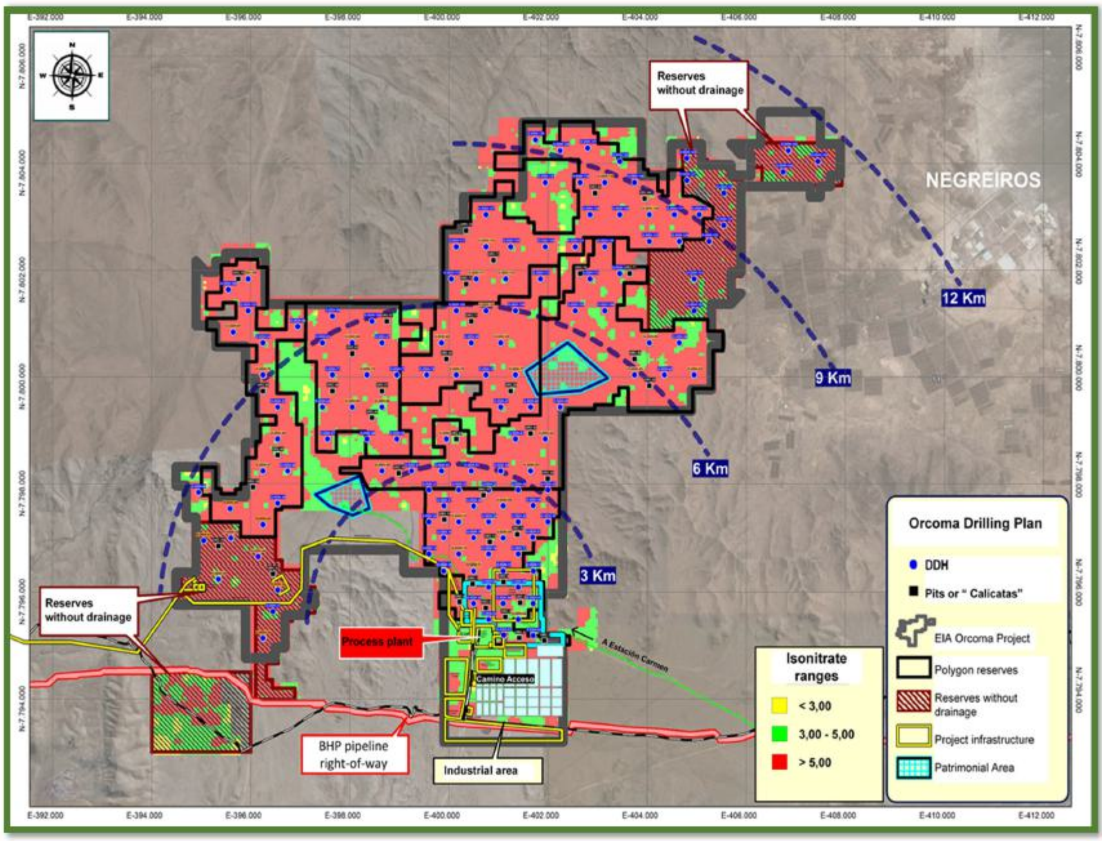
2020 Diamantina Project (DDH)

For the 2014 campaign, the sampling of the reserve was based on the basic unit known as "piques or calicatas ", consisting of some trial pits of approximately 3.5 x 3.5 m, with a depth of 3 m, to extract a mass of approximately 70 ton. In this case, six pits were chosen covering the entire reserve, a number selected for cost and response time considerations available for the physical tests and iso-containers leaching test.

2020 Diamantina Project (DDH), 30 DDH drilling samples (details available in borehole section) are selected under lithological criteria, salt content and Iodine-Nitrate grades, which are subjected to different physical tests for each DDH: *Gravel test, erasure, rock embedded, embedded test tube, granulometric tests and agitated leaching test*.

To establish the representativeness of the samples to estimate the physical and chemical properties of the caliche of the resource to be exploited, a map of geographical distribution of sampling points Pampa Orcoma for a "calicatas" and diamond drilling campaign is shown Figure 10-2.

Figure 10-2. Diamond Drilling Campaign Map for Composite Samples from the Pampa Orcoma Sector for Metallurgical Testing



10.1.2 Caliche Mineralogical and Chemical Characterization

SQM nitrates mineralogical tests were realized in the composite as part of the test work. To know the mineralogical characteristics and alterations, the elemental composition is studied by X-Ray Diffraction (XRD). A particle mineral analysis (PMA) is performed to determine the mineral content of the sample.

The mineralogical characterization of caliche is performed by the following components to include nitrate, chloride iodate, sulfate, and silicate.

In-house analytical laboratories operated by company personnel are responsible for the chemical and mineralogical analysis of samples. These laboratories are in the city of Antofagasta and correspond to the following four sub-facilities:

- Caliche-Iodine Laboratory
- Research and Development Laboratory
- Quality Control Laboratory
- SEM and XRD Laboratory

The chemical characterization of caliche in the concentrations corresponding to Iodine, Nitrate, and Na_2SO_4 (%), Ca (%), K (%), Mg (%), KClO4 (%), NaCl (%), Na (%), Na (%), H_3BO_3 (%), and SO4 have obtained thanks to chemical analyses carried out in an internal laboratory of the company. The analysis methods are shown in Table 10-1.

Table 10-1. Applied methods for the characterization of caliche or composite.

Parameter	Unit	Method
Iodine grade	(ppm)	Volumetric redox
Nitrate grade	(%)	UV-Vis
Na_2SO_4	(%)	Gravimetric/ICP
Ca	(%)	Potenciometric/Direct Aspiration-AA or ICP Finish
Mg	(%)	Potenciometric/Direct Aspiration-AA or ICP Finish
K	(%)	Direct Aspiration-AA or ICP Finish
SO_4	(%)	Gravimetric/ICP
$KClO_4$	(%)	Potenciometric
NaCl	(%)	Volumetric
Na	(%)	Direct Aspiration-AA or ICP Finish
H_3BO_3	(%)	Volumetric or ICP Finish

Composite samples (material sorted from the trial pits (calicatas), loading faces, piles, drill holes and diamond piles) are analyzed by iodine and nitrate grades. The analyses are conducted by Caliche and Iodine laboratory located in the city of Antofagasta. Facilities for iodine and nitrate analysis have qualified under ISO- 9001:2015 for which TÜV Rheinland provides quality management system certification. The latest recertification process was approved in November 2020 and is valid until March 15, 2023.

The protocols used for each of them are properly documented about materials, equipment, procedures, and control measures. The procedure used to calculate the iodine and nitrate grade, are summarized below.

Iodine determination

There are two methods to determine iodine in caliche, redox volumetry and XRF. Redox volumetry is based on titration of an exactly known concentration solution, called standard solution, which is gradually added to another solution of unknown concentration, until chemical reaction between both solutions is complete (equivalence point). Iodine determination by XRF uses XRF Spectro ASOMA equipment, in which a pressed mineral sample is placed in a reading cell. This year it was possible to replace the team with the Rigaku NEX QC, which allows to analyze six samples, A silicon drift detector (SDD) affords extremely high-count rate capability with excellent spectral resolution. This enables NEX QC+ to deliver the highest precision analytical results in the shortest possible measurement times. QA controls consist of equipment status checks, sample reagent blanks, titrant concentration checks, repeat analysis for a standard with sample set to confirm its value.

Figure 10-3. Rigaku NEX QC series of EDXRF Spectrometers

Nitrate determination

Nitrate grade in caliches is determined by UV-visible molecular absorption spectroscopy. This technique allows to quantify parameters in solution, based on their absorption at a certain wavelength of the UV-visible spectrum (between 100 and 800 nm).

This determination uses a Molecular Absorption Spectrophotometer POE-011-01, or POE-17-01, in which a glass test tube containing a filtered solution obtained by leaching with filtered distilled water is used. Results obtained are expressed in percent nitrate.

The quality assurance criteria and validity of the results are described below:

Prior equipment verification.

Performing comparative nitrate analysis once a shift, by contrasting readings of the same samples with other UV-visible equipment and checking readings in Kjeldahl method distillation equipment, for Nitrogen determination.

Standard and QC sample input every 10 samples.

Figure 10-4. UDK 169 with AutoKjel Autosampler - Automatic Kjeldahl Nitrogen Protein Analyzer

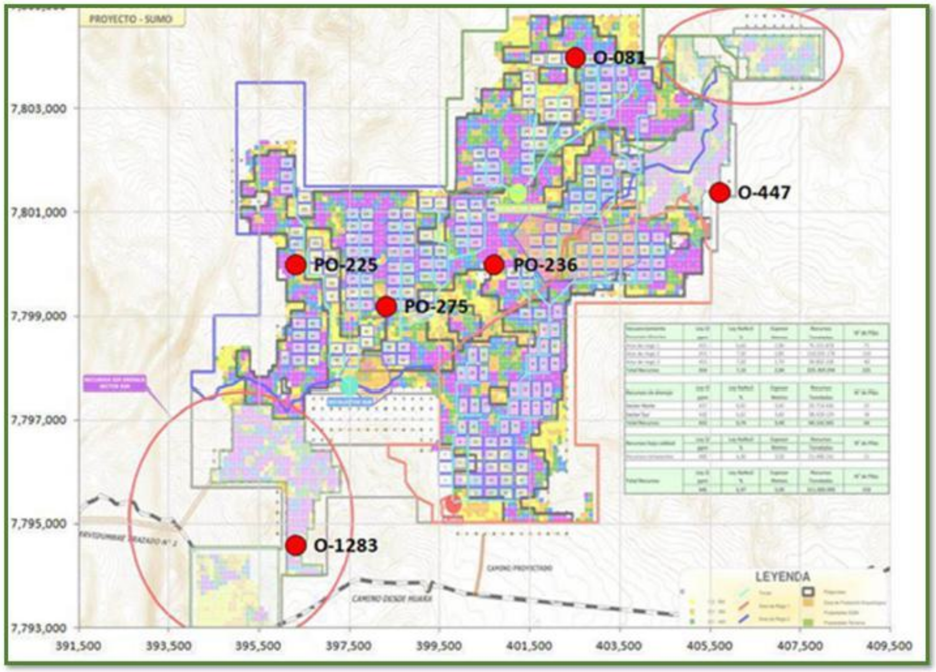
The trial pits presented the following salt matrix, shown in Table 10-2, were determined from 200 x 200 m mesh exploration drillings.

Table 10-2. Salt Matrix of Pampa Orcoma Sampling Points (Piques) taken from 200 x 200 mesh Drillings

Sumo Project	Sahft	0-1283	0-447	0-081	PO-225	PO-236	PO-275
	Coord X	396,300	405,700	402,500	396,300	400,700	398,300
	Coord Y	7,794,600	7,801,400	7,804,000	7,800,000	7,800,000	7,799,200
Parameter	**Unit**	**Concentration**					
I_2	ppm	430	460	440	506	561	415
$NaNO_3$	%	5.5	9.4	6.6	6.7	10.2	10.0
Na_2SO_4		27.6	23.5	20.9	40.7	20.9	22.7
Ca		5.07	2.59	2.92	4.95	3.65	2.29
Mg		0.59	1.15	0.8	1.66	0.5	1.22
K		0.85	1.32	0.82	1.57	0.92	1.38
SO_4AP		9.6	14.3	10.6	23.2	8.0	14.6
$KClO_4$		0.03	0.05	0.02	0.03	0.04	0.04
NaCl		12.9	15.3	8.8	10.6	6.5	20.0
Na		7.7	9.9	6.7	9.2	6.3	12.2
H_3BO_3		0.55	0.31	0.28	0.41	0.40	0.23
K/Mg		1.44	1.15	1.03	0.95	1.84	1.13

The geographic distribution of the points is shown in Figure 10-5.

Figure 10-5. Samples Obtained from Drill Holes 2014 Sumo Project



The results provided by the company for Pampa Orcoma highlight the following points:

The most soluble part of the saline matrix is composed of sulphates, nitrates, and chlorides.

There are differences in the ion compositions present in salt matrix (SM).

Anhydrite, Polyhalita, and Glauberite, less soluble minerals, have calcium sulphate associations.

From the chemical-salt point of view, the deposit is favorable for the extraction procedure, since it contains an average of 49% of soluble salts, high contents of calcium (>2.5 %), and high concentrations of chlorides, and sulfates. In this respect, extraction yields over 65% are expected with higher values concerning the caliches in current exploitation.

Being a mostly semi-soft deposit, it favors the development of CM, in practically all the deposits. This geomechanical condition added to the low clastic content and low abrasiveness (confirmed by trial pits, "calicatas") would allow for the estimation of a lower mining cost when applying this technology.

10.1.3 Caliche Physical Properties

To measure, identify, and describe a mineral as well as to contribute to a better understanding of it, physical tests of mineral properties that predict how it will react under certain treatment conditions are developed. To measure, identify and describe an ore as well as contribute to a better understanding, physical tests of the ore properties are developed to predict how it will react under certain treatment conditions. The determination of the physical properties, through the tail test, borra test, laboratory granulometry, embedding tests, and permeability, are carried out in the laboratory facilities of the Iris Pilot Plant, located in that sector in Nueva Victoria.

The following are the test conditions established, as described below.

Tailings Test

To predict the physical quality of the material generated in the leaching process, the riprap test consists of a leaching test followed by a sedimentation test of the pulp generated in the previous stage, the information generated corresponds to the volume of a clear liquid that is formed as the fine material sediments.

A mass of 1 kg of caliche contact for 30 minutes with water at a liquid/solid ratio of 0.5, in an agitated container at a temperature of 45°C, in a thermal bath regulated at 45°C. The pulp obtained flows into a 1.0 Lt graduated cylinder, where the solids begin to settle. After 24 hours, a record is made of the volume of clear liquid generated to determine the sedimentation curve and speed, as well as the degree of compaction.

Borras Test

This test determines the content of fines according to the type of caliche. For this purpose, a 1 Kg mass of caliche is contacted with hot water at 80°C for 20 minutes. The pulp obtained is passed through ¼" and 35 mesh Tyler sieves and washed at each step with distilled water. Then, the material retained in the 100 mesh is displaced with water and received in one of the tared trays and put to dry in the cooker. Similarly, the material passing through the 100-mesh received at the bottom is decanted before drying. Finally, the total percentage of flotsam generated is obtained.

Size Distribution

This determines the different particle sizes of soil and obtains the quantity, expressed as a percentage, that passes through the different sieves of the series used in the tests. The sieves were placed with each of the samples in the mechanical shaker and passage and retention were recorded to obtain the granulometric curves.

Embedding Test

The test consists of placing a mineral rock (from 2 to 5 kg) in a tray with a certain height of solution (2 cm to 5 cm of water) and measuring the wetting advance front. This test has a duration of 36 hours.

Up to this point, the physical determinations described above allows for the categorization of whether a caliche is very unstable, unstable, stable, or very physically stable to generate the best irrigation strategy in the impregnation stage (irrigation rate, impregnation solution, pulse days). In the future, it is intended to incorporate other tests, such as capillarity tests, that measure the liquid suction using medium and large particles of mineral. In addition, the saturation level in the heap is intended to be measured by determining the concentration of different ions along a column of mineral during leaching. Finally, it is intended that permeability tests will occur using a constant load permeameter.

The tests developed are summarized Table 10-4.

During the site visit, it was possible to verify the development of embedding, sedimentation, and compaction tests in the Iris Pilot Plant Laboratory, which are shown in the Figure 10-4

Table 10-3. Determination of physical properties of caliche minerals.

Test	Parameter	Procedure	Objective	Impact
Tails test	Sedimentation and Compaction	Sedimentation test, measuring the clearance and riprap cake every hour for a period of about 12 hours.	Obtain the rate of sedimentation and compaction of fines.	Evidence of crown instability and mud generation. Irrigation rate
Borra test	% of fine material	The retained material is measured between the - #35 #+100 and -#100 after a flocculation and decantation process. flocculation and decantation of ore	To obtain the amount of ore flocculation and decantation process	% of fine that could delay irrigation.Irrigation rate. Canalizations.
Size distribution	% of microfine	Standard test of granulometry, the percentage under 200 mesh is given.	Obtain % microfine	% Water retention and yield losses
Permeability	K (cm/h)	Using constant load permeameter and Darcy's law	To measure the degree of permeability of ore	Decrease in extraction kinetics of extraction
Embedded	alpha	Wettability measurement procedure of rock	To measure the degree of wettability of the ore	Variability in impregnation times

Figure 10-6. Embedding, Compaction and Sedimentation Tests Performed in the Iris Pilot Plant Laboratory.

Orcoma´s physical test results are compared with those of TEA (Table 10-5). TEA is another SQM property some km to the south of Pampa Orcoma.

Table 10-4. Comparative results of physical tests for Pampa Orcoma and TEA exploitation project.

Sector	Sedimentation	Compactation	% Fines	# - 200	Alpha
TEA	0.024	7.54	31.86	10.57	2.37
Orcoma	0.025	10.05	32.98	12.29	2.29

According to the results, it is possible to highlight the following points:

Sedimentation: Both have medium sedimentation velocity, which implies the need for impregnation and prolonged resting for stabilization.

Compaction: Orcoma has a good compaction, which indicates a greater uniformity in the porous bed, which allows reaching high irrigation rates and therefore better kinetics.

Fines: Both sectors present high percentage of fines, this implies that the best impregnant to use should be a solution other than water. The negative impact of this condition could be increased depending on the type of fine material (e.g., clays) generating water pockets and channeling.

Material #-200: Corresponds to the microfine and are the ones that give rise to channeling and exhibit very high value in both sectors.

Parameter Alpha: At medium levels, these imply acceptable embedding speed which can be improved with a slow controlled impregnation.

As the physical properties measured are directly related to the irrigation strategy, the conclusion is that both caliches should be treated in a similar way considering a standard impregnation stage of mixed drip and sprinkler irrigation.

10.1.4 Agitated Leaching Tests

The agitated leaching tests are developed with the objective of representing the leaching mechanism implemented in the plant by means of the different irrigation solutions and to obtain the maximum recovery potential. The protocol for the development of the agitated leaching tests is summarized below.

Leaching in Stirred Reactors

Leaching experiments are conducted at atmospheric pressure and temperature in a glass reactor without baffles. A propeller agitator at 400 RPM was used to agitate leach suspension. In short, all the experiments were executed with:

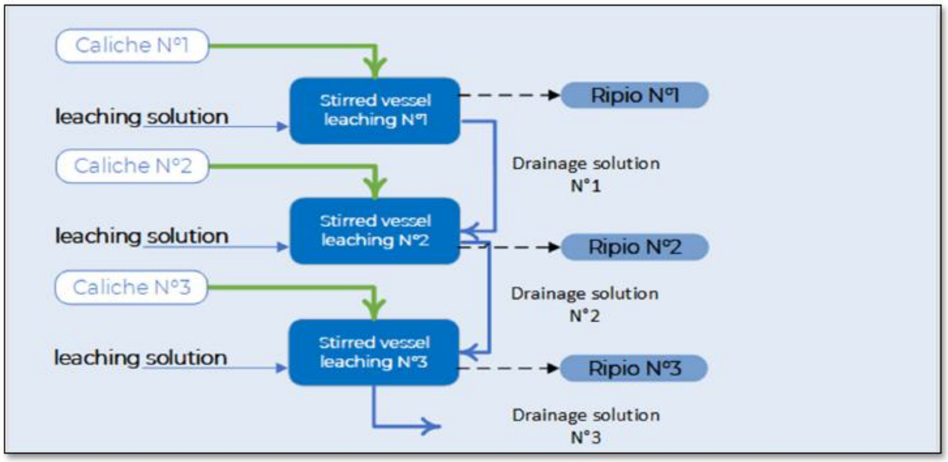
- Ambient conditions.
- Caliche sample particle size 100% mesh -65# mesh.
- Caliche mass 500 g.
- L/S ratio 2:1.
- Leaching time 2 h.
- Three contact leaching including use of drainage solution.

To start up the leaching experiment, a reactor was initially filled with distilled water and then the solution is gently agitated. After a few minutes, PH and ORP values were set, caliche concentrate added to the solution and agitation increased to the final rate.

Once finished, the product was filtered, and the brine solution analyzed by checking the extraction of analytes and minerals by contact with the leaching agent, consumption per unit and iodine extraction response.

Successive leaching's are complementary to stirred vessel leaching, and also performed in a stirred vessel with the same parameters explained above. However, it contemplates leaching three caliche samples successively with the resulting drainage solution of each stage. The objective of this test is to enrich this solution of an element of interest such as iodine and nitrates to evaluate heap performance as this solution percolates through the heap. The representative scheme of successive leaching in stirred vessel reactors is shown in Figure 10-5.

Figure 10-7. Successive Leach Test Development Procedure



The extraction of each analyte and minerals per contact is analyzed. These results reported by the company are conclusive on the following points:

The higher the amount of soluble salts, the lower the extraction.

A higher proportion of calcium in salt matrix implies higher extraction.

The physical and chemical quality favorable for Leaching results from a soluble salts content lower than 50%.

Calcium: In the Orcoma leach brine contains 0.22 (gpl) and implies a lower degree of incrustations in the plant.

Sulfate: No effect is seen since the solutions would not be at the Decahydrated Sulfate field.

NTU: There is a threat due to the presence of fines in the caliche, an additional 30 NTU (80 v/s 110). This result would translate into an impact of one additional day of maintenance per year.

For Pampa Orcoma, reports indicate that the Diamantina Project involved leaching trials of 30 DDH, resulting in an iodine yield of 65.3% and a nitrate yield of 66.3%.

For a caliche of Pampa Orcoma sector, the chemical characterization of leaching solution results are show in Table 10-5, where an average salt matrix of 63.7% soluble salts and an iodine yield of 56.4%.

Table 10-5. Chemical Characterization of samples obtained from Successive Leach Test Results.

Element												
Iodine (ppm)	$NaNO_3$ (%)	Na_2SO_4	Ca	Mg	K	SO_4AP	$KClO_4$	NaCl	Na	H_3BO_3	Soluble Salts (SS) (%)	Iodine Yield (%)
373	6.3	19.6	3.1	0.67	0.75	8.52	0.04	13.5	7.99	0.35	53.4	65.3

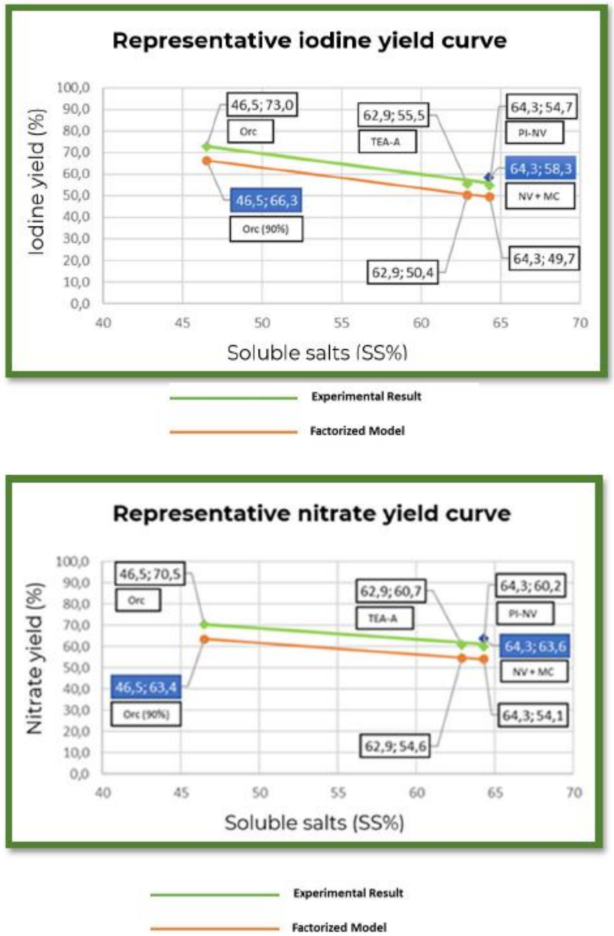
Orcoma has a higher yield than other sectors. Figure 10-7 shows the results of the agitated leaching tests of two resources from TEA and Pampa Orcoma. The graphs represent the nitrate and iodine yield achieved as a function of soluble salt content.

In the graphs, the green line corresponds to the experimental yield result, while the orange line indicates a modeling result of the Pampa Orcoma yield factored at 90%. The yield equivalent to 90% of what the model indicates is 65.3% for Iodine and 52.6% for Nitrate. These factored yields are conservatively used for the economic evaluation of the project.

The green line, which corresponds to the experimental results, shows that an ore from Pampa Orcoma with a content of soluble salts of 46.5% has a yield of 73% for iodine and 70.5% for nitrate. Ore from TEA, with a content of 62.9% of soluble salts, has a yield of 55.5% for iodine and 60.7% for nitrate. Both resources show a difference in nitrate yield of 70.5% versus 60.7% and a difference in iodine yield of 73% versus 55.5%.

Both resources show a difference in nitrate and iodine yield of 9% to 17%, respectively.

Figure 10-8. Nitrate and Iodine Yield Obtained by Successive Agitated Leaching Test.



10.1.5 Leaching in Isocontainer

The Isocontainer leaching tests are developed with the objective of representing the heap leaching process. The first Isocontainer tests, in 2012, were conducted on an exploratory basis to compare leaching variables (such as grade and grain size). In these early Isocontainer tests, a significant closeness between reactor and heap results was detected. It was found that the closer the test parameters were to those used in the industrial process, the closer the correlation was 1:1.

The Isocontainer are plastic receptacles that are loaded in such a way as to replicate the segregation presented by industrial piles because of their loading method, and therefore the material is stacked in layers inside the reactor, as illustrated in Figure 10-8.

Figure 10-9. Loaded Isocontainer and Distribution of Material According to Granulometry.

a) Isocontainer Test with Pampa Orcoma Material

Layer 4: (-2")
Layer 3: (-6" +2")
Layer 2: (-12" +6")
Layer 1: (+12")
Dreanflex

b) Isocontainer Loading Diagram

The tests, corresponding to the 2014 campaign, were carried out with parameters corresponding to those of the Nueva Victoria industrial process on the test date, using seawater obtained from Caleta Buena, the point foreseen for future extraction. The test development conditions are as indicated in Table 10-7.

Table 10-6. Condition for Leaching Experiments in Isocontainer.

Parameter	Detail
Mass	1,500 Kg
Granulometry	12" - (-12"+6")-(6"+2")-(-2")
Test Duration	25.8 days
Impregnation	0.05 m^3/Ton 1 lt/h/m^2
Irrigation	Water: 0.07 m^3/Ton - 2l/h/m2 SI: 0.41 m^3/Ton - 2l/h/m2 Mixed: 0.09 m^3/Ton - 2l/h/m2 Washing: 0.28 m^3/Ton - 2l/h/m2

From this same sampling and loading process, head samples are obtained to determine the caliche grades. The head grades are detailed in Table 10-8.

Table 10-7. Head Grade Samples Loaded to Isocontainer.

Element	K	Mg	Ca	NaCl	Na_2SO_4	$NaNO_3$ (%)	$KClO_4$	I_2	H_3BO_3	Na_2CO_3
Unit	%							ppm	%	
0-081	0.7	0.72	3.57	12.0	22.6	5.1	0.02	360	0.33	0.05
PO-225	1.2	0.98	3.73	15.9	26.1	5.3	0.03	370	0.44	0.06
PO-236	1.04	0.79	2.24	16.3	17.9	5.2	0.03	170	0.35	0.03
PO-275	0.82	0.93	3.87	11.4	25.0	4.6	0.02	400	0.54	0.06
O-447	0.96	0.95	2.77	13.9	23.0	6.3	0.02	270	0.33	0.06
O-1283	0.73	0.62	4.62	11.79	33.3	3.1	0.02	250	0.38	0.04

It is important to note that the compositions in Table 10-7 differ significantly from those of the drill holes in Table 10-2.

The tests occur, per associated pique sample, in four receptacles. The Isocontainer results for Pampa Orcoma are summarized in Table 10-9, corresponding to averages of the four representative Isocontainer.

Table 10-8. Results of Isocontainer Leaching of Samples Obtained from Trial Pits Pampa Orcoma.

Yield (%)	PO-1283	PO-225	PO-447	PO-081	PO-275	PO-236	Average
I_2	55.8	70.2	64.7	66.4	67.8	69.3	67.7
$NaNO_3$	70.5	79.8	74.3	84.9	75.1	74.2	77.6

Isocontainer leaching test of O-1283 sample presented anomalous behavior (manifesting as ponding or flooding) during the tests, which is another reason to exclude it from the report of results.

The Isocontainer results were used to calibrate a phenomenological model based on chemical equilibria and wetting kinetics (embedded). The equilibria were simulated by gPROMS using the SQM PPFO property package (originally developed for Salar de Atacama brine equilibria).

Other variables were added to the Isocontainer results:

- Granulometry.
- Embedded (Alpha).
- Drainage curve.

This data is introduced into the model to represent the Isocontainer data, scaling the parameters to pile to obtain a projection of the caliche behavior at industrial scale (Table 10-10).

Table 10-9. Sumo Project 2014 – Result of Simulated pile scaling for 6 Pampa Orcoma Trial Pits.

Sample	Element											Soluble Salts (SS) (%)	Iodine Yield (%)
	Iodine (ppm)	$NaNO_3$ (%)	Na_2SO_4	Ca	Mg	K	SO_4AP	$KClO_4$	NaCl	Na	H_3BO_3		
PO-081	370	5.3	26.1	3.7	0.98	1.20	12.9	0.03	15.9	9.5	0.44	47.0	69.8
PO-225	270	6.3	23.0	2.8	0.95	0.96	13.2	0.02	13.9	9.2	0.33	56.3	67.2
PO-236	360	5.1	22.6	3.6	0.72	0.70	10.0	0.01	12.0	7.7	0.33	42.6	67.8
PO-275	400	4.6	25.0	3.9	0.93	0.82	11.3	0.02	11.4	7.3	0.54	38.5	69.7
PO-447	170	5.2	17.9	2.2	0.79	1.04	10.0	0.03	16.3	9.1	0.35	61.3	62.0
Average	**314**	**5.3**	**22.9**	**3.2**	**0.87**	**0.94**	**11.5**	**0.02**	**13.9**	**8.6**	**0.40**	**49.1**	**67.3**

Thus, the results of simulation of leaching in Isocontainer of five pits gave an average yield of 67.3% for iodine and 75.4% for nitrate. The average soluble salt content of Pampa Orcoma in this test is defined as 49.1% on average.

10.1.6 Column Leach Test using Seawater

Water availability is limited, being a critical issue for the mining industries and, therefore, other leaching agents such as seawater can be a viable alternative. Therefore, experimental studies of caliche leaching in mini-columns were conducted to evaluate seawater's effect.

This study aims to analyze seawater's effect on caliche leaching from different sectors of nitrate-iodine mining properties, using seawater sampled in Mejillones Bay at 100 m offshore and below 15 m deep.

The types of tests executed are in duplicate under the following impregnation-irrigation strategy and conditions:

Water Impregnation - Irrigation with Water (MC 1-MC2).

Water Impregnation - Irrigation with 60% v/v Water - 40% v/v with a recirculated weakly acidic water (AFA). (MC 3-MC 4).

Seawater Impregnation - Irrigation with Seawater (MC 5-MC 6).

Seawater Impregnation - Irrigation with Mixed 60% v/v Seawater - 40% v/v AFA (MC 7-MC 8)

The test development conditions are indicated in Table 10-6.

Composition determined by granulometry of the material disposed in the columns.

The test development conditions are as indicated in Table 10-11.

Table 10-10. Conditions for Leaching Experiments with Seawater.

Parameter	Detail
Mass	3,031.3 gr
Granulometry	1" - 3/4" - 1/2" - 1/4" - 20" mesh
Test Duration	7 days
Total Impregnation	19 hours in watering/rest schedule
Continuos Irrigation	1 h/2 h-1 h/1 h-2 h/ 1h
Irrigation Rate Flow-flow	5 days and 20 hours

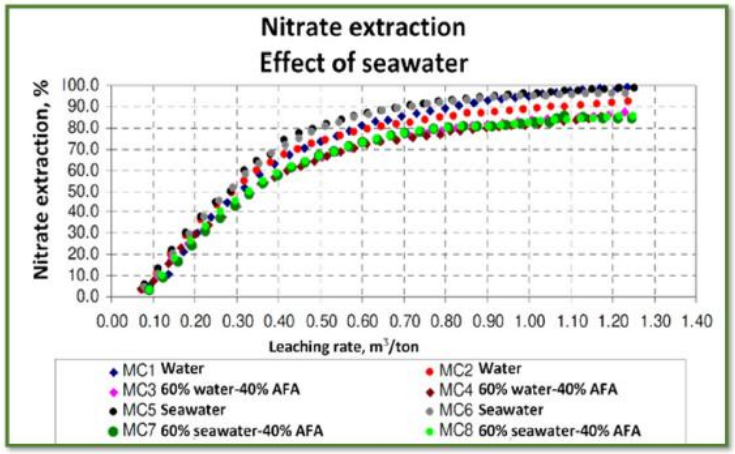
Table 10-11. Characteristic Composition of the Caliche used in the Test.

	Caliche Composition (%)										
Type	NO_3	IO_3	Cl	SO_4	ClO_4	BO_3	Na	K	Mg	Ca	CO3
Caliche type +1"	3.83	0.05	5.13	22.52	0.04	0.58	8.43	1.08	0.84	4.88	0.04
Caliche type +3/4"	4.96	0.06	5.43	19.98	0.05	0.49	7.93	1.02	0.88	4.67	0.03
Caliche type +1/2"	5.76	0.07	5.34	14.78	0.05	0.79	9.08	0.89	0.45	2.8	0.06
Caliche type +1/4"	5.80	0.07	5.31	14.74	0.05	1.01	9.08	0.87	0.51	2.93	0.06
Caliche type +#20	5.87	0.07	5.37	10.62	0.05	1.15	9.12	0.85	0.34	1.64	0.05

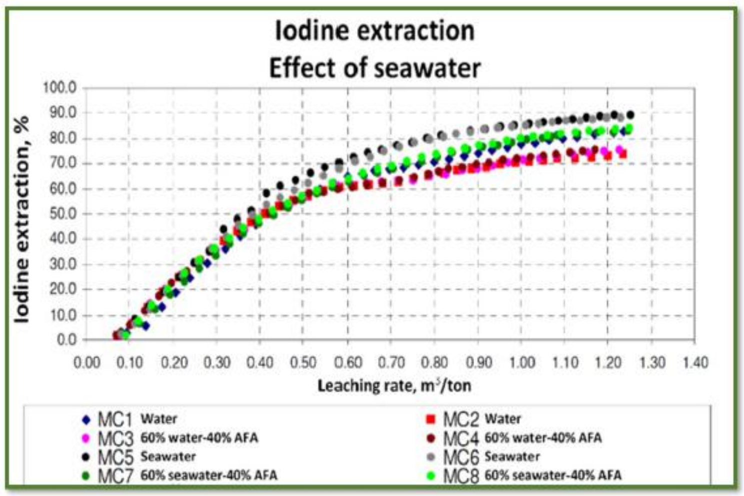
Experiments have shown that highly soluble minerals such as nitrate and iodate are rapidly leached with seawater without much difference concerning the raw water method.

Regarding nitrate and iodine extraction, higher NO_3 extraction, Figure 10-9., is observed when leaching with seawater as well as a higher IO_3 extraction is observed when leaching with seawater (MC5- 5 and MC 6 curves versus MC1 and MC 2 curves). In addition, when comparing the extractions achieved in iodine leaching by water/AFA and seawater/AFA, curves MC 3 and MC 4 versus MC 7 and MC 8. The seawater/AFA mixture is better (MC 7 and MC 8). For nitrate, there is no appreciable difference in increase when using seawater as a mixture. The extraction is similar to that of iodine.

Figure 10-10. Results of Nitrate and Iodine Extraction by Seawater Leaching



a) Nitrate extraction with seawater



Source: SQM- Reporte-Efecto Agua de Mar 231208

b) Iodine extraction with seawater

In the future heap behavior will be studies through column leaching tests using seawater, including different irrigation rates and bed heights in the column, and analyzing the experimental concentrations of each species.

10.1.7 Laboratory Control Procedures

Currently, there is a quality control system in place to monitor iodine production operations, which consists of monitoring processes starting with inlet brine characterization, followed by sampling and characterization of the cutting and oxidation brine, as well as the prill product obtained. From the product obtained from the iodine prill plant, a series of analyses are conducted to quantify purity, chloride/bromine ratio, sulfate, mercury, residues, and color index.

The analyses, on liquid and solid samples, are performed in the laboratory facilities located in the city of Antofagasta, Analysis laboratory, involving two installations:

Caliche-Iodine Laboratory: Determination of iodine and nitrate in caliches.

Research and Development Laboratory: Facility in charge of performing determination by AAS, ICP-OES, potentiometry, conventional titration, solution density.

Table 10-13 shows the basic set of analyses requested from laboratories and the methodologies used for their determination.

Table 10-12. List of requested analyses for caliche leach brines and iodine prill

Iodine Solutions

Parameter	Method
Iodine grade	Volumetric redox
Nitrate grade	UV-Vis
pH	Potenciometric
Acidity	Volumetric acid-base
Alkalinity	Volumetric acid-base
H3BO3	Volumetric or ICP Finish
Na2SO4	Gravimetric/ICP
Ca	Potenciometric/Direct Aspiration-AA or ICP Finish
Mg	Potenciometric/Direct Aspiration-AA or ICP Finish
K	Direct Aspiration-AA or ICP Finish
SO4	Gravimetric/ICP
KClO4	Potenciometric
NaCl	Volumetric
Na	Direct Aspiration-AA/ICP or ICP Finish

Iodine Prill

Parameter	Method
Purity or iodine count	Potenciometric
Bromide and chloride	Volumetric
Non-volatile material (residue)	Gravimetric
Sulfate	Turbidimetry
Mercury	Spectrophotometry
Coloration Index	Colorimetric

Pampa Orcoma's mineral treatment tests have resulted in an average of the following components of brines that will enter the plant and be sent to evaporation ponds (Table 10-14).

Table 10-13. Average Chemical Composition of Pampa Orcoma Brine Feed and Directed Out to the Process.

Parameter	Unit	Brine Feed to Process	Brine Out Directed to Evaporation Ponds
Iodine	(gpl)	0,56	≈ 0,02
NaNO3		128	128
Na2SO4		127	127
NaCl		-----	226
Ca		0,22	0,22
Mg		15,5	15,5
K		10,7	10,7
KCl04		0,9	0,9
H3BO3		4,9	4,9
Na2CO3		1,0	4,6
MgL		4,6	11,9
NO3/K	---	11,9	143
NO3/ClO4		143	26,0
NO3/B		26,0	3,55
Alkalinity/iodine		1,7	-----
Evaporation Rate	(l/m²d)	3,55	128

The relevant results of the brine produced at Orcoma are:

The chemical quality of the Orcoma BF is richer in relative nitrate content and has a lower magnesium content versus other brines. This can positively affect the yield of ponds.

The $NaNO_3$/K ratio in BF Orcoma is similar to the composition other brines.

The $NaNO_3/KClO_4$ ratio is 26 in Orcoma which allows for low values of Perchlorate to be maintained in the product salt, suitable for NPT plants.

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

Collection of brine samples periodically to measure brine properties such as chemical analysis, density, brine activity, etc. Samples are taken by the in-house laboratory using the same methods and quality control procedures as those applied to other brine samples.

Collection of precipitated salts from the ponds for chemical analysis to evaluate evaporation pathways, brine evolution, and physical and chemical properties of the salts.

10.2 Samples Representativeness

The company has established Quality Assurance/Quality Control (Qa/Qc) measures to ensure the reliability and accuracy of sampling, preparation, and assays, as well as the results obtained from assays. These measures include field procedures and checks that cover aspects such as monitoring to detect and correct any errors during drilling, prospecting, sampling and assaying, as well as data management and database integrity. This is done to ensure that the data generated are reliable and can be used in both resource estimation and prediction of recovery estimates.

According to the sampling protocol, the samples, once logged by the technical staff in charge of the campaign, are delivered from the drilling site to a secure and private facility. Analytical samples are prepared and assayed at the in-house " Pilot Plant Laboratory" located at the Nueva Victoria site and Iris sector. The protocol ensures the correct entry in the database by tracking the samples from their sampling or collection points, identifying them with an ID, and recording what has been done for the samples delivered/received. The set of procedures and instructions for traceability corresponds to a document called "Caliche AR Sample Preparation Procedure".

The company applies a quality control protocol established in the laboratory to receive caliche samples from all the areas developed according to the campaign, preparing the dispatches together with the documentation for sending the samples, preparing, and inserting the quality controls, which will be the verification of the precision and accuracy of the results. The LIMS data management system is used to randomly order the standards and duplicates in the corresponding request. By chemical species analysis, an insertion rate of standard or standard Qa/Qc samples and duplicates is established.

Regarding the treatment of the results, the following criteria are established:

Numbers of samples that are above and below the lower detection limits.

Differences of values in duplicates are evaluated. For example, when comparing duplicates of nitrate and iodine grades, a maximum difference, calculated in absolute value, of 0.4% for $NaNO_3$ and 0.014% for iodine is accepted.

For standards measured, results with a tolerance of +/- 2 standard deviations from the certified value are accepted.

In the case of any deviation, the laboratory manager reviews and requests checks of the samples, in case the duplicate or standard is out control.

As for physical characterization and leaching tests, all tests are developed in duplicate. Determination results are accepted with a difference of values in the duplicates of 2%.

Given that, as described above, the sampling method, from the different exploration and prospecting sites, as well as the preparation of the samples to prepare a composite on which the characterization tests are performed, are duly documented, as well as the quality assurance and quality controls, it is considered that the test samples are representative of the different types and styles of mineralization and of the mineral deposit as a whole. Sampling for operations control is representative of caliche as they are obtained directly from the areas being mined or scheduled for mining. The caliche analysis and characterization tests are appropriate for a good planning of operations based on a recovery estimation.

10.3 Analytical and Testing Laboratories

Pampa Orcoma's metallurgical test work program involves samples being sent to internal laboratories, located at the site. Metallurgical test work program involves samples being sent to internal laboratories that are responsible for analysis and test works:

Analysis laboratory located in Antofagasta, in charge of chemical and mineralogical analysis.

Pilot Plant Laboratory located at Iris- Nueva Victoria responsible for sample reception and physical and leaching response assays.

The following table details the available facilities and the analyses performed in each one of them.

Table 10-14. List of installations available for analysis.

Laboratory	Location	Analyses
Caliche-Iodine Laboratory	Antofagasta	Determination of Iodine and Nitrate in caliches, probing.
Research and Development Laboratory	Antofagasta	AAS, ICP-OES, potentiometry, conventional titration, solution density.
Quality Control Laboratory	Antofagasta	Polarized light microscopy, particle size distribution.
SEM and XRD Laboratory	Antofagasta	SEM and XRD
Pilot Plant Laboratory	Nueva Victoria	Physical characterization and ore leaching tests.

The facilities available for iodine and nitrate analysis at Caliche and Iodine Laboratories (LCY) in Antofagasta have qualified by ISO-9001:2015 (certification granted by TÜV Rheinland valid 2020-2023). Although the certification is specific to iodine and nitrate grade determination, the laboratory specializes in the chemical and mineralogical analysis of mineral resources, with extensive experience in this field going back a long way. In the opinion of the authors, the quality control and analytical procedures used at the Antofagasta Caliches and Iodine laboratory are of high quality.

On the other hand, it is necessary to highlight that, part of the exploration efforts are focused on the possible metallic mineralization of gold and copper found underneath the caliche. Therefore, samples are sent to analytical laboratories that are external and independent from SQM and are accredited and/or certified by the International Organization for Standardization (ISO):

Andes Analytical Assay (AAA) (ISO 9001 Certification).

ALS Global Chile (ISO/IEC 17025).

Centro de Investigación Minera y Metalúrgica (CIMM) (Accredited to International standard ISO/IEC 17025).

Regarding drill samples processing, those are segregated according to a mechanical preparation guide, which aims to provide an effective guideline of the minimum required mass and characteristic sizes for each test, seeking to optimize in the best possible way the available material. In this way, it is possible to perform the metallurgical tests of interest, ensuring their validity and reproducibility.

10.4 Test Works and Relevant Results

10.4.1 Metallurgical Recovery Estimation

Caliche characterization results are contrasted with metallurgical results to formulate relationships between elemental concentrations and recovery rates of the elements of interest or valuable elements and reagent consumption.

The relationships between reported analyses and recoveries achieved are as follows:

It is possible to establish an impact regarding recovery based on the type of salt matrix and the effect of salts in the leaching solution. With higher amounts of soluble salts, extraction is lower while higher calcium in SM results in higher extraction.

Caliches with better recovery performance tend to decant faster (speed) and compact better (cm).

The higher presence of fines hinders bed percolation, compromising the ability to leach and ultrafine that could delay irrigation or cause areas to avoid being irrigated.

The higher hydraulic conductivity or permeability coefficient, better the leachability behavior of the bed.

For metallurgical recovery estimation, the formulated model contains the following elements:

- Chemical-mineralogical composition.
- Yield.
- Physical characteristics: sedimentation velocity, compaction, percentage of fines and ultrafines, uniformity coefficient, and wetting.

The metallurgical analysis is focused on determining the relationships associated with these variables, since the relationships can be applied to the blocks to determine deposit results. From a chemical and yield point of view, a relationship is established between unit consumption (UC, amount of water) or total irrigation salts (salt concentration, g/L) and iodine extraction. The best subset of the regressions was used to determine the optimal linear relationships between these predictors and metallurgical results. A linear relationship between yield and total salts depending on soluble salts concentration was established. Thus, iodine and nitrate recovery equations are represented by the following formulas and Figure 10-7:

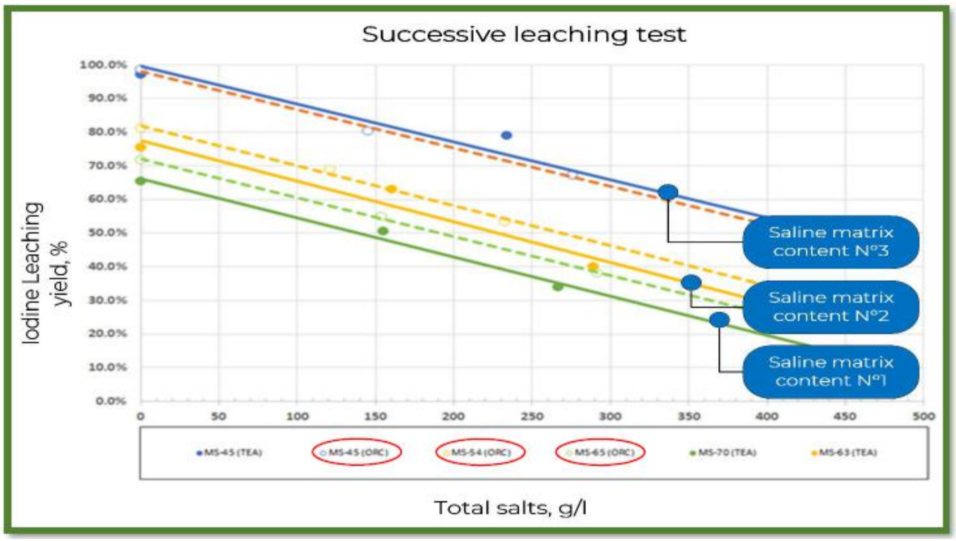
$$\textbf{Iodine yield} = \boldsymbol{A} * \left[\textbf{total salts} \left(\frac{\boldsymbol{g}}{\boldsymbol{l}}\right)\right] + \boldsymbol{B_n} \ ;$$

$$where:\ B_n = f(\%soluble\ salts)\ and\ A = constant$$

$$\textbf{Nitrate yield} = \boldsymbol{C} + \boldsymbol{D} * \left[\textbf{total salts} \left(\frac{\boldsymbol{g}}{\boldsymbol{l}}\right)\right] + \boldsymbol{F_n};$$

$$where:\ F_n = g(\%soluble\ salts\ \%Nitrate)\ and\ C, D = constants$$

Figure 10-11. Iodine Recovery as a Function of total Salts Content Test Work with Samples from Two Different Resource Sectors to be Exploited by SQM.



The graph of Figure 10-10 compares iodine yield results for samples from two SQM resources, TEA and Pampa Orcoma (abbreviated as ORC), as a function of total salts. The mineral samples (MS) are differentiated by their percentage soluble salt content, so that sample MS-45 (TEA), for example, corresponds to a mineral sample from the TEA sector characterized by 45% soluble salts. Following this logic, MS-45 (ORC), corresponds to a mineral sample from Pampa Orcoma, which has a soluble salt content of 45%. As can be seen, an output matrix content of 65% implies a lower recovery compared to an ore content of 45%.

From the comparative graph, it is possible to conclude that the recovery is favorable from a Soluble Salts content about than 50% and Pampa Orcoma, with a characteristic soluble salt content of 49.1 % - 53.4 % on average, would give rise to iodine recoveries of 65.3 % - 67.7 %.

In conclusion, the metallurgical tests, as previously stated, have allowed establishing baseline relationships between caliche characteristics and recovery. In the case of iodine, a relationship is established between unit consumption and soluble salt content, while for nitrate, a relationship is established depending on the degree of nitrate, unit consumption and the salt matrix. Relationships that allow estimating the yield at industrial scale.

10.4.2 Irrigation strategy selection

In terms of physical properties, the metallurgical analysis allows to determine caliche classification as unstable, very unstable, stable and very stable, which gives rise to an irrigation strategy in the impregnation stage. As a result, a parameter impact ranking is established in caliche classification, in the order indicated below (from higher to lower impact):

1. Compaction degree (C).

2. Sedimentation velocity (S).

3. Fines and ultrafines percentage (%f; percent passing #200) with wetting degree (A, Alpha).

4. Uniformity degree (Cu).

The weighting establishes a value to be placed on a scale of selection depending on the type of impregnation for the highest yield (see Figure 10-11):

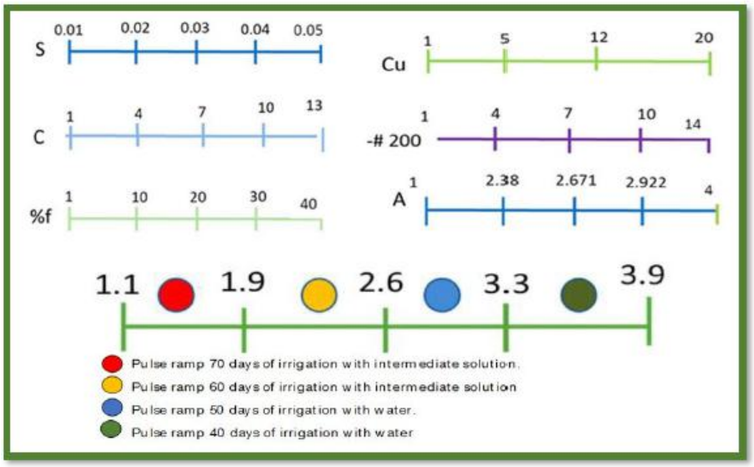
Scale 1.1 to 1.9; pulse ramp 70 days of irrigation with intermediate solution.

Scale 1.9 to 2.6; pulse ramp 60 days of irrigation with intermediate solution.

Scale 2.6 to 3.3; pulse ramp 50 days of irrigation with water.

Scale 3.3 to 3.9; pulse ramp 40 days of irrigation with water.

Figure 10-12. Parameter Scales and Irrigation Strategy in the Impregnation Stage.



The physical tests on the Orcoma caliche and the application of the established weighting for the determined parameters, indicate that the resource disposed in leaching heaps must be treated through an impregnation stage by drip irrigation with the following scheme: Water/50 days/Slow Pulse, to then change changes to sprinkler irrigation with intermediate solution for SI/60-70 days/Slow Pulse Ramp. Thus, avoiding possible canalization of the piles and consequently, low yields.

10.4.3 Industrial Scale Yield Estimation

All the knowledge generated from the metallurgical tests carried out, is translated into the execution of a procedure for the estimation of the industrial scale performance of the pile. Heap yield estimation and irrigation strategy selection procedure is as follows:

A review of the actual heap Salt Matrix were compared to results obtained from diamond drill hole samples from the different mining polygons. The correlation factor between the two is obtained, which allows determining, from the tests applied to diamond drill hole samples, how the heap performs in a more precise way.

With the salt matrix value, a yield per exploitation polygon is estimated and then, through a percentage contribution of each polygon's material to heap construction, a heap yield is estimated.

Based on percentage physical quality results for each polygon, i.e., C m/min, compaction, % fine material, Alpha, #-200, an irrigation strategy is selected for each heap.

The methodology indicated and summarized in the previous steps, has been developed exclusively by SQM throughout the time of development of assays and operation of piles in other operations such as Nueva Victoria. This methodology will be applied to future exploitation resources such as Pampa Orcoma. To exemplify the application to the industrial scale yield estimation of piles, which will be carried out at Pampa Orcoma, the following is the treatment of the pile and the annual yield estimation at another property of the company.

For example, for Pile 583, the physical test showed that the pile tends to generate mud in the crown and was instable. A 60-day wetting was recommended to avoid generating turbidity. The recommendation was to irrigate at design rate.

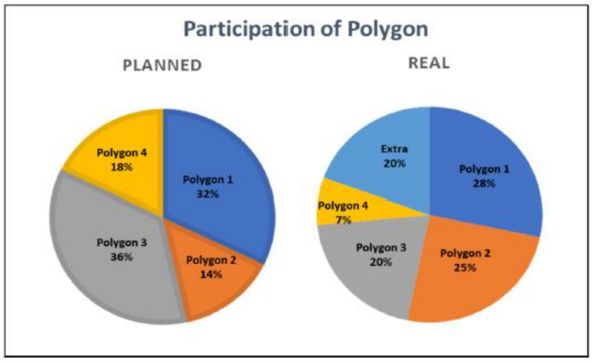
The real composition for Pile 583, determined by the diamond drilling campaign by polygon is shown in the Table 10-16 in which some differences can be observed.

Table 10-15. Comparison of the Composition Determined for the 583 Heap Leaching Pile in Operation at Nueva Victoria.

Type	Real vs. Diamond Salts Matrix										
	Iodine Grade (ppm)	Nitrate Grade (%)	Na2SO4	Ca	Mg	K	KCLO4	NaCL	Na	H3BO3	Saline Soluble
Sample	400	4.0	17.9	2.0	1.3	0.5	0.1	10.1	4.3	0.3	57.8
Real	424	4.2	16.4	1.9	1.2	0.6	1.4	10.5	4.6	0.3	58.3

Through the established methodology, composition and physical properties, the resulting 583 pile yield estimate is 54,5%. The estimation scheme is as shown in Figure 10- .

Figure 10-13. Irrigation strategy selection

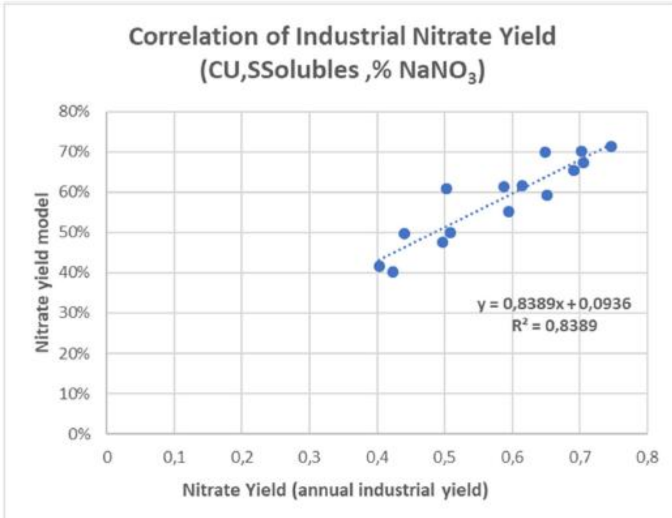


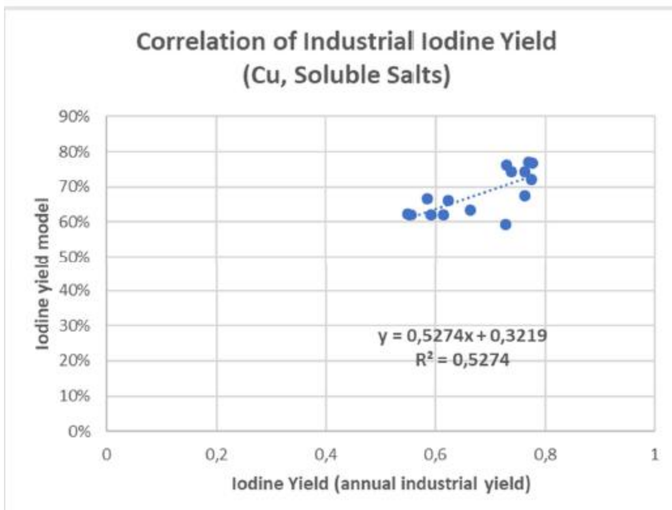
Following the example and in relation to the observed yield values contrasted with the values predicted by the model, the following graphs shows the annual yield of Nueva Victoria plant, both for iodine and nitrate, for the period 2008-2020.

The annual industrial throughput values with the values predicted by the model are shown in the Figure 10-10 in which a good degree of correlation is observed.

The annual industrial throughput values with the values predicted by the model are shown in the following figures and in which a good degree of correlation is observed.

Figure 10-14. Nitrate and Iodine Yield Estimation and Industrial Correlation for the period 2008-2022.





In Figure 10-13 shows a good degree of correlation between the annual industrial yield values and the values predicted by the model.

In view of the results and the knowledge, which allows a good estimate of the yield, both for nitrate and iodine, that has been applied by the company to other resources, it is possible to state that:

Pampa Orcoma ore is amenable to treatment by separation and recovery methods established in the project and otherwise applied for quite some time by the company.

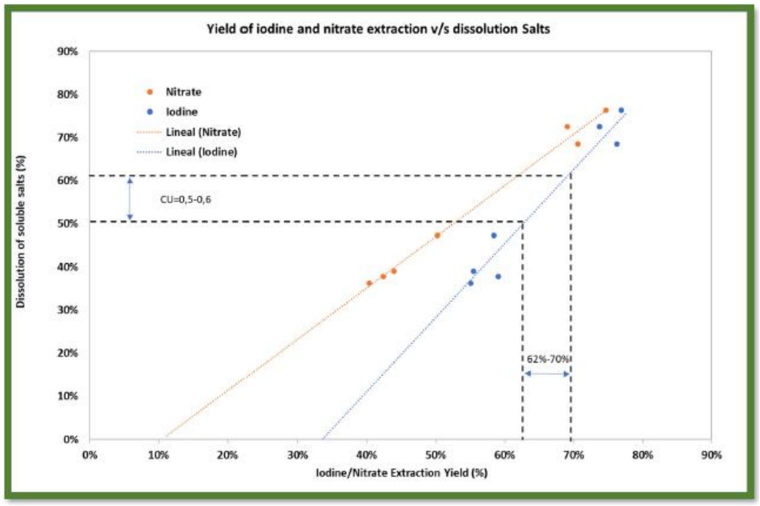
Given the characteristics of the mineral in its composition of soluble salts, a higher iodine recovery will be obtained compared to other resources treated by the company, complying with the industrial plans committed.

Table 10-16. Comparison of Industrial Yield with the Values Predicted by the Model.

Parameter	Unit	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Iodine Grade	ppm	476	470	460	457	465	416	466	459	456	456	460	459	460	448
Nitrate Grade	%	3,2%	3,9%	4,1%	5,0%	5,2%	4,5%	5,1%	5,8%	6,2%	6,2%	6,4%	6,2%	5,1%	5,1%
Cu water (unit consumption)	m^3/t	0,407	0,433	0,482	0,470	0,411	0,408	0,540	0,537	0,602	0,578	0,386	0,390	0,408	0,492
Caliche (SS)	%	47,00%	49,80%	44,90%	57,90%	57,90%	52,20%	53,70%	53,40%	54,90%	54,90%	56,6%	58,50%	59,90%	59,50%
Industrial Yield															
Industrial Iodine Yield	%	72,7%	76,2%	77,6%	77,4%	66,2%	62,2%	73,0%	73,7%	76,9%	76,3%	59,0%	55,0%	55,5%	58,4%
industrial Nitrate Yield	%	65,2%	58,8%	70,3%	61,5%	50,8%	59,4%	64,8%	69,0%	74,6%	70,6%	42,4%	40,3%	44,0%	50,2%
Model Yield															
Iodine Yield Correlation	%	74,1%	71,9%	82,0%	63,0%	59,2%	66,9%	73,5%	73,6%	75,8%	71,5%	59,3%	56,9%	56,2%	66,6%
Nitrate Yield Correlation	%	61,4%	60,4%	71,0%	55,4%	47,0%	53,6%	68,0%	66,4%	72,6%	67,6%	40,2%	41,1%	45,1%	61,0%

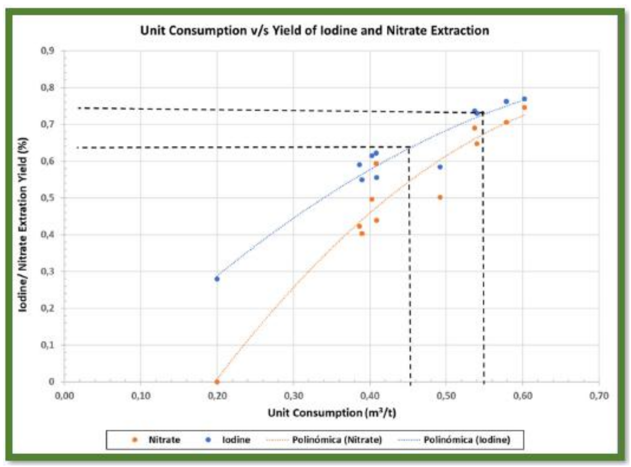
Complementary analysis has been carried out on the yield results, establishing that the CU is the determining factor for the increase in yield. The yield improvement is because there is an increase in the dissolution of salts due to the availability of more fresh water in the leaching process, reaching values of 70%. That is historically reflected in the years 2014 to 2017, for an average salt matrix material of 54.7%. The unit consumption for that period was in the range of 0.54-0.60 m^3/ton, resulting in yields of 73-77%. This is graphically reflected in Figure 10-14, which correlates the degree of salt dissolution and the yield achieved:

Figure 10-15. Nitrate and Iodine Yield Extraction and Dissolutions of Salts.



Consequently, an increase in prill iodine production will be possible by making improvements at the operational level of the irrigation solutions, so that the replacement of recirculated water by fresh seawater in the process occurs. From the graph it is possible to infer that a salt dilution in the range of 50-60% would give way to a real increase in iodine yield of 60-70% by the exchange of seawater in the irrigation.

Figure 10-16. Nitrate and Iodine Yield Extraction and Unit Consumption.



From the graph it can be inferred the unit consumption in the range of 0.45-0.55- m^3/t would lead to a real increase in Iodine Yield of 64-75%

10.5 Significant Risk Factors

In this area, the impact factors in the processing or elements detrimental to recovery or the quality of the product obtained are the potentially harmful elements present. Those related to the raw material are insoluble materials and other elements such as magnesium and perchlorate. In this regard, this report has provided information on tests carried out on the process input and output flows, such as brine and finished products of iodine, potassium nitrate, and sodium nitrate, for these elements, thus showing the company's constant concern to improve the operation and obtain the best product.

Plant control systems analyze factor grades and ensure that they are below threshold values and will not affect the concentration of valuable species in the brine or plant performance. Consequently, any processing factors or deleterious elements that may have a significant impact on economic extraction potential are controlled.

Along with the above, the company is also interested in developing or incorporating a new stage, process, and/or technology that can mitigate the impact of some factor, so far controlled, which gives way to additional and constant work to determine this in a framework of continuous improvement of the processes.

10.6 Qualified Person´s Opinion

Gino Slanzi Guerra, QP responsible for the metallurgy and processing of the resource, declares that the metallurgical test work developed to date has been adequate to establish the appropriate processing routes for the caliche resource:

The metallurgical test work completed to date has been adequate to establish appropriate processing routes for the caliche resource.

The samples used to generate the metallurgical data have been representative and support estimates of future throughput.

The data derived from test work activities described above are adequate for estimating recovery from mineral resources.

From the information reviewed, no processing factors or deleterious elements were verified which could significantly affect the economic extraction potential projected for the project. This is based on the fact that the mineral body that supports it corresponds in composition and chemical-metallurgical responses similar to typical caliche deposits, in which the company has extensive historical know-how and a body of professionals with extensive experience, with finished and successful knowledge regarding the search and solution of operational problems. This aspect was recognized in field visits where this characteristic was confirmed in all the plants visited.

The metallurgical test data for the resources to be processed in the production plan projected to 2040 indicate that the recovery methods are adequate.

In addition, it is necessary to highlight that the research and development team has demonstrated significant progress in the development of new processes and products to maximize the returns obtained from the resources they exploit. An example of this is that, since 2002, SQM nitrates have sought options to expand and improve iodine production by initiating a test plan for an oxidative treatment of the concentrate. Trials demonstrated that it is possible to dispense without the flotation stage, that the process of obtaining iodine with oxidative treatment works well, and that it is economically viable and less costly to build and operate than the conventional process with the flotation stage. In this sense, continuous tests were completed in the pilot plant with different iodine brines from different resources to confirm these results.

The research is developed by three different units, which adequately cover the characterization of raw materials, traceability of operations, and finished product, covering topics such as chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of finished products.

11 MINERAL RESOURCE ESTIMATE

11.1 Key Assumptions, Parameters and Methods

Iodine and nitrate Mineral Resources were estimated based on lithologies and iodine and nitrate grades, from the 200 x 200 m drill hole grid, comprising "PO" and "O" drill holes. The Mineral Resource is classified as indicated, to Sectors with a drill hole spacing grid of 200 x 200 m were estimated with a full 3D block model using Inverse Distance Weighted (IDW) which contains variables, such as Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc. The 100T drill hole grid currently in process of evaluation, will potentially allow for a future upgrading of the Indicated Mineral Resource to the Measured category. The diamond drilling campaign currently in process, will provide a comparison of caliche depths and iodine and nitrate grades with respect to the Mineral Resources estimated using the 200 x 200 m grid data.

The Indicated Mineral Resource was estimated considering a nitrate cut - off grade of 3,0% and iodine grade of 300 ppm, by means of the following steps:

Calculation of drill hole average iodine and nitrate grades: To obtain a representative database of single values of iodine and nitrate grades for each drill hole, grades were analyzed for each 0.5 m section of the drill hole underlaying the overburden unit. Vertical continuity of mineralization was evaluated by identifying drill hole sections with iodine grades that followed a set of criteria in relation to the cut-off grade. By identifying the bottom of the mineralized zone in each drill hole, an average iodine and nitrate grade was calculated considering the grades of each selected section of the drill hole.

Calculation of caliche Mineral Resources: A database was generated containing overburden and caliche thickness, and average iodine and nitrate grades for each drill hole. Using this database, Mineral Resources were estimated with a 3D block model using Inverse Distance Weighted (IDW)

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.

The cut-off grade was established by SQM at 3.0% for Nitrate and 300 ppm for Iodine.

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.

Caliche mineralization is of sedimentary origin and arises from a depositional formation process, which in the sub-horizontal geomorphology of the pampa forms a deposit with high horizontal continuity (greater than 5 km) and limited thickness and depth (less than 8 m in general). The horizontal continuity of caliche mineralization exceeds that of porphyry copper, epithermal or IOCG-type metalliferous deposits.

The Mineral Resource classification defined by SQM is based on drill hole spacing grid as a reflection of confidence of geological continuity:

Measured Mineral Resources: Sectors with a Block Model, with a drill hole spacing grid of 50 x 50 m or 100T were estimated with a full 3D block model using Ordinary kriging, which contains variables, such as Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc.

Indicated Mineral Resources: Sectors with a Block Model; with a drill hole spacing grid of 100 x 100 m and 200 x 200 m were estimated with a full 3D block model using Inverse Distance Weighted (IDW) which contains variables, such as Iodine, Nitrate, soluble salts, geology, geotechnics, topography, etc.

Inferred Mineral Resources: Sectors with a drill hole spacing grid greater than 200 x 200 m up to 400 x 400m were estimated in 2D using the Polygon Method. This Inferred Resources do not have block model. the output are polygons which are then transformed to tonnage by multiplying by the area, thickness and density.

It is the QP's opinion that these analyses show that the selected drill hole grids for Indicated Mineral Resources in Pampa Orcoma are adequate considering the high level of continuity of both grade and mantle thickness, and the type of mineralization.

11.4 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.

Table 11-2 summarizes the Mineral Resource estimate, exclusive of Mineral Reserves, for iodine and nitrate in Pampa Orcoma.

Mineral Resources are reported in-situ and are exclusive of Mineral Reserves (Section 12).

Table 11-1. Mineral Resource Estimate, Exclusive of Mineral Reserves (Effective December 31, 2022)

Resource Classification	Resources (Mt)	Iodine (ppm)	Nitrate (%)
Indicated	18	457	7.4

Notes:

a. 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.

b. Mineral Resources are reported as in-situ and exclusive of Mineral Reserves, where the estimated Mineral Reserve without processing losses during the reported LOM was subtracted from the Mineral Resource inclusive of Mineral Reserves.

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

d. The units "Mt" and "ppm" refers to million tons and parts per million respectively.

e. The Mineral Resource estimate considers a nitrate cut-off grade of 3.0% , based on accumulated cut-off nitrate grades and operational average grades, as well as the cost and medium and long term prices forecast for prilled iodine production (Section 16).

f. Marta Aguilera is the QP responsible for the Mineral Resources.

g. As the mineral resources estimation process is reviewed and improved each year, mineral resources could change in terms of geometry, tonnage or grades.

11.5 Qualified Person's Opinion

It is the QP's opinion that the drill hole data collected by SQM in Pampa Orcoma is sufficient to characterize iodine and nitrate grades, as well as mineralized thickness throughout the project area.

Estimations have been verified independently, with minor differences that have no material implications on Indicated Mineral Resource estimates.

Additional diamond drilling currently in progress, is being completed on tighter spaced grids than that used for the current estimates; this infill drilling has the potential to upgrade the Mineral Resource categorization to the Measured category.

12 MINERAL RESERVE ESTIMATE

12.1 Estimation Methods, Parameters and Methods

This sub-section contains forward-looking information related to the key assumptions, parameters and methods for the Mineral Reserve estimates for the Project. The materials factors that could cause actual results to differ materially from the conclusion, estimates, designs, forecast or projection in the forward-looking 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 tons and grade and mine design parameters.

Indicated Resources are defined by drill hole spacing greater than 100 x 100 m and up to 200 x 200 m .

The Indicated Resources are evaluated from 3D block model by Inverse Distance Weighted (IDW) interpolation technique and defined by drill hole spacing of 100x100 m and 200x200 m, are stated as Probable Reserves using the same criteria for mineral reserves, caliche and overload thickness, waste/mineral rates and Nitrate cut-off grade.

Mineral Reserves estimates are based on sample grades obtained from drill holes executed with reverse air drilling rigs in 200x200 m, 100x100 m, 100 T m (100 x 50 m) and 50x50 m grid spacing.

Measured Resources are evaluated from 3D blocks built by numerical interpolation techniques (Ordinary Kriging), where nitrate, iodine and soluble salt content information available from data obtained in drill hole grids with a spacing equal to or less than 70 m (100T and 50 x 50 m).

Indicated Resources are evaluated from 3D blocks built by Inverse Distance Weighted (IDW) interpolation technique and defined by drill hole spacing of 100x100 m and 200x200 m.

For Pampa Orcoma project, advises to use a factor conversion of 0,90 for Iodine and 0,85 for Nitrate for Probable Reserves evaluated from Indicated Resource.

Mineral Reserves considers SQM's criteria for the mining plan which includes to the following:

- Caliche Thickness ≥ 2.0 m
- Overload thickness ≤ 1.0 m
- Waste / Mineral Ratio ≤ 0.5
- Nitrate 3.0 % cut-off grade.

Mine planning is defined by sequential yearly mining phases (Figure 12-1), extracting material from zones categorized as resources before construction of infrastructure. This material is stockpiled for processing when mining operations begin, such that the resources in areas covered by infrastructure can be mined.

The estimate is done by considering portions of the resource polygons inside of the project area with environmental approval for mining operations. Therefore, reserves are also calculated for polygons strictly within the environmentally approved area of the project area, as those outside of the approved limits will require a modification of the approved area. Considering the area for which the permit applies, the mining plan is justified until the year 2040 (Section 13), while incorporating the surrounding area will be possible as long as the environmental authorization currently under execution for the project's expansion is obtained within the required timeframe for the operation and in the projected manner required (Chapter 17.1).

12.2 Cut-off Grade

SQM´s has historically used an operational cut-off grade of 300 ppm of iodine; for this year´s report has been used operational cut-off grade of 3.0% of Nitrate. The QP has reviewed the cut-off and agrees that at cut-off of 3.0% nitrate is conservative and will more than pay all mining cost and iodine production cost. Additional nitrate production profits will enhance the economics, and that the nitrate cut-off is appropriate for operations.

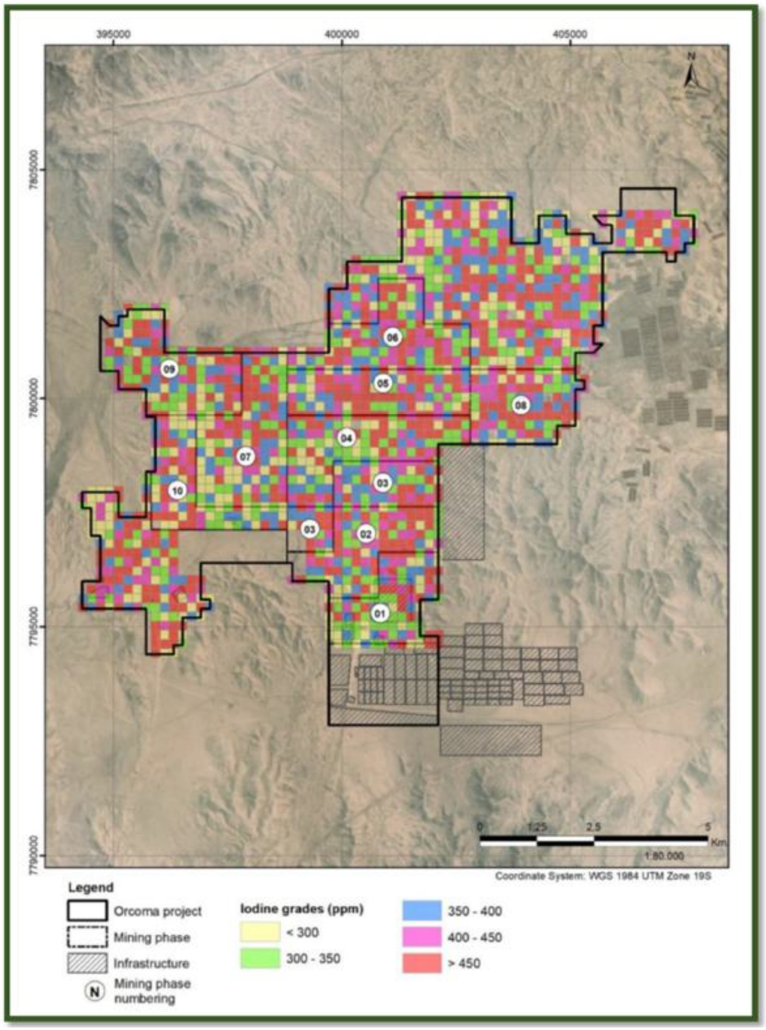
12.2.1 Classification Criteria

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 tons and grade and mine design parameters.

Mineral Reserves were all categorized as Probable, as they are based on Indicated Resources whose nitrate and iodine grades are diluted by modifying factors. With such considerations, nitrate and iodine reserves are estimated as having the same tonnage as the calculated resources, but lower average grades.

When considering a dense recategorized drill hole grid, such as the 100T grid currently in process, reserve estimates will be estimated in the future through use of a block model generated from interpolation of drill hole samples, allowing for estimation of Proven Reserves.

Figure 12-1. Mining Phases and Infrastructure in Pampa Orcoma



12.3 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 tons and grade, modifying factors including mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

Table 12-2 summarizes the reserve estimate exclusive of mineral resources for iodine and nitrate in Pampa Orcoma. Estimates are shown for the area with actual environmental permits, as described in Section 12.1. Reserves with environmental permit represent a 93% of total resources. Mineral Reserve are reported as in-situ ore (caliche).

Table 12-1. Mineral Reserve Statement for Pampa Orcoma (Effective December 31, 2022)

Reserves Classification	Reserves (Mt)	Iodine (ppm)	Nitrate (%)
Probable	309	413	6.9

Notes:

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

(b) The units “Mt” and “ppm” refer to million tons and parts per million respectively.

(c) The Mineral Reserve estimate considers a nitrate cut-off grade of 3.0% and, based on accumulated cut-off grades and operational average grades, as well as the cost and medium- and long-term prices forecast of generating iodine (Sections 11, 16 and 19).

(d) Modifying factors based on Inverse Distance Weighted (IDW) estimation, are applied to nitrate and iodine grades, the factors applied to nitrate and iodine grades are 0.85 and 0.9, respectively.

(e) Mineral Resources in the area without an environmental permit are estimated at 18 Mt.

(f) Mineral Reserves are reported as in-situ ore

(g) Marta Aguilera is the QP responsible for the Mineral Reserves.

(h) The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that could materially affect the Mineral Reserve estimate that are not discussed in this TRS.

12.4 Qualified Person's Opinion

Mineral Resource calculations are the basis for Mineral Reserves estimation, accounting for dilution of iodine and sodium nitrate grades through modifying factors. Calculations have been verified independently, reporting reserve values for approved and pending environmental area permits, with minor differences that have no material implications on Probable Reserve estimations.

Diamond drilling and recategorization of drill hole grids currently in process, have the potential to upgrade reserve classification to Proven. It is recommended to re-estimate Pampa Orcoma's reserves when resources are calculated for the recategorized grid.

13 MINING METHODS

SQM has a Mining Plan covering mining year 2024 to 2040. The exploitation sectors have environmental license approved by the Chilean authorities; the total tonnage and average Iodine and Nitrate grades are coincident with Mineral Reserves declared; the total volume of mineral ore (caliche) is economically mineable and the production of prilled Iodine and Brine Nitrate Concentrate (Brine Nitrate) set by SQM is attainable, considering the dilution and recovery coefficients for mining, leaching, and plants/ponds treatments. Besides, has been evaluated the cut-off for Nitrate grade given the unit costs for Iodine and Brine Nitrate production and the price sales for prilled Iodine and internal price por Brine Nitrate established at the economic analysis (Section 18).

SQM intends to utilize surface area mining methods for Pampa's future mining operation, consistent with methods currently used by SQM in its traditional caliche mining operations. Unit operations include land preparation (removal of soil and overburden), surface extraction of ore (caliche), and loading and transport of ore for the construction of leaching heaps to obtain solutions (fresh brine) enriched in iodine and nitrates. Mineralization is stratified, sub-horizontal, superficial and averages 3.5 m in thickness.

The mineral extraction process is conditioned by the tabular and superficial disposition of the geological formations that contain the mineral resource (caliches). Chile's competent mining authorities, The National Mining and Geological Service (SERNAGEOMIN) have approved this mining process.

Usually, the mining operation corresponds to quarries of a few meters thick (exploitation in only one continuous bench of up to 4.5 m high -overburden + caliche) where the mineral is extracted using the traditional method (drilling and blasting) and continuous miner (Terrain Leveler Surface Excavation Machine [SEM]).

The mineral is loaded by front loaders and/or shovels and transported to the leaching heaps (run-of-mine [ROM] material heaps, or ROM heaps) by rigid hopper mining trucks.

This initial concentration process involves in-situ leaching using heaps (leach pad) that are irrigated by drip/spray to obtain a solution enriched in iodine and nitrate that is sent to the treatment plants to obtain the final products.

13.1 Geotechnical and Hydrological Models, and Other Parameters Relevant to Mine Designs and Plans

This sub-section contains forward-looking information related to mine design 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.

Pampa Orcoma mining is superficial, and it is necessary to remove a surface layer of waste material (soil + overburden) up to 1.0 m thick (sandstone, breccia, and anhydrite crusts), which is removed. The ore (caliche) is then extracted, which has a thickness of 1.5 m to 6.0 m (average of 3.5 m). Therefore, the mining face has a maximum height of 6 m once the soil and overburden have been removed. The minimal depth of operations and geotechnical characteristics of caliche (Polymictic Sedimentary Breccia) allow mining with a near vertical slope, achieving maximum efficiency in the use of the mining resources.

The single bench mining conditions do not require a physical stability analysis of the mining advancement front. Therefore, no specific geotechnical works are required in this mining operation (1 single final bench of about 4.70 m average height 1.5 m of soil+overburden and 3.2 m of caliche).

The mining operation uses two techniques for fragmentation of waste and ore, namely drilling and blasting and continuous surface mining. The choice of the method to be used in each sector depends on the hardness of the caliche to be excavated and the proximity to infrastructure where blasting damage risk is assessed as possible.

The extracted mineral (caliche) is stockpiled in heaps, where it is leached with water to extract the target components (iodine and nitrates). These heaps have a general slope of 28º (two benches of 6 to 7.5 m in thickness with a wide berm of 12 m.) SQM executed stability analyses in the leach heaps that it exploits in the Nueva Victoria mine to verify the physical stability of these mining structures in the long term and in adverse conditions (maximum credible earthquake)[1], concluding that:

The slopes of the analyzed heaps are stable against landslides.

None of the piles will require slope profiling treatment after closure.

SQM executed a DDH drilling campaign and trenches in the first quarter of 2021 that has confirmed the presence of "semi-soft" caliches in the first 2.5 to 3.0 meters (semi-soft ore), which correspond mainly to anhydrite in the crust, sandstones, and mineralized medium breccias. Under this "semi-soft" unit there are thick breccias with clasts contents > 35% with an increase in their diameter (5- 10 cm), and this unit grades in-depth to conglomerates.

Also, the low concentration of soluble salts is confirmed compared to other reservoirs such as TEA.

13.2 Production Rates, Expected Mine Life, Mining Unit Dimensions, and Mining Dilution and Recovery Factors

Pampa Orcoma's Mining Plan considers caliche extraction at a nominal rate of 20 Mtpy. Therefore for 2024 to 2040, a total extraction of 287.4 Mt of caliche with an average grade of 408 ppm iodine and 6.7% nitrates is projected as shown in Table 13-1.

The mining zone extends over a large area of 2,400 ha and the mining is organized by mining areas of 25 x 25 m, that verify the following requirements:

● Caliche Thickness ≥ 2.0 m

● Overburden Thickness ≤ 1.0 m

● Stripping Ratio (waste / ore) [weight/weight] ≤ 1.0

● Nitrate operational cut-off grade 3.0%.

The mining sequence is defined considering the productive thickness data established for the caliche from the geological investigations carried out, the areas where there are mining permits, the distances to the treatment plants, and avoiding the loss of ore under areas where the installation of infrastructure (pile bases, pipes, roads, channels, trunk lines, etc.) is planned. So, before these elements are installed, the mineral is extracted in the areas where these infrastructures are planned to be located.

Therefore, mineral (caliche) to be extracted in its entirety, verifying the exploitation conditions established, and is located in the environmentally authorized areas, in other words, in Pampa Orcoma the total declared mining reserves will be mined since the rest of the modifying factors, that could affect the mining process, do not limit the production of mineral (extraction, loading, and transport to the heaps leaching).

During caliche extraction, SQM minimizes the processes that cause a dilution of nitrate and iodine grade into the ore mass to accumulate in the heap leaching, controlling the floor of the mining area (25x25 m), at the target depth, by a global positioning system (GPS).

It is estimated a grade dilution of less than 2.5% (±10 ppm of iodine) due to the mining system used. In the exploitation process of the caliche, being low mineralized thicknesses (< 5.0m), there is a double effect on the floor of the mineralized mantle resulting from the blasting process; obtaining sectors with the inclusion of underlying and in other cases generation of overburden. Both effects tend to compensate, so the dilution effect or loss of grade is minor or negligible (± 10 ppm). The control of this effect is controlled with GPS that the loading equipment has, plus the topographic control of floors. Once this condition is identified, a geological review is carried out to determine if the overburdened floors are recoverable or not. Due to this review methodology, mineral polygon exploitation is optimized and reduces the impact of the loading of the material underneath the heaps. Underlying and floor volume is negligible about the caliche mined.

Table 13-1. Mining Plan for Pampa Orcoma project (2024-2040)

MATERIAL MOVEMENT	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Orcoma Ore Tonnage	**Mt**	**0**	**2.1**	**8.4**	**8.4**	**8.4**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**287.4**
Average grade Iodine in Situ	ppm	0	412	415	405	405	400	401	410	401	408	409	414	410	413	409	410	410	410	**408**
Iodine (I2) in situ	kt	0.0	0.9	3.5	3.4	3.4	8.0	8.0	8.2	8.0	8.2	8.2	8.3	8.2	8.3	8.2	8.2	8.2	8.2	**117.3**
Yield process to produce prilled Iodine	%	0.0%	67.7%	68.9%	67.0%	65.6%	68.5%	66.8%	65.3%	67.9%	68.1%	67.7%	67.5%	68.3%	67.5%	68.2%	68.0%	68.3%	68.0%	**67.7%**
Prilled Iodine produced	**kt**	**0.0**	**0.6**	**2.4**	**2.3**	**2.2**	**5.5**	**5.4**	**5.4**	**5.4**	**5.6**	**5.5**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**79.4**
Average grade Nitrate in Situ	**%**	0%	6.0%	6.1%	6.5%	6.4%	6.5%	6.8%	6.1%	6.6%	6.7%	6.7%	6.8%	6.6%	6.8%	6.9%	6.7%	6.9%	6.8%	**6.7%**
Nitrate Salts in situ	kt	0	127	515	549	540	1,304	1,360	1,221	1,320	1,331	1,347	1,364	1,327	1,359	1,380	1,337	1,380	1,360	**19,120**
Yield process to produce Nitrates	%	0.0%	59.6%	59.3%	58.8%	59.3%	57.4%	57.3%	59.1%	57.4%	57.3%	57.3%	57.3%	57.3%	57.3%	56.9%	57.3%	56.8%	57.1%	**57.5%**
Nitrate production from Leaching	kt	0	76	306	322	320	748	780	721	758	763	772	781	761	778	785	766	784	777	**10,998**
Ponds Yield to produce Nitrates Salts	%	0.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	**65.0%**
Nitrate Salts for Fertilizers	**kt**	**0**	**0**	**0**	**49**	**199**	**210**	**208**	**486**	**507**	**469**	**493**	**496**	**502**	**507**	**494**	**506**	**510**	**498**	**6,134**

However, in the mining processes, SQM considers an efficiency close to 90%, including material losses due to modifying factors and those inherent to the mining process, as well as mineral dilution processes.

Based on these mining process yields; the expected heap leach load is a total of 117 kt of iodine (18.9 Tpd of iodine) and 19,120 kt of nitrate salts (2,062 tpd of nitrates). For a load of 0.86 Mt of ROM or continuous miner caliche in leach pads, there is an average load of 226 t of iodine and 10,206 t of nitrate salts per heap pad (SQM mining plan 2024-2040 period).

The processes of extraction, loading, and transport of the mineral (caliche) are as follows:

Removal of the surface layer and overburden (between 0.50 to 1.0 m thick) deposited in nearby sectors already mined or without ore.

Caliche extraction, up to a maximum depth of 6 meters, using explosives (drill & blast) or surface excavator (Terrain Leveler Surface Excavation Machine -SEM- type CM).Continuous mining permits exploitation of areas that are close to infrastructure that can be damaged by blasting, to extract softer caliche zones, and to obtain a more homogeneous granulometry of the extracted mineral, which generates better recovery rates in the iodine and nitrate leaching process. Additionally, it generates less dust emission than the drill & blast system. Miner decision-making concerning drill & blast is based on simple compressive strength parameters of the rock (up to 35 MPa), to limit the abrasiveness of the material to be mined, and the presence of clasts in the caliche. The higher proportion of semi-soft to soft material in Pampa Orcoma (70-80%) favors the use of the continuous miner.

The 2024 to 2030 Mining Plan includes an annual production of 8.4 to 20 Mt of fresh caliche (408 ppm iodine, 6.7% $NaNO_3$, and 47.5% SS, in average) (Table 13-1).

Caliche charge, using front loaders and/or shovels.

Transport of the mineral to heap leaching, using mining trucks (rigid hopper) of high tonnage (100 to 150 t).

Caliche charge, using front loaders and/or shovels. Heap leaching facilities consist of 1 Mt, with heights ranging from 7 m to 15 m and a crown area of 65,000 square meters (m²).

In heap leaching, we operate with run of mine (ROM) material, which is material directly from the mine, coming from the start-up process with traditional methods (drilling and blasting), loading, and transport, where it is possible to find particles ranging in size from millimeters to 1 m in diameter.

Heap construction process involves several stages (Figure 13-1):

Site preparation (soil removal by tractor) and construction of heap base and perimeter berms to facilitate the collection of the enriched solutions.

Heap base has an area of 84,000 m² and a maximum cross slope of 2.5% (to facilitate drainage of iodine and nitrate enriched solutions).

Construction material for heap base (0.40 m thick) comes from waste rock (30,000 tons of barren per heap) and is compacted with a roller to 95% of Normal Proctor (moisture and/or density are not tested in-situ). An HDPE waterproof geomembrane is placed on top of the base layer. To protect the geomembrane, a 0.5 m thick layer of barren material is placed (to avoid puncturing the sheet by the ROM/MC fragments stored in the heap).

Figure 13-1. Pad Construction and morphology in Caliche Mines

Heap loading using high tonnage trucks (100 t to 150 t).

The impregnation process consists of an initial wetting of a heap with industrial water, in alternating cycles of irrigation and rest, for 55 days. During this stage, the pile begins its initial solution drainage (brine).

Pampa Orcoma's heap treatment process will be like the one applied by SQM at Nueva Victoria, although the standard impregnation stage (dripper/water/50 days/slow ramp) will be changed to (sprinkler/Intermediate Brine/60-70 days/slow pulse ramp).

Continuous irrigation until leaching cycle is completed, considering the following stages: o Irrigation with Intermediate Brine: stage in which drained solutions are irrigated by the oldest half of the heaps in the system. It lasts up to 190 days.

o Mixing: irrigation stage composed of a mixture of recirculated Brine Feeble and water. The drainage from these piles is considered SI and is used to irrigate other heaps. This stage lasts about 120 days.

o Washing: last stage of a pile's life, with final water irrigation of water, for approximately 60 days.

Approximately 400 to 430 days is the total duration of each heap cycle, and in that time, the height of the heap decreases by 15%-20%.

The irrigation system applied to the heaps is a mixed system, which means that both drippers and sprinklers are used. In the case of drippers, an alternative is to cover the heap with a plastic sheet or blanket to reduce evaporation losses and improve the efficiency of the irrigation system.

The leaching solutions are collected by gravity via ditches, which will lead the liquids to a sump where they will be recirculated to the Brine reception and accumulation ponds using a portable pump and piping.

Once a heap is no longer in operation, the tailings can be used for the construction of the base of other heaps or remain in place (depleted heaps).

In the heap leaching processes, total water demand of 130-355 L/s (470-1,250 m^3/h) is required. Considering heap leach yields expected (70.4% for iodide and 53.4% for nitrates the high rate of water for heap leaching irrigation 0.51 m^3/ton and the minor concentration of Total Soluble Salts allow to reach a high yield in heap leaching process), it is obtained that the enriched solution flow (brine flow), from the heap leach to the concentration plants, would be 906 m^3/h in average, which means a hydraulic efficiency near of 80%. These solutions will be processed in the Iodide and Iodine plants to be built as part of the Pampa Orcoma Project and the nitrate treatment ponds to process up to 2,500 tpa). The average unit water consumption is 0.51 m^3/ton.

With these yields, for the 2024-2040 Mining Plan, the iodine heap production will be 117 kt (14.3 tpd) and 19,120 kt for nitrate salts (2,474 tpd).

Heap leaching process performance constraints correspond to the amount of water available, slope shaping (slopes cannot be irrigated), re-impregnation, and the errors associated with the resource/reserve model, the latter factor being the most influential in the deviations between the annual target production and the realized production. These deviations usually reach 5% for iodine and 10% for nitrate.

Other mining facilities besides heaps are the solution ponds (brine, blending, intermediate solution -SI) and the water and back-up ponds (brine and intermediate solution). These ponds will have pump systems, whose function is to propel the industrial water, Brine Feble, and Intermediate Solution to the heap leach through High-density Polyethylene (HDPE) pipes to extract the maximum amount of iodine and nitrate from the caliche in the heaps.

From the brine pond, through HPDE pipes, the enriched solutions are sent to the iodide plants.

In addition to the general service facilities for site personnel to include offices, restrooms, maintenance, and truck washing shed, change rooms, dining rooms (fixed or mobile), warehouses, drinking water plant (reverse osmosis), and/or drinking water storage tank, wastewater treatment plant and transformers.

13.3 Requirements for Stripping, and Backfilling

The initial ground preparation work involves digging a surface layer of soil-type material (50 cm average thickness) and the overburden or sterile material above the ore (caliche) that reaches average thicknesses of between 50 cm to 100 cm.

This work is executed by bulldozer-type tracked tractors and wheel dozer-type wheeled tractors.

Caliche extraction is executed using explosives and/or surface excavator (tractor with cutting drum) to a maximum depth of 6 m (3.2 m average and 1.5 m minimum exploitable thickness).

Blasting will proceed considering an intact rock density of 2.1 t/m³, with an explosives load factor of 365 grams per ton (g/t) (load factor of 0.767 kg/m³ of caliche blasted).

Figure 13-2. Typical Blast in Caliche Mine

SQM has two Vermeer T1655 and 1 Virgin; series equipment with a rotating drum and crawler tracks. Each unit can produce 3 Mtpy. It also has SEM-Wirtgen 2500SM Series equipment (Figure 13-6), with a different cutting design to Vermeer equipment, with crawler tracks and able to work with a conveyor belt stacking or loading material directly to a truck.

Figure 13-3. Terrain Leveler and SME equipment (Vermeer)

Pampa Orcoma's unit mine production cost is set at 2.32 USD/ton of caliche mined, including heap leach drainage construction.

The production costs of solutions enriched in iodine and nitrates (heap leach) are set at 1.70 USD/ton of caliche mined.

13.4 Required Mining Equipment Fleet and Personnel

This sub-section contains forward-looking information related to equipment selection 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 labor and equipment availability and productivity.

SQM will have at its disposal at the Pampa Orcoma mine equipment similar to that currently used at Nueva Victoria mine, where it operates at annual production targets (44 Mt), but adapted to Pampa Orcoma's annual caliche production (8.4 Mtpy ramping to 20 Mtpy in year four).

SQM will have at its disposal the necessary equipment to reach the required caliche production, to mine and build the heaps, and to obtain the enriched liquors that are sent to the treatment plants to obtain iodine and nitrate as final products (Table 13-2):

- Front loader and shovels.
- Equipment with cutting drum
- Trucks
- Bulldozer and Whelldozer
- Drillers
- Motor grader, roller, and excavators

Table 13-2. Mining Equipment for mining process – Pampa Orcoma project (20 Mtpy)

Equipment	Quantity	Type or size
Front Loader	5	12.5 and 15 m^3
Shovels	2	13 to 15 m^3 / 150 to 200 Ton
Surface Excavation Machine (SME)	2	100 to 200 Ton
Trucks	15	100 to 150 Ton
Bulldozer	4	50 to 70 Ton
Wheeldozer	2	35 Ton
Drill	5	Top hammer of 3.5 to 4.5 inches (diameter)
Grade	3	5 -7 m
Roller	2	10 - 15 Ton
Excavator	3	Bucket capacity 1 - 1.5 m^3

In addition, Pampa Orcoma's mining operation will employ a team of 155 professionals for mining and heap leach operation.

It is also planned that a total of 45 professionals for the maintenance of the leaching heaps and ponds will be employed.

13.5 Map of the Final Mine Outline

SQM operates its caliche operations concerning an initial topography of the terrain concerning which, using topography and continuous control of the mining operations, the removal of soil and overburden (total thickness of 1.0 m on average at Pampa Orcoma) and the extraction of caliche (3.50 m average thickness) proceed.

The reduced magnitude of the excavations (5.0 m average) concerning the surface involved (120 to 300 hectares per year [ha/y], around 46 km² in total for the Mining Plan 2024-2040), does not allow a correct visualization of a topographic map of the final situation of the mine. The caliche production data for the LOM of 2024 to 2040 implies a total production of 287.4 Mt, with average grades of 408 ppm iodine and 6.8% nitrates.

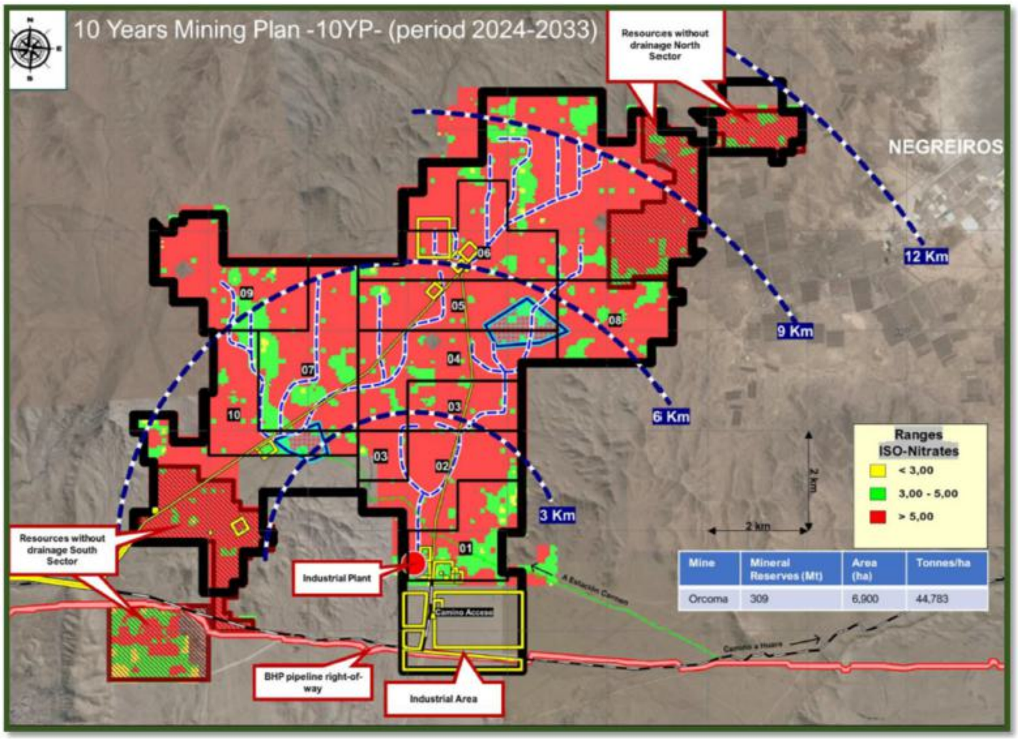
Given mining and leaching production factors, total production of 83.0 kt of Iodine and 10,206 kt of Nitrate salts is expected for this period (2024-2040), which implies producing enriched leachates with average contents of 5.1 thousand tons per day (ktpd) of Iodine and 889 thousand tons per annum (Ktpy) of nitrate salts that would be sent to the processing plants.

Table 13-3. Mine and Pad Leaching Production for Pampa Orcoma Mine 2024-2040

LOM 2024 - 2030	Caliches ore	Percentage	Iodine	Nitrate
Production (kt)	287.4			
Average grades (iodine ppm/Nitrate ppm)			408	6.7%
In-situ estimates (kt)			117	19,120
Traditional mining (kt)	86.2	30%		
Continuous mining (kt)	201.2	70%		
Heap Leach ROM recovery from traditional mining			64.62%	53.34%
Heap Leach ROM recovery from traditional mining heaps (kt)			23	3,060
Heap Leach recovery from continuous mining			76.62%	59.34%
Heap production ROM continuous mining (kt)			53	7,139
TOTAL Heap Leach production (kt)			76	10,199
TOTAL Heap Leach production (tpd)			13.0	1,746
TOTAL Heap Leach production (ktpa)			5	637
Heap Leaching recovery coefficient			73.0%	57.5%
Recovery Average Coefficient for Iodine complete process			67.7%	
Recovery Average Coefficient for Nitrate Salts process				37%
Total industrial plant processing Orcoma (kt)			79	7151*

* It is the total amount of nitrate salts generate in 2024 – 2030 if there is no gap of 2 years of the production of this product.

Figure 13-4. Ten Year Plan -2024-2033 Pampa Orcoma Mine



14 PROCESSING AND RECOVERY METHODS

This sub-section contains forward-looking information related to the iodine and caliches salts concentrators, leaching and solvent extraction throughputs and designs, 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 ore feed 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 metallurgical recovery factors.

The " Orcoma" project aims to produce iodide, iodine, and nitrate-rich salts from the processing of caliche that will be extracted from deposits rich in this mineral, located in the area called Pampa Orcoma, commune of Huara. The production process begins with the exploitation of caliche, which is a mineral composed of a high proportion of water-soluble species found naturally in deposits containing nitrates, iodine, and potassium. The site includes caliche extraction processes (mine), heap leaching, and processing plants to obtain iodine as the main product and nitrate as a by-product (nitrate-rich salts, sodium nitrate, and potassium nitrate). The Pampa Orcoma mineral is estimated to contain an average of 6.9% nitrate and 413 ppm iodine, according to the mine plan used for this study. The mine area operation consists of caliche mining.

The caliche will be extracted at a rate of up to 8,400,000 to 20,000,000 tpy, using open pit mining methods including loader and shovel and continuous mining machine. The current mine plan covers an area of approximately 4,600 ha (46 km²).

The production of iodine and nitrate salts based on heap leaching with seawater or recirculated solutions (a fraction of Brine Feeble (BF) recirculated from the iodide plant), from which an iodate-rich solution is obtained, which is then treated in chemical plants to transform it into elemental iodine. Further, the remaining solution is sent to evaporation areas to obtain sodium nitrate and other salts. In the solar evaporation ponds, nitrate-rich salts produced are sent to the Coya Sur mine located in Antofagasta Region.

These facilities are under construction since January 2022 and their completion is scheduled for 2024. The Pampa Orcoma plant, through its two iodide plants and one iodine (fusion) plant, will start operating in 2024 with an annual production of 2,500 t of iodine and 320 Kt of nitrate salts per year, each, with an average recovery of 66% and 63%, respectively.

Once all the construction work is completed, commissioning will be started, which consists of operating tests to verify the operation of the control loops and motor start-up and shutdown, mainly. After the commissioning stage, the equipment and systems will be put into operation, consisting of the execution of the necessary tests to verify the proper functioning of the equipment. The commissioning and start-up are defined for three months, after which the plants in the industrial area will start operating.

To produce a solution rich in iodate, which is then treated in chemical plants to transform it into elemental iodine and sodium nitrate, and other salts, from the remaining solution that is taken to evaporation areas, the project will have the following facilities:

- Caliche mine and mine operation centers
- Iodide plant
- Iodine plant
- Evaporation ponds
- Waste salts deposit
- Industrial water supply
- Camps and offices
- Household waste landfill
- Hazardous waste yard
- Non-hazardous industrial waste yard

Figure 14-1 shows a block diagram of the main stages of caliche mineral processing to produce iodine prill and nitrate salts at Pampa Orcoma. Figure 14-2 is a general layout plant of Pampa Orcoma.

In the following sections, the operation stages and mineral processing facilities will be described.

Figure 14-1. Simplified Pampa Orcoma Process Flowsheet

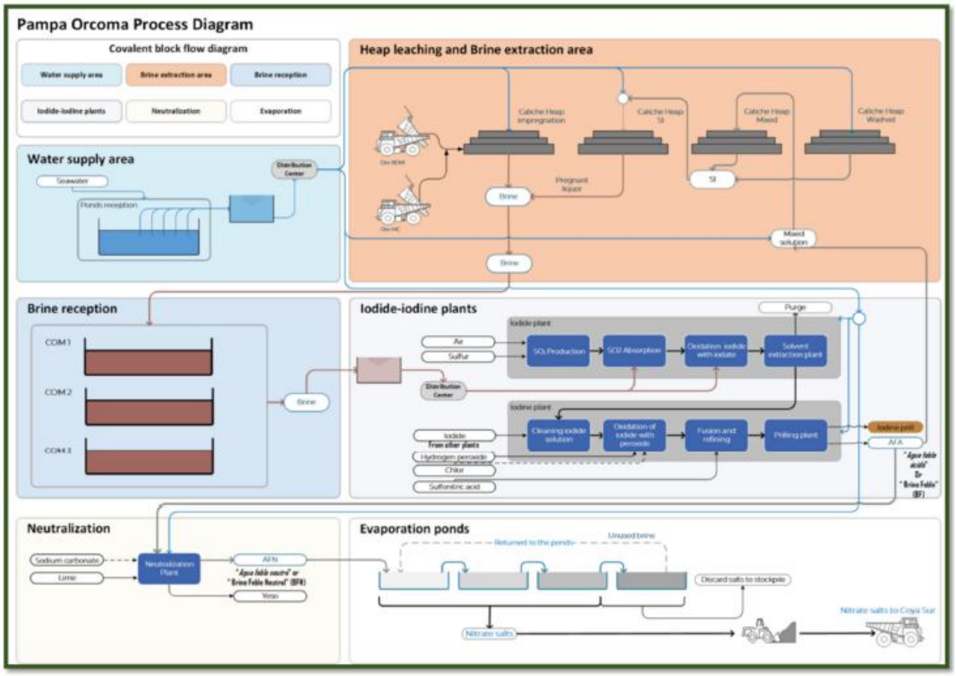
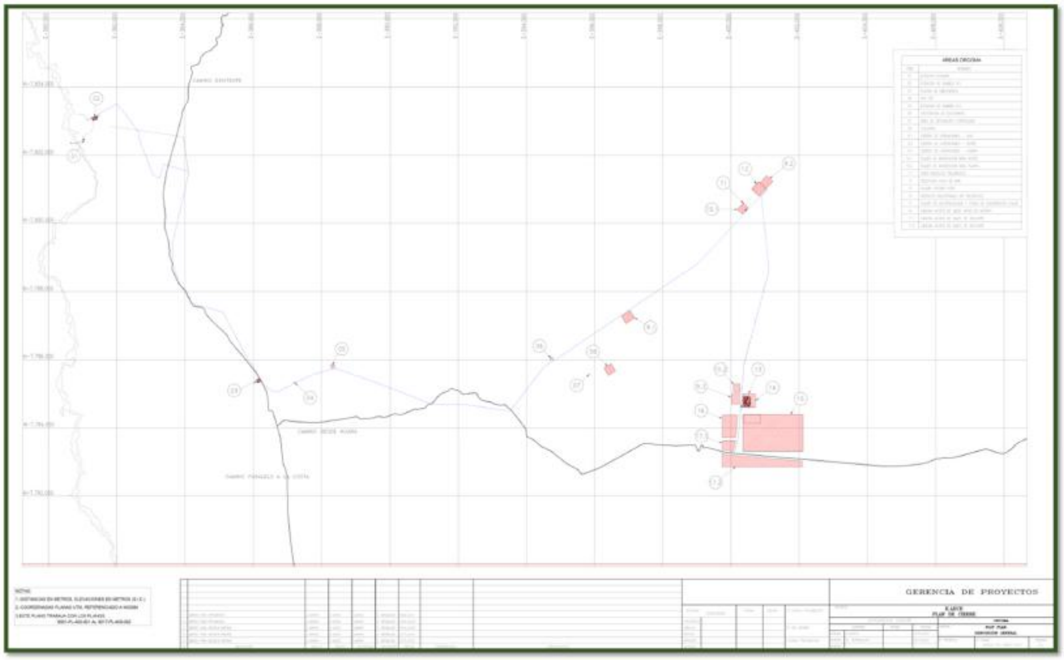


Figure 14-2. General Layout of the Facilities of Pampa Orcoma



14.1 Process Description

The extraction processes will begin with the removal of chusca and overburden, material that will be deposited in nearby sectors already exploited or lacking minerals. Then, we proceed with the drilling of blast holes, start-up (which will require traditional blasting and/or continuous mining equipment) and will end with the loading and transport of caliche. These operations involve caliche loading and transportation using shovels and front-end loaders that load the material removed from the quarries onto a high tonnage truck for transport to the leaching heaps.

The site will work with two mineral categories, classified as described below:

Mineral Category 1 "Run of Mine" (ROM) Material: Material direct from the mine without further comminution, where it is possible to find particles ranging in size from the order of millimeters to 1 meter.

Mineral Category 2 From Continuous Mining: Material extracted using a tractor with a cutting drum.

Caliche to be leached must be prepared to level the site where the heap is to be built (loaded). This land will have a gradient of 1 to 4% with an approximate slope of 2.5%, to take advantage of gravity to transport the drained solution from the heap. Details on the stages of removal and loading of material in piles, as well as their construction, are given in the preceding section 13.2.

The piles are irrigated with a mixture of industrial water and/or Brine Feeble, dissolving the minerals present in the caliche during lixiviation. The heap leaching operation is designed to treat the heap with seawater, adding it in alternating irrigation and rest cycles. The following are the operations:

1. Impregnation / Water Irrigation: Initial irrigation stage of about 50 to 70-day duration. During this stage, the heap begins its Brine drainage.

2. Intermediate Solution Irrigation (SI): Stage in which the oldest half of the heaps in the system are irrigated with drained solutions. It lasts about 190-280 days.

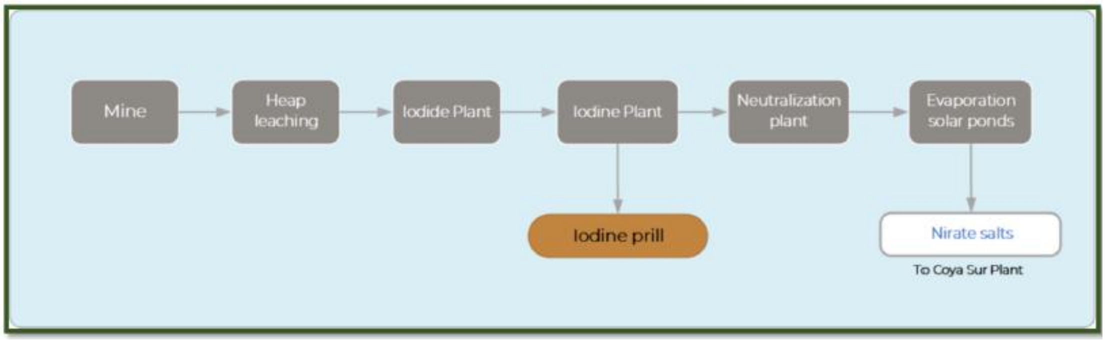
3. Mixture: Irrigation stage composed of a mixture of recirculated weak acidic water (AFA) and water. The drainage from these heaps is considered an Intermediate Solution and is used to irrigate other heaps. This stage lasts about 120 days.

4. Washing: The last stage of a heap's life, with final water irrigation for approximately 60 days. The irrigation system used corresponds to a mixed system, in other words, using drippers and sprinklers.

The rich or pregnant solution obtained from the heap leaching ("brine") is processed in the iodide and iodine plants, together with several inputs. The Brine is taken through pipelines to the iodide plant. In this plant through a series of stages, a concentrated solution of iodide and spent solution (Brine Feeble [BF]) is obtained.

The BF produced in the iodide plant can follow two alternative paths, one part is recirculated to the heap leach and the other fraction is sent to the neutralization plant, where, through the addition of lime or sodium carbonate, Neutral Brine Feeble (BFN) is produced. The latter is sent to the solar evaporation ponds, where nitrate-rich salts are produced and sent for processing in the Nitrate Plants. The process steps described are summarized in the block diagram shown in the Figure 14-3.

Figure 14-3. General Block Process Diagram for Pampa Orcoma



The mining waste generated at the site corresponds to the exhausted leaching heaps, overburden and waste salts. The discard salts generated from the process correspond to an inert, cohesive, and highly cemented material that is disposed of in discard salt deposits adjacent to the evaporation ponds.

As shown in the general process diagram, Figure 14-3 , the operations involved in the treatment of minerals and the production of iodine and nitrate salts requires the following process facilities:

- Caliche mine and mine operation centers.
- Heap leaching.
- Iodide plant.
- Iodide plant.
- Neutralization plant.
- Evaporation ponds.

14.1.1 Mining Zone and Operation Center

The first stage of the process considers the extraction of caliche at a rate which ranges from 8.5 Mtpy to 20 Mtpy. With advances in operations, internal roads that connect different sectors are to be built. The processes of extraction, loading, and transport of caliche will be as follows:

- Chusca and overburden removal
- Shot Hole Drilling
- Start-up
- Caliche loading and transport

The processes of extraction, loading and transport of the caliche consist of: removing the chusca (aeolian weathered surface layer up to 50 cm thick) and the overburden (intermediate layer from 0 to 1.0 m thick) using tractors or bulldozers, to deposit it in nearby sectors already exploited or lacking ore, then, The caliche is then extracted using explosives and/or surface excavator (extractor with cutting drum) to a maximum depth of 6 meters, given the above, the exploitation is carried out in low benches, in a single pass, which is why the typical amphitheaters common in open pit mine operations are not generated. Subsequently, the caliche is loaded using front loaders and/or excavators. Finally, trucks transport the mineral to heap leaching sites.

At the interior of the mine areas, there will be the COM that corresponds to a support facility, whose objective is the handling of the different solutions. They include the facilities associated with the leaching heaps, as well as a system of solution ponds where Brine comes from heap leaching, and seawater from the reception ponds, intermediate solution, and the mixed solution will be accumulated. The types of storage ponds for irrigation and brine solutions are shown in Table 14-1.

Accumulation ponds will be internally covered with HDPE and/or Polyvinyl chloride (PVC), or other material with similar waterproofing characteristics. The COM brine accumulation pond for each of the three units allows the brine generated and collected in the piles to reach the plant with an intermediate concentration of ~0.56 g/L of iodine. HDPE spheres will be used in water accumulation ponds to reduce evaporation losses at the surface.

Table 14-1. Description of Water and Brine Reception Ponds by COM

Pond	Size (m)	N° of Pond	Total Volume (m^3)
Brine	50x40	1	500
Water			
Mixed Solution			
Intermediate Solution			
Emergency Brine	54x94		1000
Emergency SI			

Three COMs are expected to be installed during Project life (COM North, COM Plant, and COM South). The location of the COMs, heaps leaching, and associated piping network depends on the geology, the volume of mineable ore, and the ore grades. Therefore, such location depends strongly on the annual mine planning of the deposit.

14.1.2 Heap Leaching

The leach heaps correspond to caliche accumulation stockpiles shaped like a truncated pyramidal. The piles will have an iodine and nitrate pregnant solution collection system. The base of the pile consists of a platform with perimeter berms, a liner to keep the soil impermeable, and a protective layer of fine material. These heaps are being built gradually as the mining operation progresses.

The protective layer of material called "chusca", which has the purpose of maintaining a smooth contact surface between the material loaded by the dump trucks, machines, and the membrane so that it is not perforated by the impact of coarse mineral particles, irregularities, or traffic. The fine material is composed of:

1. Barren material coming from the areas under exploitation.

2. Tailings from the depleted heap leaching. Unclassified material extracted 3 m from the top of the heap.

Caliche extracted in the mine areas is heaped on top of this protective layer and then irrigated with different solutions according to a leaching strategy of four stages. The solutions, pumped and impelled from different COMs and irrigated at the top of the heap, are industrial quality water, intermediate solution, a mixture of industrial water, and Brine Feeble (recirculated from the plants), producing the leaching of the minerals present in the caliche.

After completing a heap cycle, irrigation ends and the heap drains until the flow rate reaches approximately 10 to 20% of the flow rate drainage during continuous irrigation, a stage known as "squeezing".

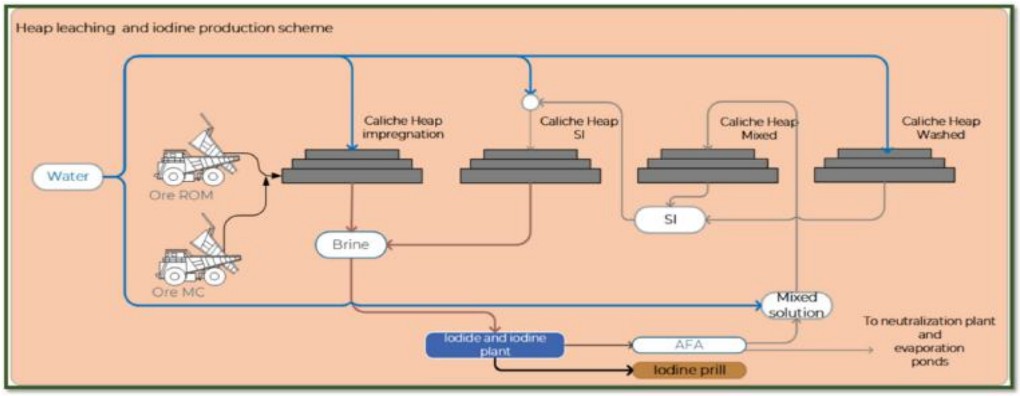
Heaps are organized to reuse the solutions they deliver, production heaps (the newest ones), which produce a rich solution that is sent to the iodine plant, and older heaps whose drainage feeds the production heaps. At the end of its irrigation cycle, an old heap leaves the system as inert tailings, and a new heap enters at the other end, thus forming a continuous process (see Figure 14-4).

It is important to note that due to heap leaching operating conditions, a considerable portion of the aggregate water evaporates. Therefore, the company is developing a plan to mitigate evaporation losses. SQM declares efforts to optimize resources using plastic film to cover irrigated heaps, HDPE spheres in water accumulation ponds that reduce the area of exposure to radiation and consequently evaporation. The company is currently evaluating different types of plastic film.

On the other hand, when using seawater in the process and due to its saline load, it is possible that the drippers may lose efficiency due to clogging. In this matter, the company is working on the evaluation of drippers that allow working with saline solutions without loss of irrigation efficiency.

However, from month two of the construction phase, it is planned to start caliche mining activities, construction of leaching and impregnation heaps (alternating cycles of irrigation and rest), to obtain sufficient brine to start the operation of the other industrial plants.

Figure 14-4. Schematic Process Flow of Caliche Leaching



14.1.3 Iodide-Iodine Production

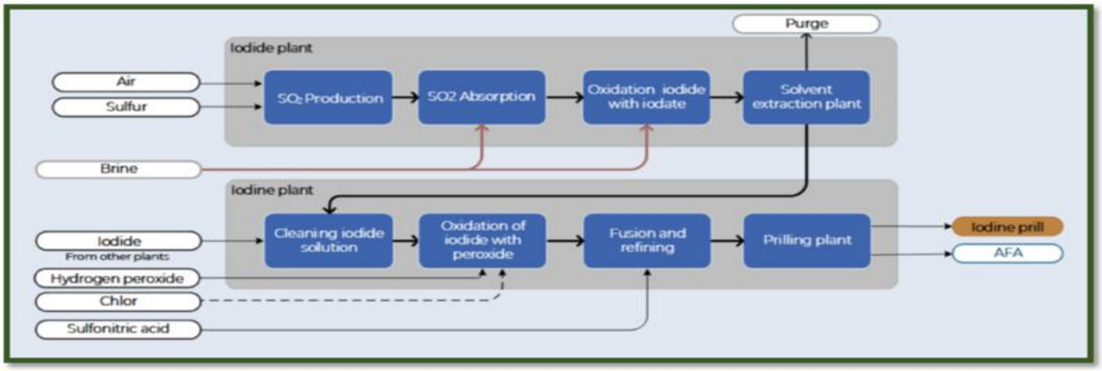
The iodine production process involves two stages: Production of iodide from iodate (iodide plant) and production of iodine from iodide (iodine plant). The capacity to produce iodide and iodine is 2,500 tpy.

Iodide concentrate solution produced is sent to an iodine production plant, where the final product is prilled iodine, or it will be sent to a third-party iodine plant. The BF generated during iodide production is reused in two processes: (a) a portion is recirculated to the COMs located in the mine areas, for the heap leaching process and (b) the remaining fraction is sent to the neutralization process, whereby adding a slurry of lime or sodium carbonate, BFN is produced. This last one is sent to the solar evaporation ponds system, to produce nitrate-rich salts and waste salts.

In this post-cutting plant, it is possible to use a solvent extraction (SX)-filtration or SX-Blow Out-filtration route.

Figure 14-5 shows a block diagram of the iodate to iodine prill process. The following sections will describe the process by stages developed in the iodide plant and iodine plant contemplated for the Project

Figure 14-5. Block Diagram of Iodide-Iodine Production Process Plants



14.1.3.1 Iodide Production

To reduce the sodium iodate in the caliche leaching solutions with an oxidation to free iodine through reduction with sulfur dioxide, and then to separate and purify it. The production of SO_2 serves two purposes: the iodination of the brine in the absorption tower and the reduction of the free iodine to iodide in the stripping stage.

The iodide plant will have the following process areas:

Sulfur Storage and SO_2 Production:

The required sulfur dioxide is produced by burning sulfur, which is received in bulk at a stockpile site. From here it is transported to a receiving hopper, which feeds sulfur to a dosing screw that enters a rotary kiln and combustion chamber, where it is melted and oxidized to SO_2. The SO_2 gases generated at the SO_2 production plant will pass through an abatement system to control atmospheric emissions. The system consists of a scrubber tower for the stripping unit. This scrubbing tower will recirculate the brine available in the plant, and then feed it to the process. Efficiency is estimated at 95%.

Iodination and Cutting:

This process converts the ionic iodine (iodate), which is present in the Brine, to elemental iodine. It occurs in a packed absorption tower. The cut Brine enters the solvent extraction unit, blending it with kerosene.

Solvent Extraction (SX):

Solutions containing free iodine are recovered by solvent extraction using kerosene in mixer settler tanks. The iodine-containing cut Brine is discharged in the first extraction stage, transferring the iodine to the organic phase. In the second extraction stage, the iodine extraction becomes complete.

The kerosene phase settles in a second regeneration tank, where stripping or re-extraction takes place with the iodide solution. The effluent solution left by the plant is neutralized with soda ash and then returned to the leaching process. The iodide solution used for stripping is maintained at a certain pH and is used to cool the SO_2 produced in the sulfur burning system.

Stripping:

The iodine from the organic phase passes into an iodide stream in the stripping stage. The aqueous phase leaving the separators is sent to the acid Feeble water (AFA) ponds, passing first through a kerosene trace recovery stage (coalesce).

The operation of the plant generates sludge, which is a gel-like solid impregnated with kerosene and iodine. From time to time, we stop the plant and the sludge flows to a tank washing and separation system, where the solvent (kerosene or another similar solvent) and iodine solution are recovered and recirculated back into the system. The residue generated (clays) is removed from the system, sent to a separation pond, where the solution is recovered, and the final clay is placed in depleted leach heaps.

Iodide Filtration:

To remove impurities from iodide solutions extracted in the solvent extraction plant, there are two cleaning stages of the solution before oxidation (with 70% hydrogen peroxide). The first stage is the filtration of the solution with a filter aid, which allows the trapping and removal of suspended solid particles. The second stage, which follows the first, also corresponds to filtration by activated carbon, a material that allows the removal of organic impurities contained in the iodide solution. Before entering this second cleaning stage, we determined to add traces of sulfur dioxide to the iodide solution, to intensify the cleaning work of this stage.

14.1.3.2 Iodine Production

Iodide plant product is a clean and concentrated Iodide (I-) solution sent to the Iodine Plant, where the final product, corresponding to Prill Iodine, is obtained. However, the iodine plant could also process iodide solutions from other facilities (third parties). Iodine plant areas will be as follows:

Iodide Storage and Conditioning:

The iodide-rich solution undergoes storage and conditioning. Conditioning consists of pumping the iodide into activated carbon towers to retain organic carryover among other impurities filtered out of the iodide, passing through two duplex filters. The treated iodide flows through two duplex filters. The conditioned solution then passes through two duplex filters before going to the oxidizers, which retain any carryover from the activated carbon.

Oxidation, Fusion, and Refining:

Subsequently, this solution is oxidized with an external agent, hydrogen peroxide (H_2O_2) or chlorine gas (Cl_2), resulting in a metallic iodide slurry.

Specifically, the oxidizers are two stirred tanks, which are used for iodide oxidation in batch mode. The exothermic reaction raises the temperature to about 60°C, resulting in the formation of a slurry. Once oxidation is complete, it is transferred to the next stage of smelting and refining.

The melting stage takes place in reactors where a slurry with a residence time of 2-2.5 h is processed. This reactor is prepared for slurry reception, first by displacement with carbon dioxide. Once the iodine solution has finished melting, it is fed to the refining reactors that receive and hold the molten iodine. The reactors are pre-charged with a mixture of nitric and sulfuric acid (Sulfonitric) to remove the organic matter present.

Prilling and Classification:

The prilling tower is a column through which compressed air circulates upward and is cooled with a water spray as it rises the tower (nebulizers). In this way, melted iodine falling from the top of the tower cools sharply to form solid prill iodine. On the bottom of the tower, a sieve separates the iodine prill with the right size and sends them to the packing line.

The next step is grinding, sampling and packing. The iodine produced in the plant is stored and then shipped.

The prilled iodine is tested for quality control purposes, using international standard procedures and then packed in 20-50-kg drums or 350-700-kg maxi bags and transported by truck to Antofagasta, Mejillones, or Iquique, for export.

14.1.3.3 SX-Blow-Out Production

The iodide-iodine plant produces iodized brine in its SX and Blow-out process modules. This plant can work with feed brine with low iodine concentration (0.02 g/L), which is sent to absorption towers where it is put in contact with SO_2 to produce iodide. The absorption tower is filled with elements that allow the solutions to have a longer residence time in the tower, allowing better contact between the reagents.

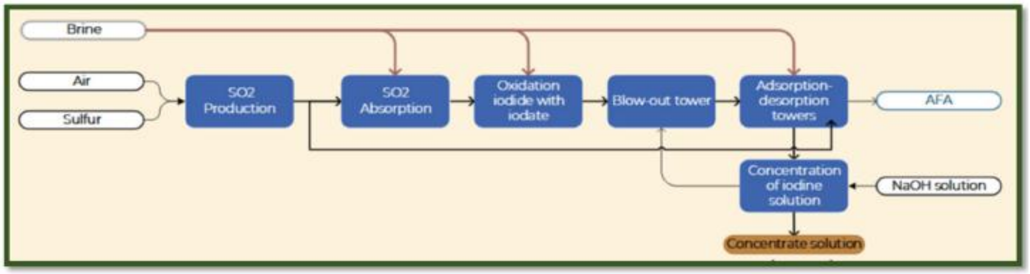
The iodide produced in the SO_2 absorption towers is taken to the cutting pond or reactor, where it is mixed with the iodate (IO_3^-) coming from the plant's feed ponds. This is a redox reaction known as the Dushman reaction and, therefore, its effectiveness is controlled by the pH of the mixture. As a result, the brine is transferred to the next solvent extraction step in three steps.

The solution from the cutter is pumped to the blowing towers, where it is counter-flowed with air. To recover iodine from the gas stream, it is sent to iodine absorption-desorption towers, using a solution containing iodide ions in counterflow, which forms triiodide ions, which are unstable. Finally, the iodine released from the vapor solution is absorbed with caustic soda.

The triiodide ion solution is sent to reducing towers (coolers) where, by contact with the cooling SO_2 (150 - 26 ºC), it dissociates, giving elemental iodine.

The solution returns to the iodide recirculation tank, forming a concentration cycle. Concentrated iodide is sent from the recirculation tanks to the iodine plant for refining.

Figure 14-6. shows a schematic of the production Blow-out process.



14.1.4 Neutralization Plant

The neutralization plant receives the brine Feeble (AFA) from the iodide plant. The Brine Feeble Neutral (BFN) will be produced in the neutralization system by adding lime and seawater to the Brine Feeble. The neutralization systems include solution receiving ponds, solids settling ponds, neutralization ponds and industrial water ponds.

The lime will be received and stored in a confined system equipped with an emission capture system. The ground lime will be dosed together with the water in lime slurry preparation ponds equipped with agitation.

The lime slurry solution obtained in agitated ponds will be pumped to the neutralization tank. Finally, the neutralized solution will be pumped through pumps and pipes to the solar evaporation ponds.

The neutralization residue (gypsum) will be deposited in the residual salt tank.

14.1.5 Solar Evaporation Ponds

The solar evaporation pond is a functional unit for producing nitrate-rich salts at a rate of 320,325 tpy, which involves the ponds; brine transfers from one pond to another via pumps and pipelines; and salt collection and transport systems.

The discard salts are sodium chloride, magnesium, and sodium sulfates, and the harvest salts are sodium nitrate ($NaNO_3$) and potassium nitrate (KNO_3). The discard salts are stored in a salt disposal yard and the production salts are stored in a slurry yard and finally shipped to other third-party processing plants by truck.

The evaporation system will have the following components: Pretreatment Pits, Cutting Pits, Production Pits, and Purging Pits.

To process all the Brine Feeble generated in the iodide plant, a solar evaporation area of approximately 2,000,000 m² (surface area of 194.12 ha) will be required. To prevent infiltration, the ponds will be covered with HDPE sheets, which in turn will be protected with geotextile to prevent damage from stones.

The average annual solar evaporation of the ponds is approximately 5.0 liters per square meter per day ($L/m^2/d$). The ponds will have a capacity of 4,537,200 m³ and the dimensions of the ponds are detailed in Table 14-2.

Table 14-2. solar evaporation ponds

<table>
<tr><th>Type</th><th>Area</th><th>Size (m)</th><th>Volume (m^3)</th><th>N° of Pond</th><th>Total Volume (m^3)</th></tr>
<tr><td>Preconcentration</td><td>124,200</td><td>540x230</td><td>372,000</td><td>10</td><td>3,796,000</td></tr>
<tr><td>Cutting Ponds</td><td rowspan="3">33,800</td><td rowspan="3">130x260</td><td>101,400</td><td>2</td><td>202,800</td></tr>
<tr><td>Purgin Ponds</td><td rowspan="2">67,600</td><td>1</td><td>67,600</td></tr>
<tr><td>Production</td><td>8</td><td>540,800</td></tr>
<tr><td colspan="3">Note: Maximun effective volume stored</td><td>Total</td><td>21</td><td>4,537,200</td></tr>
</table>

The following five relevant stages of the evaporation system are described below.

<u>Acid Feeble Water Alkalization</u>: This consists of a neutralization plant (Chemco) equipped with a lime storage silo, a lime preparation or lime slaking system, and a reactor with an agitator to produce the slurry/AFA contact. The main objective of this stage is to increase the pH from 1.6-2.0 to 5.4-6.0 (measured directly). Lime consumption (kg/m³ AFA) will depend on the initial acidity of the solution, with a variation between 0.3 to 0.6 (kg/m³). The result of this process is the Feeble Neutral Water (AFN) solution.

<u>Pretreatment Area or Zone</u>: A string of ponds in series of 125,000 and 250,000 [m²] of evaporation area. This process aims to evaporate the solution from its AFN condition to a solution close to saturation in KNO_3 and $NaNO_3$. In these ponds, nitrate-poor salts (discard salts) will precipitate, crystals of Halite (NaCl) and Astrakanita ($Na_2SO_4XMgSO_4X4H_2O$) being the predominant precipitates.

These ponds will be operated in series and the solution will be transferred from one pond to another by pumping.

<u>Cut-off or Boundary Pond:</u> At the end of the pretreatment stage, a cut-off pond will establish (control pretreatment), whose function will feed the solution to the production ponds. Therefore, it will be the pond where the fine adjustment takes place before sending the solution to production and where the most chemical controls will be found, due to their influence on the quality of the final product. The objective of this well will be to obtain a solution as close as possible to the saturation levels of KNO_3 and $NaNO_3$.

High Grade Sales Production Area or Zone

Ponds located in parallel, and series are fed from the cutting pond. In these ponds, high potassium nitrate (KNO_3) and sodium nitrate ($NaNO_3$) salts will precipitate, which are the products of interest in the process, along with other impurities (NaCl, Astrakanita, $KClO_4$, H_3BO3, $MgSO_4$, among others).

Volume fed to each pond is equivalent to the volume of water lost by evaporation, to maintain a constant free solution level. The amount of solution fed to each pond may vary according to other operational requirements (harvesting, filling, emptying, etc.) or according to the need to adjust the chemical composition of the supernatant solution in a pond, which will be defined week by week according to system requirements.

System Purge: This last stage of the system corresponds to the purge, where a higher proportion of impurities will precipitate concerning the nitrate and potassium salts. The solution will be dried to total dryness as the salt counts as a loss (discard deposit).

14.2 Process Specifications and Efficiencies

14.2.1 Process Criteria

Table 14-3 provides a summary list of the main criteria to design the processing circuit:

Table 14-3. Criteria

Criteria	
Mining Capacity and Grades	
Caliche Mine Exploitation	8.5 to 20 Mtpy
Caliche Exploitation at Iris Mine	6.48 Mtpy
Exploitation of Future Proven Areas	28 Mtpy
Average Grades	6.7 % Nitrate ; 408 ppm Iodine
Cut-off Grade	Nitrate 3.0% - Iodine 300 ppm
Availability / Use of Availability	
Mining Exploitation Factor	80 - 90 %
Plant Availability Factors	85%
Caliche Iodine PO Factor	3.7 Mt Caliche per Tonne of Prilled Iodine
Caliche Nitrate PO Factor	21 Tonnes Caliche / Nitrate
Caliche Iodine Iris Factor	
Heap Leaching	
Impregnation Stage	400 to 500 Days for Each Heap
Intermediate Solution	
Mixed Irrigation Stage	
Washing Stage with Industrial Water	

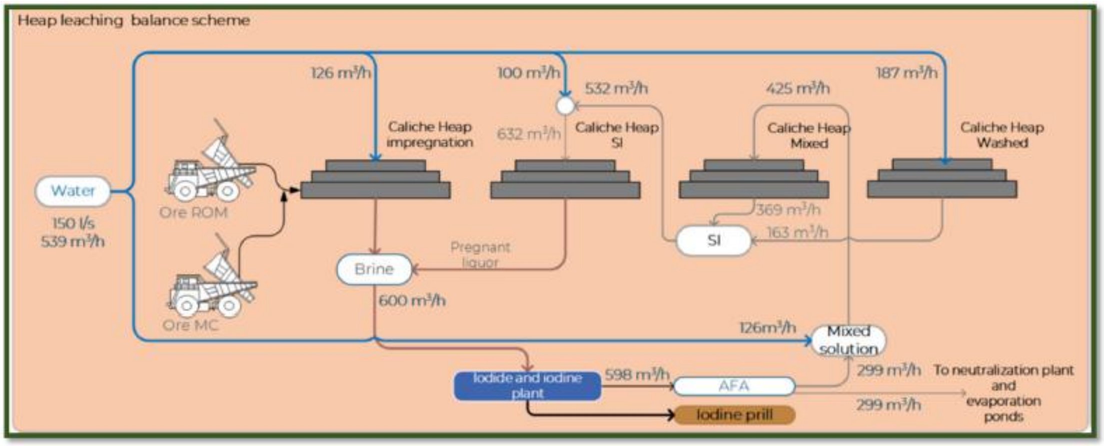
Criteria	
Evaporation Ponds	
Evaporation rate	2.5 L/m^2 to 4-5 L/m^2
Ponds Yield	77.3%
Yield and Plant Capacity	
Iodate / Iodide Yield	92 - 95 %
Iodide / Iodide Yield	97%
Production Capacity	2,500
Iodine Prill Product Purity	99.8%

The following sections describe the material balance in heap leaching, evaporation ponds, and general process balance. Yield values and production projection are also detailed.

14.2.2 Heap Leaching Balance

Figure 14-7 shows a simplified and general scheme of the cycle of each heap. Each stage is composed of several heaps, having a total of 25 heaps operating simultaneously, approximately and with a maximum water requirement of 350 L/s.

Figure 14-7. Pampa Orcoma Heap leaching scheme.



As can be seen, the maximum fresh water consumption is found in the pile washing stage. This balance also shows that the percentage of recycled Feeble solution is 50%.

14.2.3 Balance Solutions in Evaporation Ponds

To estimate inflows and outflows from the evaporation ponds, the following balance criteria were given:

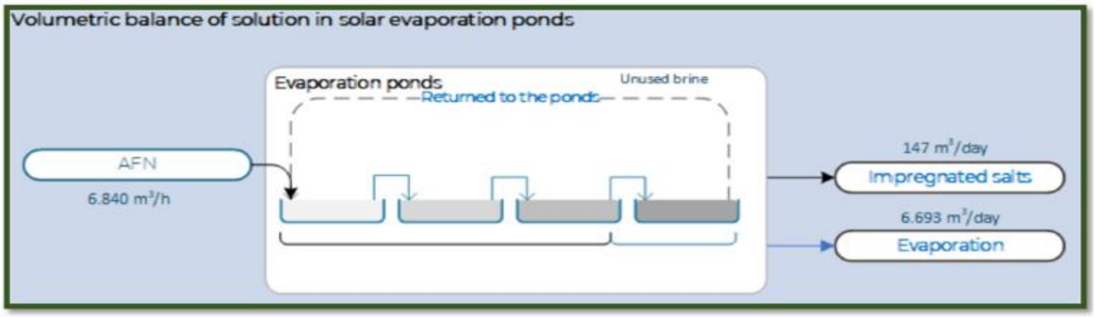
● The nominal evaporation rate is 3.78 - 4.5 l/h/m².

● The moisture content of discarded and harvested salts is 8-12%.

● The AFA fraction for re-circulation in the heap leaching process will be 50%, as well as that for the solar evaporation ponds. Depending on the quality of the caliche extracted, these percentages could vary, but always respect the production values indicated.

Figure 14-8 shows a simplified and general scheme of the volumetric balance in solar evapoconcentration system.

Figure 14-8. Pampa Orcoma volumetric balance in solar evaporation area.



14.2.4 Process Balance Sheet

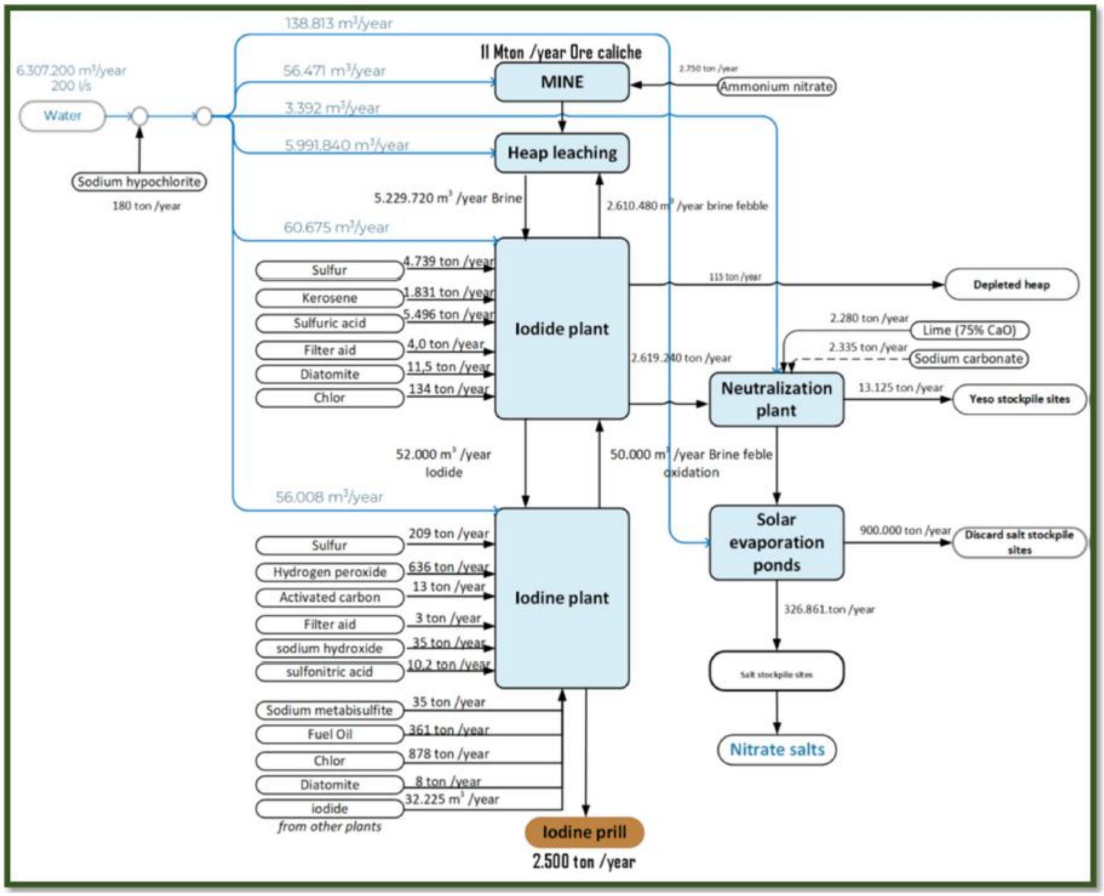
Figure 14-9 below shows the flow diagram and general balance of the Orcoma Project's production process. This balance will depend on caliche chemical properties, as well as on the operation of the Iodide Plant (whether it operates in SX or Blow out mode), without exceeding the quantities indicated in the diagram Figure 14-9.

This balance is developed to perform a feasibility level assessment of resource and process water management. This assessment included the development of a deterministic water balance that takes to account inflows, such as seawater abstraction and leach solution, outflows, such as evaporation, and consumption losses due to ore and waste rock wetting.

To estimate the input and output water requirements, the following balancing criteria were given:

- The average mine moisture content and specific mineral and waste rock moisture retention is 1,00%.
- The nominal leach solution application rate is 1.85 L/h/m².
- The average solution flow rate to leach is 100-120 m³/h, respectively.
- The solution applies with drip irrigation emitters and sprinklers.
- Total waste rock produced during mining activities has been estimated to be approximately 0.5-2.0 Mt.
- The moisture content of the waste rock after the leaching cycle is 8-10%.
- The fraction of AFA that will be recirculated in the heap leaching process will be 50%, as well as that destined for the solar evaporation ponds. Depending on the quality of the caliche extracted, these percentages could vary, but always respect the production values indicated.

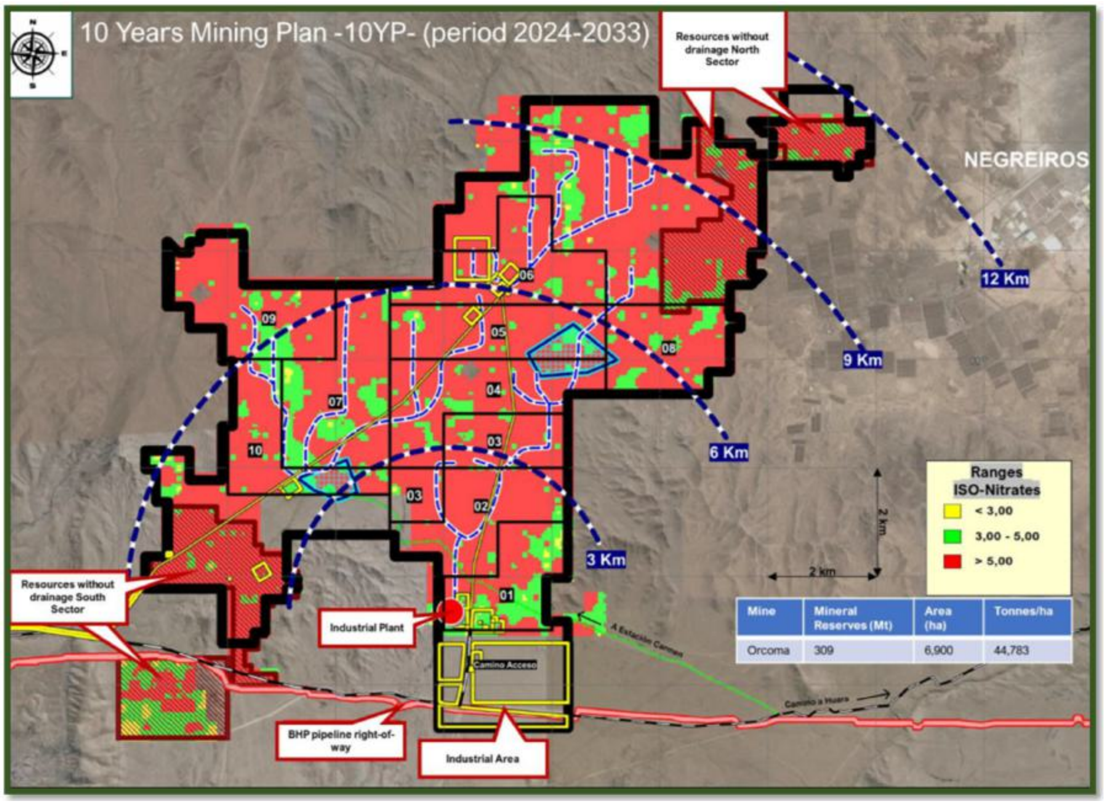
Figure 14-9. Mass balance of Pampa Orcoma per year of production



14.2.5 Production Estimate

It is worth mentioning that the Project's Useful Life is 25 years (RCA N° 075/17), during which it is estimated to produce 2,500 tpy of iodine (from 32,225 m³/year of iodide) and 320,325 tpy of nitrate-rich salts. However, depending on the level of exploitation, the reserves would be available for up to 28 years. The projection of the exploited sectors in 16 years, starting operations in 2024, is shown in Figure 14-10.

Figure 14-10. 10 Year Pampa Orcoma Plan Exploitation



In Figure 14-10, it is also possible to observe the demarcation of the radii of the areas to be exploited with respect to the process plant. According to the information provided by the declarant, SQM has estimated the average composition per mining radius (Table 14-4).

It can be seen that, except for years 6-8 and 9 of project operation, the plan indicates resource exploitation within a radius of 3 to 6 km from the process plant, which means that on average minerals with soluble salt content between 45.2% and 48.2% will be treated with nitrate grades of 6.6%-6.9% and iodine of 409 ppm to 418 ppm.

As can be inferred from Table 14-4 and for the year 10 of operation onward, the mining radii will be 9-12 km and therefore, the estimated average iodine and nitrate grade is in the range of 405 to 410 ppm and 6.4% -7.0% respectively. While the soluble salt content will be around 45.6-47.9%.

The production per project year for the period 2024-2040, is shown in Table 14-5, showing the production of the heap leaching process set out in the short and long-term Mining Plan.

Regarding plans, as shown in the mining-industrial project in Table 14-5, there is a project to expand iodide and iodine plant treatment capacity from a production of 2,500 tpy of iodine equivalent to 5,000 tpy. The exploitation strategy focuses on an operation sequencing away from the plant and operations centers to the north, which allows the growth of the trunk lines that transport gravity solutions to the plant and/or operations centers. Consequently, an 11 Mtpy rate applies for the first two years, and from the third year onward, this rate is doubled to 20 Mtpy.

However, to increase iodide and nitrate production from seawater, there must be a sequential increase in the water supply from 200 L/s to 400 L/s. It is estimated that this treatment capacity increase plan, in conjunction with the implementation of investment plans for continuous mining technology and magnesium abatement, would increase the leaching yields for Iodine and nitrate.

Orcoma's Industrial Plan considers a production of 5.3 Ktpy of iodine and a mine rate of 20 Mtpy starting in 2028. However, Orcoma's current RCA indicates a rate of 2.5 Ktpy of iodine and for the mine a rate of 11 Mtpy. SQM is currently preparing the "Orcoma Expansion EIA". This document is scheduled to be submitted to the SEIA in March 2023, and its approval is estimated for mid-2025, so the change in production rate would be anticipated. However, it should be noted that approval corresponds to a project risk factor. The risk of not obtaining final environmental approvals from the authorities in the appropriate period may cause significant delays in the execution and start-up of the expanded project.

Table 14-5 shows an average heap leach yield for the period of 64% for iodine and 61% for nitrate. The value reported for each year has been calculated using empirical relationships between soluble salts, grades, and planned unit consumption for the period.

Table 14-4. Pampa Orcoma average composition Per Mining Radius

Radious Km	Grade		Saline Matrix									Soluble Salt (%)
	Nitrate(%)	Iodine (ppm)	Na_2SO_4 (%)	Ca (%)	Mg (%)	K (%)	SO_4AP (%)	$KClO_4$ (%)	NaCl (%)	Na (%)	H_3BO_3 (%)	
3	6.6	409	23.05	3.56	0.87	0.88	10.88	0.036	12.41	7.93	0.49	45.2
6	6.9	418	22.78	3.33	0.90	0.94	10.98	0.042	12.14	8.16	0.44	48.2
9	7.0	410	23.34	3.44	0.92	0.91	11.15	0.039	12.75	7.72	0.46	45.6
12	6.4	405	23.50	3.30	0.88	0.95	11.80	0.042	10.92	7.56	0.50	47.9

Table 14-5. Pampa Orcoma Process Plant Production Summary

Term	Short Term								Long Term
Parameter	2024	2025	2026	2027	2028	2029	2030	2031	2032 -2040
Mass of Caliche ore Processed (Mt)	2.1	8.4	8.4	8.4	20.0	20.0	20.0	20.0	180.0
Water Consumption (m^3 / Ton Caliche)	0.56	0.56	0.56	0.56	0.51	0.51	0.51	0.51	0.51
Ore Grade (ppm, I_2)	412	415	405	405	400	401	410	401	410
Ore Grade (Nitrate, %)	6.02 %	6.14 %	6.51 %	6.41 %	6.52 %	6.80%	6.10%	6.60%	6.77%
Soluble Salts, %	48.1%	46.9%	48.6%	50.3%	46.0%	48.2%	50.5%	46.8%	47.2%
Model Yield									
Iodine Leaching Yield, %	73.0%	74.2%	72.3%	70.9%	71.0%	69.2%	67.6%	70.4%	70.4%
Nitrate Leaching Yield, %	59.6%	59.3%	58.8%	59.3%	52.9%	52.8%	54.5%	52.9%	52.6%
Industrial Plan Target									
Iodine Leaching Production (Kt)	0.6	2.4	2.3	2.2	5.3	5.1	5.1	5.2	48.3
Nitrate Leaching Production (Kt)	76	306	322	320	689	718	666	698	6,412

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 plant requirements that yield different results from the historical operations.

Nitrate and iodine process needs, such as energy, water, labor, and supplies, will be supported by committed infrastructure. The following sections detail energy, water, staff and process input consumption.

14.3.1 Energy and Fuel Requirements

Energy

The power supply comes from the permanent power line installations at the site. The purpose of the power supply system is to supply electricity to the industrial areas for the operations required and to supply electricity to the adduction system specifically through Substations installed in EA, E.B N°1, and E.B. N°2, which will be operated remotely from the plant room.

In addition, there will be an internal connection network in the mine areas and industrial zones (33 kV medium voltage power lines). The operation considers the consumption of 195,000 MWh/year, which comes from the 1x220 kV high voltage line Cóndores - Parinacota.

Also, the option of using a backup generator (2 MW) for the COM is considered, to operate this equipment in the event of a power outage and to be able to attend the pumps (iodide plant, iodine plant, neutralization plant, exchange house, bathrooms, office, seawater reception pool, and other minor consumptions) that must be in permanent operation.

Fuel

The operation will require the consumption of 7,400 m³/year of diesel fuel. It will be supplied by duly authorized fuel trucks.

The fuel destination sites will be the substations (EA, EB1, EB2), Industrial Area Plant, evaporation ponds, and seawater reception pools. All liquid fuel storage systems will be designed based on the minimum requirements established in Art. 324 of D.S. 132 of the Mining Safety Regulations, regulatory provisions of D.S. 160/08 and 160/09 of the Ministry of Economy, Development and Reconstruction, Safety Regulations for Facilities and Operations of Production and Refining, Transport, Storage, Distribution and Supply of Liquid Fuels.

The projection of energy and fuel consumption between 2024 and 2028 is shown in Table 14-6.

Table 14-6. Energy and Fuel projection

Sector	Requeriment	Unit	2024	2025	2026	2027	2028
Mine	Gas	Mm^3					
	Diesel		2.5	5.1	9.6	9.9	9.9
	Energy	GWh	9.1	18.2	34.7	35.8	35.8
Process Plant	Gas	Mm^3					
	Diesel						
	Energy	GWh	1.0	4.2	4.3	7.0	8.6
	Kerosen	Mm^3	0.3	1.2	1.2	2.0	2.4

14.3.2 Water Consumption and Supply

Regarding the sources to be used, it is indicated that the owner will contract supply services from authorized companies or sources. The water requirement will not exceed 6.307.200 m³/year. The extraction permit contemplates an abstraction of 200 L/s of seawater.

Water Supply System

Water supplies are covered for primary consumption, potable water consumption (treated and available in drums, dispensed by an external supplier), and the water required for industrial quality work.

The seawater supply system will ensure the water supply required for caliche processing with a maximum flow of up to 200 L/s during operation.

The system considers an early detection of leaks using comparative and redundant flow meter readings at the beginning and end of each section. There will also be pressure reading systems related to the expected power lines for each operating condition. If a fault is detected, the sectioning valves located every 5 km will be closed. This measure will reduce the potential spill to a maximum of 1,500 m³.

The seawater storage system includes ponds for industrial and sanitary water storage.

The raw water is treated and used for all purposes requiring clean water with low dissolved solids and salt content, mainly for reagent replenishment.

A storage tank will be installed for sanitary water, with a built-in chlorination system. The water storage tank will also supply water for sanitary use in safety showers and other similar applications:

Firefighting water for use in the sprinkler and hydrant system. Water storage tank with its respective pump and piping system distributed throughout the plant installation.

Cooling water and/or boilers for steam production.

Water Consumption

Drinking Water

In the Project's operation phase, drinking water is required to cover all workers' consumption needs and for sanitary services. Drinking water supply (100 l/person/day, of which 2 l/person/day is drinking water) at the work fronts and cafeterias will require jerry cans and/or bottles provided by authorized companies, and sanitary water supplied at the worksite facilities from tanks located in the worksite sector, which will have a chlorination system and will be supplied by cistern trucks. An average of 450 workers per month will be required when operating the project at full capacity, so the total amount of drinking water during this period will be 45 m^3/day.

Industrial Water

The total consumption of seawater used during the operation phase will amount to approximately 6.307.200 m^3/year. It will come from the seawater suction system and be stored in the reception ponds.

Water for Dust Control

As an emission control measure, the project considers humidifying work areas and interior roads during the construction and operation phases (at a frequency of 5 times per day).

Table 14-7 provides a breakdown of the estimated annual water consumption during the operation phase in terms of potable, industrial, and dedicated water for monthly and yearly humidification.

Table 14-7. Pampa Orcoma industrial and potable water consumption

Process	Month Volume (M³/Month)	Annual Volume (M³/Year)
Industrial Water		
Heap Leach	5,056	5,991,840
Mine	56,471	499,320
Iodide - Iodine Plants Neutralization Plant	16,518	120,075
Solar Evaporation Ponds	138,813	499,320
Total Industrial Process	526,600	6,307,200
Drinking Water	1,350	16,200
Road Wetting Requirements [2]		
Access Ruta 5 to Ruta A-412	3	36
Roads internal roads in mine area	4	45
Pipeline and power line roads	23	270
Total Road Wetting	**29**	**351**

A sequential increase in seawater supply from 200L/s to 400 l/s is required to increase iodine and nitrate production as planned from the third year of operation.

14.3.3 Staff Requirements

The operation requires an average of 450 workers. At this stage, the project will operate 24 hours a day. Table 14-8 provides an initial summary of the workers' requirements by operating activity.

Table 14-8. Personnel required by operational activity

Operational Activity	Current Personnel, Pampa Orcoma Operations
Caliche Mining	297
Maintenance (mine-plant)	24
Iodide Production	11
Iodine Production	25
Neutralization System	1
Evaporation System-Operations	47
Evaporation System, Maintenance	45
Total	**450**

14.3.4 Process Plant Consumables

In the plants, inputs such as sulfur, chlorine, kerosene, sodium hydroxide, or sulfuric acid to produce a concentrated iodine solution are added to produce iodide, then used to produce iodine. These inputs arrive by truck from different parts of the country. The main routes and associated vehicular flows for input supply and raw material dispatch are the A-412, road that connects with Route 5.

Reagent Consumption Summary

Table 14-9 includes a summary of the most significant inputs and materials used to operate the project. Some of the elements can be replaced by an alternative compound, for example, sulfur can replace sulfur by liquid sulfur dioxide, kerosene by sodium hydroxide, and finally, lime by sodium carbonate.

Table 14-9. Pampa Orcoma Process Reagents and Consumption rates per year

Reagent and Consumables	Function or Process Area	Units	Cosumption	Storage Place / Tank Volume
Sodium Hypochlorite	Addition Of Sodium Hypochlorite Solution In The Seawater Pipeline Suction.	Tpy	118	20 m^3
Ammonium Nitrate	Necessary for Blasting	Tpy	2,750	Stored at the Explosives Store
Sulfuric Acid	Iodide Plant	Tpy	5,496	Carbon Steel pond
Sulfur	Iodide And Iodine Plants	Tpy	4,948	400 m^2 Concret Field
Liquid Sulfur Dioxide	Used as an Alternative to Solid Sulfur	Tpy	5,000	15 m^3 ISO Tank
Kerosene	At The Iodide Plant as a Solvent	Tpy	1,831	two Tanks of 75 m^3 each
Sodium Hydroxide	At the Iodine Plants and at thee Iodide Plant as Peplacement of Kerosene	Tpy	3,830	stored in the warehouse
Chlorine	Supply Chlorine to the Iodine Plants as an Oxidizer	Tpy	879	iso tank with net capacity varying bettween 14 and 20 ton
Filter Aid	Alpha Cellulose Powder used tt Iodide and Iodine Plants	Tpy	7	Imput warehouse
Codium Chloride	Iodide Plant	Tpy		
Hydrogen Peroxide	Iodine Plant as an Oxidizer	Tpy	636	Reception in 15 m^3 tanks. Storage in 2 tanks on 24 m^3
Activated Carbon	At the Iodine Plant	Tpy	13	Imput Warehouse
Sulfonitric Acid	At the Iodine Plant	Tpy	10.2	Tank
Sodium Metabisulfite	Iodine Plant	Tpy	35	2 silos of 50 m^3
Lime (75 % Cao)	Neutralization Plant	Tpy	2,280	40 m^3 lime tanks
Lime (95 % Cao)	Heap	Tpy		
Sodium Carbonate	Neutralization Plant for Lime Replacement	Tpy	2,335	imput warehouse
Others				
Fuel Oil	Iodine Plant	Tpy	361	70 m^3 tanks
Barrels	Packaging	Pcs/Month	3,433	Warehouse
Polyethylene Bags	Packaging	Pcs/Month	4,079	
Krealon Bags	Packaging	Pcs/Month	3,739	
Maxi Bags	Packaging	Pcs/Month	94	

Reagent Handling and Storage

It should be noted that the inputs used in the operation are stored in stockpiles and ponds, facilities available in the so-called input reception and storage area. The following infrastructure will be available for the storage of inputs used at Pampa Orcoma's plants:

- Sulfur stockpiles.
- Kerosene ponds.
- Sulfuric acid ponds.
- Peroxide ponds.
- Chlorine ponds (mobile).
- Bunker oil ponds.
- Diesel oil tanks.
- Sulfonitric acid pond.
- Caustic soda tank.
- Calcium carbonate silo.

Each reagent storage system assembly is segregated for compatibility and located in containment areas with curbs to prevent spills from spreading and incompatible reagents from mixing. Sump sumps and sump pumps are available for spill control.

14.3.5 Air Supply

High-pressure air at 6-7 bar (600-700 kPa) comes from the existing compressors to satisfy the needs of the plant as well as the instruments. The high-pressure air supply is dried and distributed through air receivers located throughout the plant. Each process plant has a compressor room to provide the supply.

14.4 Qualified Person's Opinion

Gino Slanzi Guerra, QP responsible for the metallurgy and treatment of the resource said:

The level of laboratory, bench, and pilot plant scale metallurgical testing conducted in recent years has determined that the raw material is reasonably amenable to production. Reagent forecasting and dosing will be based on analytical processes that establish mineral grades, valuable element content, and impurity content to ensure that the system's treatment requirements are effective.

From a heap feed point of view, most of the material fed to the heaps comprises ROM minerals in granulometry. There is also a mining method called "continuous mining", where caliche mantles break up using reaming equipment, which allows obtaining a smaller and more homogeneous grain size mineral that has meant obtaining higher recoveries of approximately ten percentage points over the recovery in the ROM heaps.

Water incorporation in the process is a relevant aspect, a decision that is valued given the current water shortage and that is a contribution to the project since the tests carried out even show a benefit, from the perspective of its contribution to an increase in the recovery of iodine and nitrate.

15 PROJECT 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 "Orcoma" project under the Environmental Impact Assessment System (SEIA), aims to produce iodide, iodine, and nitrate-rich salts from the extraction and processing of caliche, from deposits rich in this mineral, located in the area called Pampa Orcoma, commune of Huara.

For this purpose, it is considered the execution of the following projects and activities:

- Open-pit exploitation of mining deposits, in an approximate surface of 6,883 ha (69 km2), with a caliche extraction rate of up to 11 Mtpy. Support facilities, known as the COM, will be built in association with the mine area.

- Construction of an iodide production plant, with a capacity of 2,500 tpy (iodine equivalent).

- Construction of an iodine plant, to process up to 2,500 tpy.

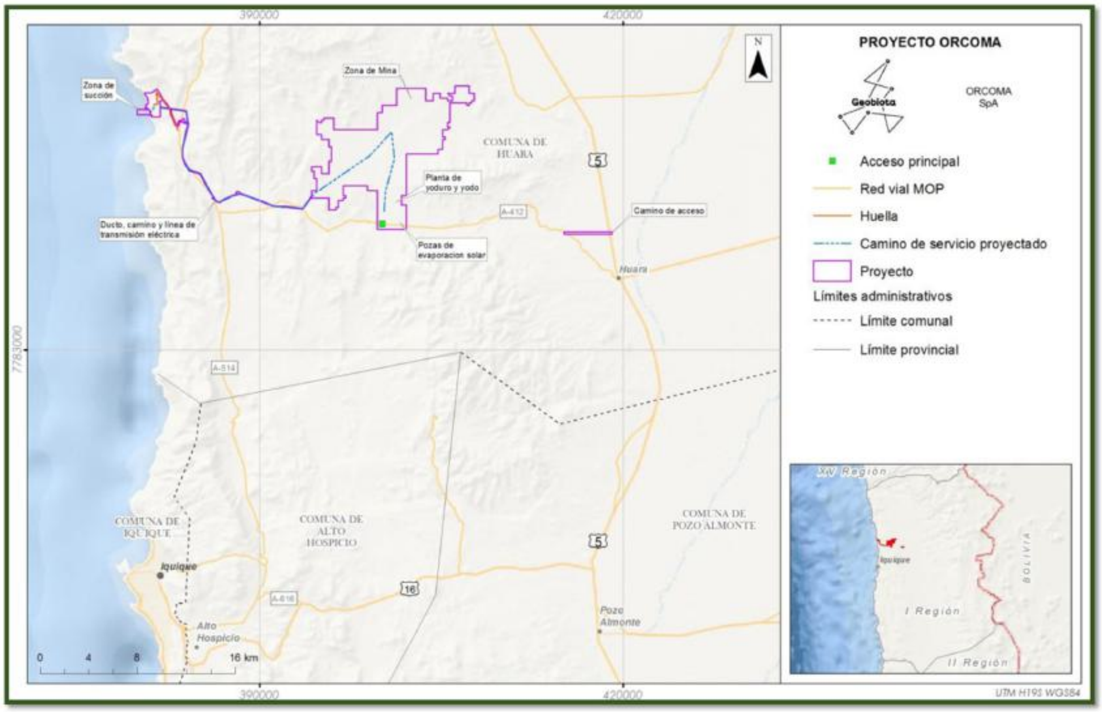
- Construction of evaporation ponds to produce nitrate-rich salts at a rate of 320,325 tpy.

- Construction of a seawater adduction pipeline from the northern sector of Caleta Buena to the mining area, to meet the water needs during the operation phase, with a maximum flow of up to 200 L/s.

- Connection of the industrial areas of the Project to the Norte Grande Interconnected System (SING), to provide sufficient energy for their electrical requirements.

The Project, as shown in Figure 15-1, is in the Tarapacá region, Tamarugal province, Huara commune, 20 km northwest of Huara, its nearest town. due to the existence of the adduction works and the power transmission line, the Project expands to the west of the commune, up to the north of Caleta Buena, where the seawater intake is located.

Figure 15-1. Project Location



15.1 Access Roads to the Project

General access to the Project, suitable for all types of vehicles, is near the 23 kilometer point of Route A-412.

Access to Route A-412 may be via Route A-514 or from Route 5, through a 3,4 km long connecting road that will make it approximately 3.8 km north of Huara. Conditions on Route A-412, between the plant access and Route 5, will be improved, thus creating a road surface that is resistant to vehicular traffic.

In addition, a road will be built from Route A-514 to the west, which will reach the coast to access the works that make up the seawater intake system and the power transmission line, according to the conceptual engineering.

From the interior of the mine area, access to the rest of the linear works will be possible through the construction of a service road, which will be located parallel to them.

All the roads to be built will have a width of 10 m, with a soil running surface.

15.2 Permanent Works

The following is a description of the parts that will make up the permanent works of the Project.

15.2.1 Seawater Supply System

The seawater supply system that will be required for the operation of the Project consists of the following components:

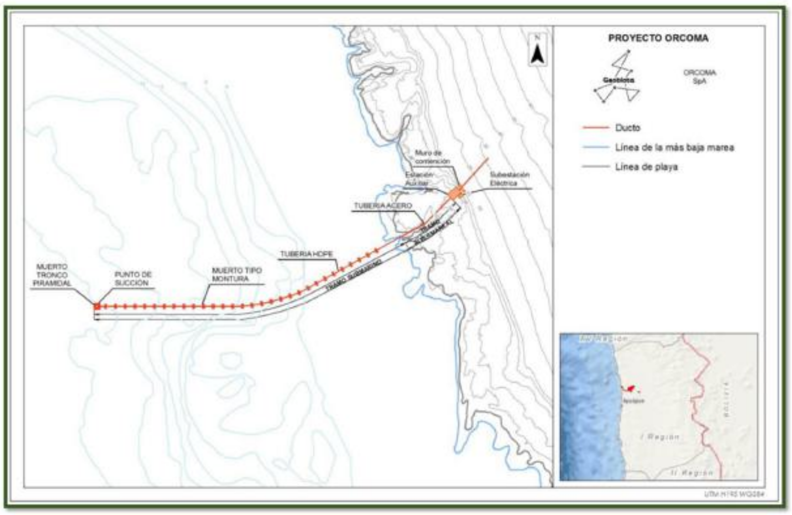
Seawater Intake System

The seawater intake system (Figure 15-2) consists of a suction inlet, with the respective intake filter; a section of underwater piping, located on top of the seabed; a section of intertidal piping, which will be installed on the seabed with reinforced concrete supports; and finally, an auxiliary station, consisting of the pump and electrical room, where the main pumps will be installed with all the elements necessary for their operation and the sodium hypochlorite addition equipment.

The underwater pipeline, defined between the intake filter and the beginning of the intertidal pipeline section, will be installed on the seabed, will be made of 600-800 mm diameter HDPE, PN16 thickness and will have an extension of 327 m.

In the Auxiliary Station (AS), with an area of 150 m^2, three pumps will be installed (1 stand by) driven by an electric motor, with a capacity of 100 L/s each, and the necessary equipment for their operation, such as gate valves; suction and discharge manifold; check valves; vacuum pump for priming the main pumps; in addition to the above, all the electrical power and control system will be installed. Its location makes it necessary to consider a protection system, for which a retaining wall is planned, located immediately to the east of the pump room.

Figure 15-2. Seawater Suction System



<u>**Pipeline from Auxiliary Station to Pumping Station N°1**</u>

Transports seawater from the Auxiliary Station to the settling ponds located around Pumping Station No. 1 (EB1).

Pumping Station Nº1

EB 1 will be in the "Punta rabo de ballena" (Whale Tail Point) sector and will consist of: 2 settling ponds of 6,000 m^3 each, discharge pump for the ponds, filter, 505 m^3 tank, and impulsion pump.

In addition to the above, an electrical substation will supply the energy for the operation of the equipment.

Pipeline from Pumping Station Nº1 to Pumping Station Nº2

It corresponds to a steel or HDPE pipeline or both combinations, with an approximate length of 14.5 km, which will be installed superficially and eventually covered.

<u>**Emergency pool**</u>

A 7,500 m^3 capacity pool will be built with 3 m to 4.5 m high walls, to accumulate the water in the pipeline in case of a possible breakage, or operational failure.

<u>**Pumping Station No. 2**</u>

Pumping Station No. 2 (EB2), situated at approximately km 15 of the route, contains a high-pressure pump, a 505 m^3 seawater storage tank, and controls for pump operation. An electrical substation is associated with this station, which will provide the energy necessary for its operation.

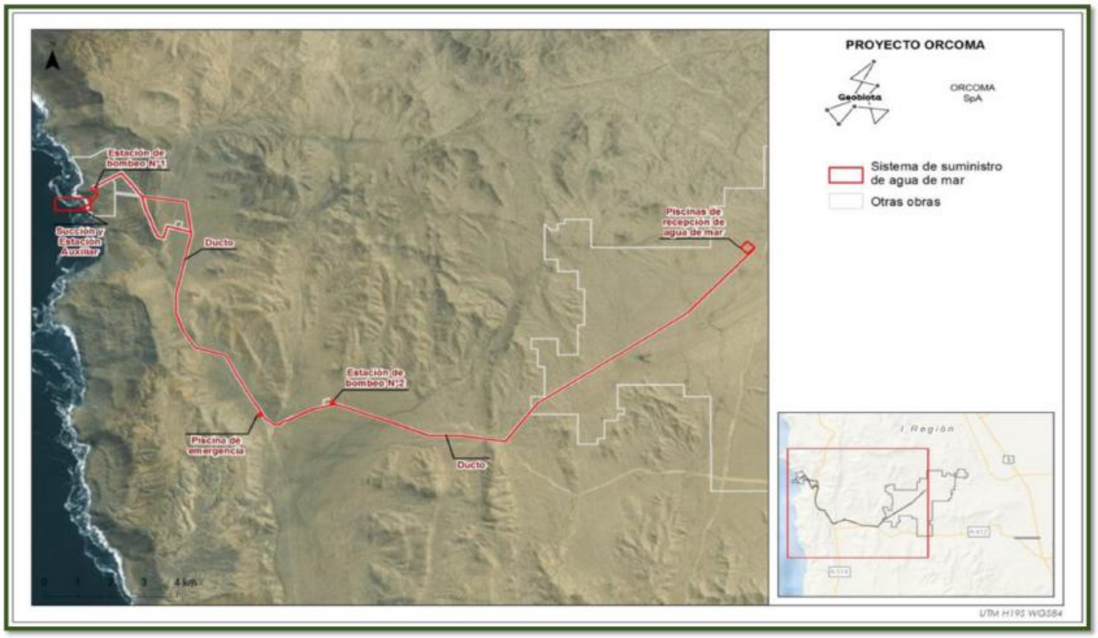
<u>**Pipeline from Pumping Station No. 2 to Seawater Reception Pools**</u>.

This corresponds to a pipeline of steel, HDPE, or a combination of both, with an approximate 15.3 km length, which will be installed superficially and covered, if necessary.

<u>**Seawater Reception Pools**</u>

Two seawater reception pools of 26,000 m^3 each, equal to the volume required for three days of operation, are considered. Both pools have pumps to drive seawater to the COM and iodine plant.

Figure 15-3. Seawater Supply System



15.2.2 Power Supply System

To supply the energy required for project operations, as well as for the operation of the water supply system, the installation of an electrical transmission network is contemplated, consisting of the following parts:

Electric Transmission Line

The construction of a 33 kilovolt (kV), medium voltage electrical transmission line (LdTE) is considered, starting from the current 1x220 kV Cóndores - Parinacota electrical transmission line, owned by Transelec, through the installation of a Tap Off. From this point, the distribution to the pumping stations, the Industrial Area, and the Neutralization Plant will be contemplated.

Electrical Substations (S/E)

Their characteristics, location, and main elements will depend on the type of substation in question (connection to the generator, tap-off to SING high voltage line, or downstream transformation, etc.), which may include transformation yard, distribution yard, compensation yard, line yard, transformers, common facilities.

The Project contemplates the construction of eight substations, as follows:

- A Tap-Off on one side of the 1-x-220-kV Transelec Condors - Parinacota power line.
- One S/E at the auxiliary station
- One S/E at pumping station N°1.
- One S/E at pumping station N°2.
- One S/E at seawater reception pools.
- Two S/E at the iodine plant.
- One S/E at the neutralization plant.

15.2.3 Mine Area

The Project considers a caliche mining area for the exploitation of caliche. In total, it involves an area of approximately 6,883 ha (69 km2), in which the construction of the following facilities is also contemplated:

Mine Operation Center

The COM is a support facility located inside the mine, whose purpose is to manage the different solutions. A COM comprises the heap leaching and wall height ponds between 3 and 4.5 m high, with HDPE lining, where brine from the leaching heaps, seawater from the reception ponds, intermediate solution, and mixed solution is accumulated. Besides the pumps associated with each pond that deliver the brine solution to the iodide plant.

The COM could consider other associated facilities corresponding to general service facilities for mine site personnel, offices, workshops, dining rooms, exchange houses, among others. A total of 3 COMs are expected to be installed during the life of the Project.

Mine Maintenance Workshop

Near both the COM North and COM Plant, a mine maintenance workshop will be installed, each consisting of a 5 ha surface area, which will include the following activities:

- Truck maintenance shop for periodic maintenance of the mine truck mechanical systems. New oil tanks and a 30 m3 capacity waste oil disposal tank will be installed.
- Truck and machinery washing area. This area will have a washing slab and a settling pool, with three sedimentation ponds in which the water will circulate gravitationally.
- Compressor room
- Warehouse for supplies and spare parts
- Tire change area

Parking area

Welding workshop. Its objective is to provide corrective maintenance to the structure, chassis, and hoppers of the mine trucks

Civic neighborhood in the North Mine Workshop

Sewage plant in the North Mine Workshop

Waste Storage

A waste generation point will be installed, which will later be transferred to the temporary disposal sectors described in greater detail below.

Powder Magazine

An ammonium nitrate silo, a powder magazine, and a controlled blasting area will be installed in the mine area.

15.2.4 Industrial Area

The production of iodine, iodide, and nitrate salts requires the establishment of an industrial area that includes the following facilities, which are identified in Figure 15 4:

Solar Evaporation Ponds

With an area of approximately 427 ha, this facility will be located at the southern end of the mining area. The infrastructure associated with this facility corresponds to:

Solar evaporation ponds with an area of approximately 194.12 ha. It involves a set of ponds and solution transfer pumps between them. The salts precipitated in the ponds are harvested with earth-moving equipment and transported in trucks to the storage sector.

Production and discard salt storage sector with an approximate area of 28 and 85 ha, respectively.

Final location of the solar evaporation ponds could be determined based on the information provided by the following stages of the project.

Iodide, Iodine, and Neutralization Plants

- A 10,000 m^2 iodide plant, consisting of a reception area for mineral or liquid sulfur; concrete piles for equipment installation; brine Feeble storage pool; chlorine reception and storage area; sulfuric acid reception and storage area; and kerosene reception and storage area.

- A 5,000 m^2 iodine plant, consisting of iodide reception and storage, foundations for equipment installation, peroxide reception and storage area, chlorine reception and storage area, metabisulfite reception and storage area, and prill iodine storage area.

A typical layout of the iodine and iodide plant is shown in Figure 15-4.

- A neutralization plant with an area of approximately 100,000 m^2, with lime or sodium carbonate reception and storage facilities; lime slurry preparation ponds, and neutralization ponds
- Waste generation point
- Three medium voltage electrical substations
- Dining room
- Laboratory
- Offices
- Exchange office
- Restrooms
- Sewage plant
- Drinking water supply system
- 2 MW backup generator set
- Product storage: to be located inside the iodide-iodine plant, to temporarily store the product for its subsequent transfer to the shipping point. A surface area of 840 m^2 is considered.
- Maintenance workshop: It will be located inside the iodide-iodine plant to meet the maintenance requirements of pumps and all types of minor equipment. It is considered an area of 750 m^2.

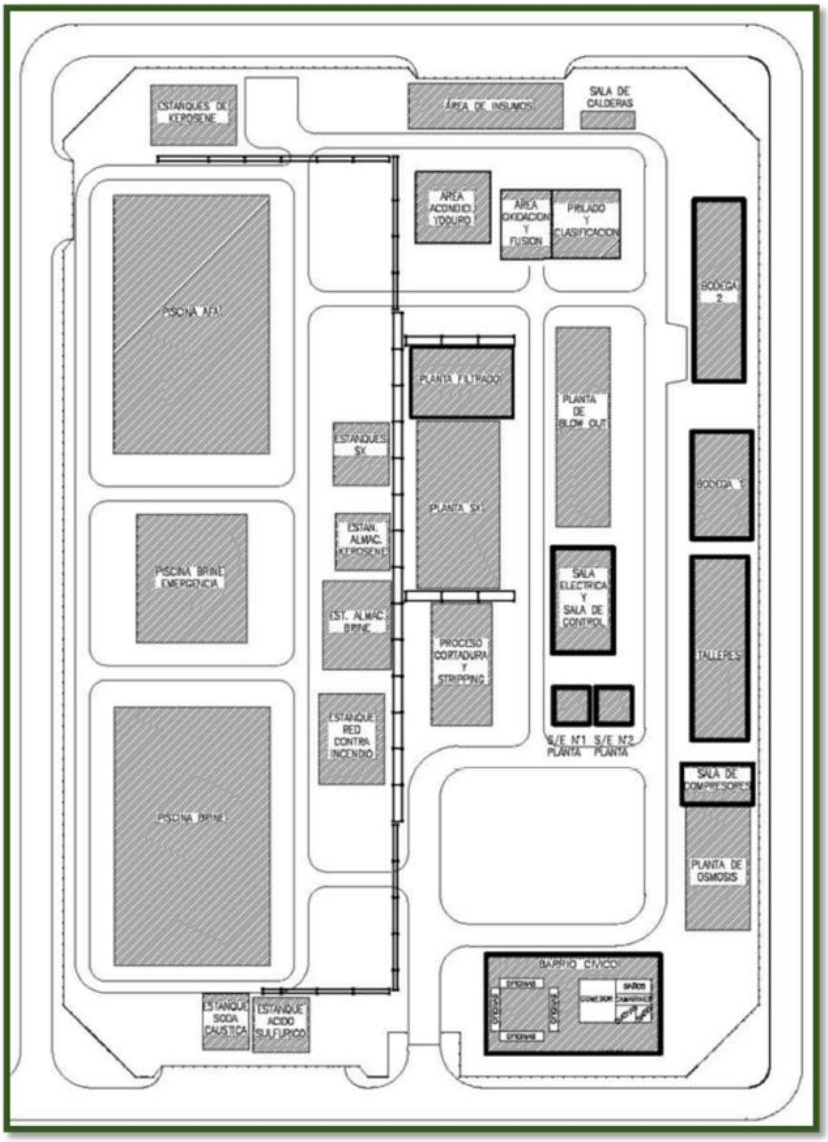


Figure 15-4. Characteristic Diagram of the Iodine-Iodide Plant

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 forecasted over the Long Term period.

16.1 The Company

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 92% of our sales in 2021 derived from countries outside Chile.

The business strategy is to maintain the world leadership position in the market for iodine, potassium nitrate, lithium and salts.

The products are mainly derived from mineral deposits found in northern Chile. Mine and process caliche ore and brine deposits.

Caliche ore in northern Chile contains the only known nitrate and iodine deposits in the world and is the world's largest commercially exploited slice of natural nitrate.

From the caliche ore deposits, SQM produces a wide range of nitrate-based products used for specialty plant nutrients and industrial applications, as well as iodine and its derivatives.

The SQM´s products are divided into six categories:

- specialty plant nutrients,
- iodine and its derivatives,
- industrial chemicals,
- lithium and its derivatives,
- potassium chloride and potassium sulfate,
- other commodity fertilizers.

The following table presents the percentage breakdown of SQM's revenues for 2021, 2020, 2019 and 2018 according to the product lines:

Figure 16-1 Percentage Breakdown of SQM's Revenues for 2021, 2020, 2019 and 2018

Revenue breakdown	2021	2020	2019	2018
Specialty Plant Nutrition	32%	39%	37%	35%
Lithium and derivatives	33%	21%	26%	33%
Iodine and derivatives	15%	18%	19%	15%
Potassium	15%	12%	11%	12%
Industrial chemicals	5%	9%	5%	5%
Other products and services	1%	2%	2%	
Total	100%	100%	100%	100%

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

SQM is one of the world's leading producers of iodine and its derivatives, which are used in a wide range of medical, pharmaceutical, agricultural and industrial applications, including x-ray contrast media, polarizing films for liquid crystal displays (LCD/LED), antiseptics, biocides and disinfectants, in the synthesis of pharmaceuticals, electronics, pigments and dye components.

In 2021, the SQM’s revenues from iodine and iodine derivatives amounted to US$437.9 million, representing 15.3% of our total revenues in that year. We estimate that our sales accounted for approximately 31% of global iodine sales by volume in 2021.

SQM's strategy for the iodine business is:

i. To achieve and maintain sufficient market share to optimize the use of the available production capacity.

ii. Encourage demand growth and develop new uses for iodine.

iii. Participate in the iodine recycling projects through the Ajay-SQM Group (“ASG”), a joint venture with the US company Ajay Chemicals Inc. (“Ajay”).

iv. Reduce the production costs through improved processes and increased productivity to compete more effectively.

v. Provide a product of consistent quality according to the requirements of the customers.

16.2.1 Iodine Market

Iodine and iodine derivatives are used in a wide range of medical, agricultural and industrial applications as well as in human and animal nutrition products. Iodine and iodine derivatives are used as raw materials or catalysts in the formulation of products such as X-ray contrast media, biocides, antiseptics and disinfectants, pharmaceutical intermediates, polarizing films for LCD and LED screens, chemicals, organic compounds and pigments. Iodine is also added in the form of potassium iodate or potassium iodide to edible salt to prevent iodine deficiency disorders.

X-ray contrast media is the leading application of iodine, accounting for approximately 24% of demand. Iodine's high atomic number and density make it ideally suited for this application, as its presence in the body can help to increase contrast between tissues, organs, and blood vessels with similar X-ray densities. Other applications include pharmaceuticals, which we believe account for 13% of demand; LCD and LED screens, 13%; iodophors and povidone-iodine, 8%; animal nutrition, 8%; fluoride derivatives, 7%; biocides, 6%; nylon, 4%; human nutrition, 4% and other applications, 14%.

Japan has the world's largest reserves of iodine, contained in brines rich in sodium iodide (NaI) in natural gas wells east of Tokyo, and estimated at 5 million tons of contained iodine. For reasons of geotechnical stability of the wells, the extraction of brine has a controlled flow, so its production is limited in its level current.

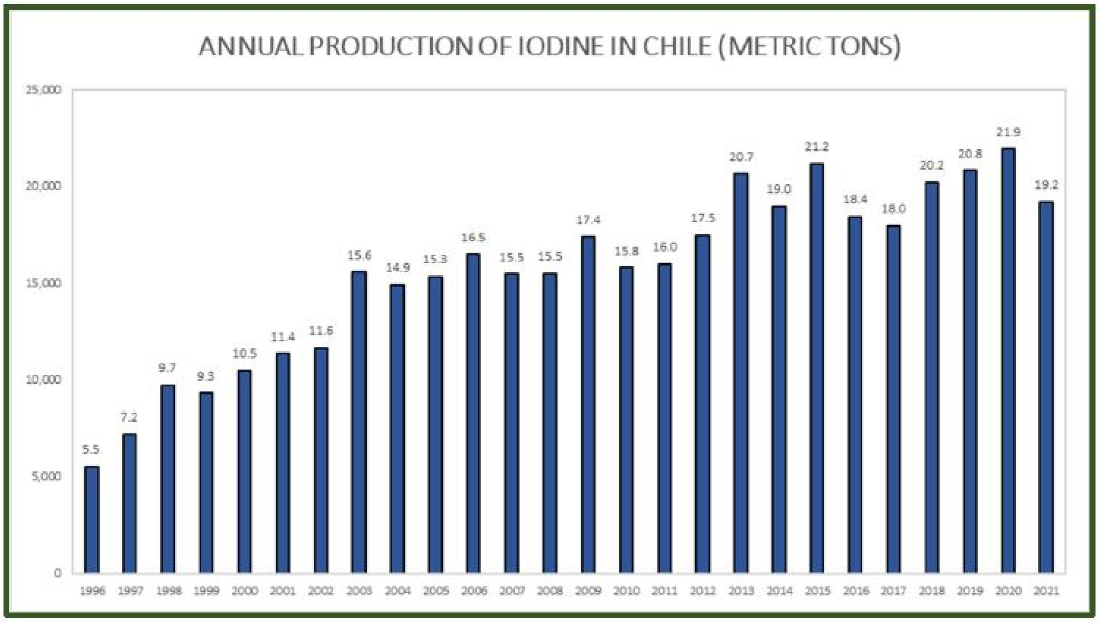
Iodine resources in Chile are found in the nitrate deposits of the regions of Tarapacá and Antofagasta, in the form of calcium iodate, $Ca(IO_3)_2$ in typical concentrations of 400 ppm (0.04% iodine by weight). It is obtained in co-production with sodium nitrate. The reserves in these deposits are estimated at 1.8 million tons of iodine, the second in the world.

The USA has similar resources in its type to Japan, but to a lesser extent (250,000 tons).

During 2021, the demand for iodine had a significant recovery compared to 2020 and exceeded the demand levels of 2019. Main drivers of this increase were in the X-ray contrast media market, in which demand grew by 14-15% compared to 2020, mainly due to worldwide growth in the healthcare industry spending during the year and increased accessibility to these types of treatments in emerging economies, mainly China. Another application for which demand increased above the market average was polarizing films for screens, growing around 6% compared to 2020, due to the reduction in TV costs, increased screen sizes and home office and home school trends as a result of the pandemic.

The following figure shows the evolution of the production of iodine and its derivatives in Chile, from 1996 to 2021.

Figure 16-2. Iodine and Derivates, Production Evolution 1996-2021



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

SQM supplies 12,300 metric tons of iodine and derivatives and other companies contribute the difference. The other Chilean producers are Atacama Chemical S.A. (Cosayach), controlled by the Chilean holding company Inverraz S.A.; ACF Minera S.A., owned by the Chilean Urruticoechea family; Algorta Norte S.A., a joint venture between ACF Minera S.A. and Toyota Tsusho; and Atacama Minerals, which is owned by Chinese company Tewoo.

16.2.2 Iodine Products

SQM produce iodine in our Nueva Victoria plant, near Iquique, and our Pedro de Valdivia plant, close to María Elena. The total production capacity of approximately 16,000 metric tons per year of iodine, including the Iris plant, which is located close to the Nueva Victoria plant.

Through ASG, SQM produces organic and inorganic iodine derivatives. ASG was established in the mid-1990s and has production plants in the United States, Chile and France. ASG is one of the world’s leading inorganic and organic iodine derivatives producer.

Consistent with the business strategy, SQM works on the development of new applications for iodine-based products, pursuing a continuing expansion of the businesses and maintaining the market leadership.

SQM manufactures its iodine and iodine derivatives in accordance with international quality standards and have qualified its iodine facilities and production processes under the ISO 9001:2015 program, providing third party certification of the quality management system and international quality control standards that SQM has implemented.

SQM's revenues increased to US$437.9 million in 2021 from US$334.7 million in 2020. This increase was primarily attributable to higher sales volumes and higher average prices during 2021. Average iodine prices were more than 2.8% higher in 2021 than in 2020. Our sales volumes increased 27.2% in 2021.

Revenues from sales of iodine and derivatives during the twelve months ended December 31, 2021 were US$437.9 million, an increase of 30.9% compared to US$334.7 million generated for the twelve months ended December 31, 2020. During 2021, global demand for iodine had a significant recovery compared to 2020, even exceeding the demand levels seen before the COVID-19 pandemic. Main drivers of this increase were seen in the X-ray contrast media market, which demand grew by 14-15% compared to 2020, mainly due to worldwide growth in the healthcare industry spending during the year and increased accessibility to these types of treatments in emerging economies. This strong recovery led to a strong pricing environment during the year, with prices increasing over 11% in the fourth quarter 2021 when compared to the third quarter. As a result of tight supply/demand equilibrium, we are expecting the upward pricing trend to continue during 2022. We believe that demand growth in 2022 could be around 1%. We believe average prices in 2022 could be significantly higher.

The following table shows the total sales volumes and revenues from iodine and iodine derivatives for 2021, 2020, 2019 and 2018:

Table 16-1. Iodine and derivates volumes and revenues, 2018 - 2021

Sales volumes (Thousands of metric tons)	2021	2020	2019	2018
Iodine and derivatives	12.3	9.7	12.7	13.3
Total revenues (in US$ millions)	437.9	334.7	371	325

16.2.3 Iodine: Marketing and Customers

In 2021, we sold our iodine products in approximately 52 countries to approximately 260 customers, and most of our sales were exports. Two customers each accounted for more than 10% of our iodine revenues in 2021. These two customers accounted for approximately 42% of revenues, and our ten largest customers accounted in the aggregate for approximately 77% of revenues. No supplier accounted for more than 10% of the cost of sales of this business line.

The following table shows the geographical breakdown of the revenues:

Table 16-2. Geographical Breakdown of the Revenues

Revenues Breakdown	2021	2020	2019	2018
North America	23%	27%	24%	26%
Europe	40%	42%	33%	34%
Chile	0%	0%	0%	0%
Central and South America (excluding Chile)	2%	3%	2%	2%
Asia and Others	34%	27%	40%	37%

SQM sells iodine through its own worldwide network of representative offices and through its sales, support and distribution affiliates. SQM maintains inventories of iodine at its facilities throughout the world to facilitate prompt delivery to customers. Iodine sales are made pursuant to spot purchase orders or within the framework of supply agreements. Supply agreements generally specify annual minimum and maximum purchase commitments, and prices are adjusted periodically, according to prevailing market prices.

16.2.4 Iodine Competition

The world's main iodine producers are based in Chile, Japan and the United States. Iodine is also produced in Russia, Turkmenistan, Azerbaijan, Indonesia and China.

Iodine is produced in Chile using a unique mineral known as caliche ore, whereas in Japan, the United States, Russia, Turkmenistan, Azerbaijan, and Indonesia, producers extract iodine from underground brines that are mainly obtained together with the extraction of natural gas and petroleum. In China, iodine is extracted from seaweed.

Five Chilean companies accounted for approximately 58% of total global sales of iodine in 2021, including SQM, with approximately 31%, and four other producers accounting for the remaining 27%. The other Chilean producers are Atacama Chemical S.A. (Cosayach), controlled by the Chilean holding company Inverraz S.A.; ACF Minera S.A., owned by the Chilean Urruticoechea family; Algorta Norte S.A., a joint venture between ACF Minera S.A. and Toyota Tsusho; and Atacama Minerals, which is owned by Chinese company Tewoo.

We estimate that eight Japanese iodine producers accounted for approximately 27% of global iodine sales in 2021, including recycled iodine. We estimate that iodine producers in the United States accounted for nearly 5% of world iodine sales in 2021.

Iodine recycling is a growing trend worldwide. Several producers have recycling facilities where they recover iodine and iodine derivatives from iodine waste streams.

We estimate the 17% of the iodine supply comes from iodine recycling. SQM, through ASG or alone, is also actively involved in the iodine recycling business using iodinated side streams from a variety of chemical processes in Europe and the United States.

The prices of iodine and iodine derivative products are determined by market conditions. World iodine prices vary depending upon, among other things, the relationship between supply and demand at any given time. Iodine supply varies primarily as a result of the production levels of the iodine producers and their respective business strategies.

Our annual average iodine sales prices increased to approximately 36 USD/kg in 2021, from the average sales prices of approximately 35 USD/kg observed in 2020. During the first half of 2021, the price remained similar to 2020. However, in the second half of the year, the growth in demand and the challenging international logistics situation led to a gradual increase in prices.

Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial and other sectors that are the main users of iodine and iodine derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices. The main factors of competition in the sale of iodine and iodine derivative products are reliability, price, quality, customer service and the price and availability of substitutes. We believe we have competitive advantages compared to other producers due to the size and quality of our mining reserves and the available production capacity. We believe our iodine is competitive with that produced by other manufacturers in certain advanced industrial processes. We also believe we benefit competitively from the long-term relationships we have established with our largest customers

Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial and other sectors that are the main users of iodine and iodine-derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices. Demand for iodine varies depending upon overall levels of economic activity and the level of demand in the medical, pharmaceutical, industrial and other sectors that are the main users of iodine and iodine-derivative products. Certain substitutes for iodine are available for certain applications, such as antiseptics and disinfectants, which could represent a cost-effective alternative to iodine depending on prevailing prices.

The main factors of competition in the sale of iodine and iodine derivative products are reliability, price, quality, customer service and the price and availability of substitutes. SQM has competitive advantages over other producers due to the size and quality of its mineral reserves and the production capacity available. Iodine is competitive with that produced by other manufacturers in certain advanced industrial processes. SQM also benefits from the long-term relationships it has established with its main clients.

16.3 Nitrates

Nitrates are obtained in Chile from the exploitation of the fields of nitrates that are in a strip of approximately 700 km long by 30-50 km wide, which is in the north of Chile, to the east of the Cordillera de la Costa, in the regions of Tarapacá and Antofagasta. This is the only area in the world where nitrate deposits have reserves and resources with economic content, where it is feasible to obtain different products such as nitrate sodium, potassium nitrate, iodine, and sodium sulfate. Its ore, called caliche, is presented preferably as a dense, hard surface layer of salt-cemented sands and gravels, with variable thicknesses between 0.5 m to 5 m.

The caliche resources and reserves estimated by SERNAGEOMIN for the year 2007, amounted to 2,459 million tons with an average grade of 6.3% nitrates. In turn, SQM reports that its total reserves amount to 1,378 million tons of caliche with an average grade of 6.29% of nitrates, this is 56% of national total.

Nitrates, in general, are considered specialty fertilizers because they are applied in a relatively narrow range of crops where it is possible to obtain higher yields and better products in their crops compared to massive fertilizers (urea and others).

Of these, potassium nitrate is today the main nitric fertilizer due to the combination of two primary nutrients, Nitrogen (N) and Potassium (K). Other nitric fertilizers are nitrate of sodium, ammonium nitrate and calcium nitrate. Nitrates explain less than 1% of the world market for nitrogenous fertilizers.

The most relevant crops for the potassium nitrate market are fruits, vines, citrus, tobacco, cotton and vegetables, where higher yields and specific benefits are achieved such as improvements in color, flavor, skin strength, disease resistance, etc.

Potassium nitrate competes favorably against ammoniacal fertilizers in Market niches indicated Its greatest advantage is the solubility and speed of assimilation by the plants. These properties have been key to gaining a solid position in the applications of drip irrigation and foliar fertilization that are applied in specialty crops and higher value, is that is, those that clearly bear the highest cost of this type of fertilizer.

In addition, sodium nitrate, historically recognized in the international market as "Salitre de Chile", fulfills functions like potassium nitrate, although the functionality of the sodium is more limited. For this reason, it has been losing importance to the benefit of potassium nitrate.

For some applications, a more balanced dose of sodium and potassium is required, therefore that "potassium-sodium" is especially elaborated, which corresponds to a mixture of 67% by weight of sodium nitrate and 33% potassium nitrate.

Additionally, nitrates can be modified by adding other functional nutrients, such as phosphorus, sulfur, boron, magnesium, silicon, etc., seeking to enhance certain fertilizer properties for more specific crops. These products fall into the range of fertilizer mixtures.

Sodium and potassium nitrates also have industrial applications based on their chemical properties.

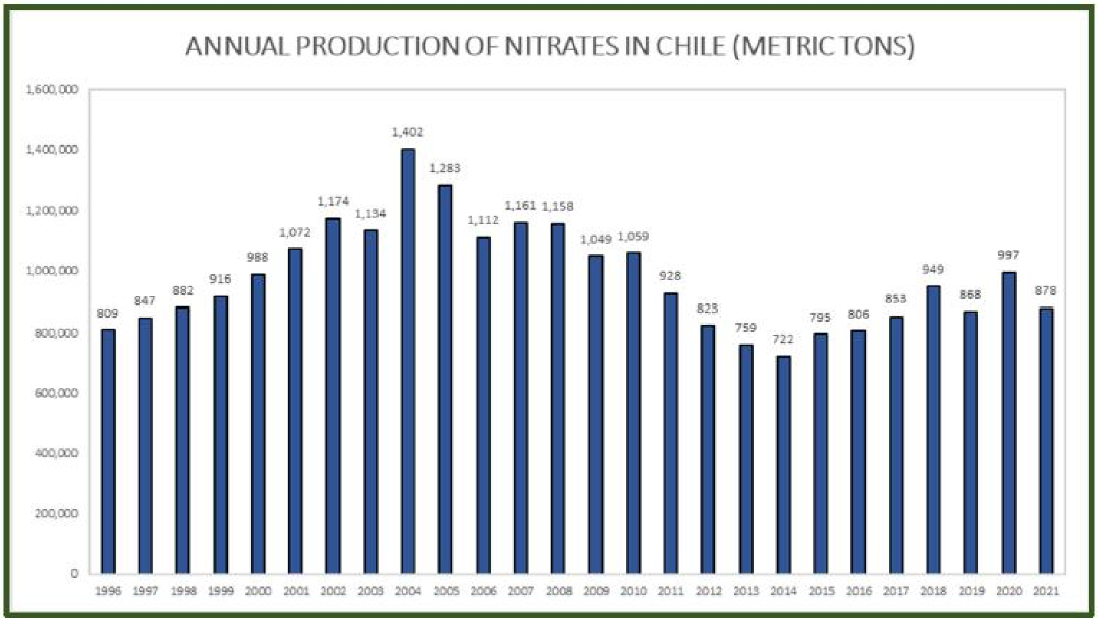
The alkaline oxides of sodium and potassium (Na_2O and K_2O) give it properties to melt and source of sodium or potassium, required in the special glass industry. The nitrate, for its composition rich in oxygen, strengthens the oxidizing properties. Its main applications industrial are found in high-resolution glasses for TV screens and computers, ceramics, explosives, charcoal briquettes, metal treatment and various chemical processes as a powerful industrial oxidant.

It is relevant to mention the great growth potential of the application of nitrates in solar thermal installations, where it plays the role of a heat accumulator that allows capturing the solar energy in the day and release heat at night to allow almost continuous operation of power generation plants. The most efficient solar salt for this purpose is a mixture of 60% by weight of sodium nitrate and 40% of potassium nitrate.

In Chile, the main companies producing nitrate are SQM, Cosayach and ACF. However, it is estimated that SQM produces close to 92% of the nitrates produced in Chile.

The following figure shows the evolution of the production of nitrates in Chile, from 1996 to 2021.

Figure 16-3. Evolution of the production of nitrates in Chile, 1996-2021



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

In 2021, SQM supplies approximately 830,000 tons of nitrates to the SQM market.

It is estimated that the Chilean participation in the potassium nitrate market is between 49% and 55% of world sales. It should be noted that Chilean natural nitrates, although unique in nature, must compete on the international market with similar products of synthetic origin, produced mainly in Israel, Jordan and China.

The price of nitrates has varied from 241 USD/tonne registered in 2003, reaching 400 USD/tonne in 2006 and 2007, and stabilizing between 650 USD to 900 USD in the period 2009-2019. In 2021 the price for Specialty Plant Nutrition was on average 792 USD/tonne and for Industrial Chemicals it was 753 USD/tonne.

In 2022, it is estimated that the demand for potassium nitrate decreased by 15%, as its average price rose to around 1,450 USD/tonne.

16.3.1 Specialty Plant Nutrition, Market, Competition, Products, Customers

In 2021, SQM's revenues from the sale of specialty plant nutrients was US$909 million, representing 32% of the total revenues for that year.

Specialty Plant Nutrients are premium fertilizers that allow farmers to improve their yields and the quality of certain crops. SQM produces four main types of specialty plant nutrients that offer nutritional solutions for fertigation, soil and foliar applications: potassium nitrate, sodium nitrate, sodium potassium nitrate and specialty blends.

In addition, SQM markets other specialty fertilizers including third-party products.

All these products are commercialized in solid or liquid form, for use mainly in high-value crops such as fruits, flowers and certain vegetables.

These fertilizers are widely used in crops using modern farming techniques such as hydroponics, greenhouses, foliar-applied crops and fertigation (in the latter case, the fertilizer is dissolved in water before irrigation).

Specialty plant nutrients have certain advantages over commodity fertilizers. Such advantages include rapid and effective absorption (no need for nitrification), higher water solubility, alkaline pH (which reduces soil acidity), and low chloride content.

One of the most important products in the field of specialty plant nutrients is potassium nitrate, which is available in crystallized and granulated (prilled) form, which allows different application methods. Crystalline potassium nitrate products are ideal for application by fertigation and foliar applications. Potassium Nitrate Granules are suitable for direct use in soil.

SQM has developed brands for marketing according to the different applications and uses of the products. The main brands are: UltrasolR (fertigation), QropR (soil application), SpeedfolR (foliar application) and AllganicR (organic agriculture).

The new needs of more sophisticated customers demand that the industry provide integrated solutions rather than individual products. The products, including customized specialty blends that meet specific needs along with the agronomic service provided, allow to create plant nutrition solutions that add value to crops through higher yields and better-quality production.

Because SQM products come from natural nitrate deposits or natural potassium brines, they have certain advantages over synthetically produced fertilizers.

One of these advantages is the presence in the products of certain beneficial micronutrients, valued by those customers who prefer products of natural origin.

As a result, specialty plant nutrients are sold at a premium price compared to commodity fertilizers.

SQM's strategy in the specialty plant nutrition business is:

i. Leverage (take) the advantages of the specialty products over commodity-type fertilizers.

ii. Selectively expanding the business by increasing sales of higher-margin specialty plant nutrients based on potassium and natural nitrates, particularly soluble potassium nitrate and specialty blends.

iii. Pursue (seek) investment opportunities in complementary businesses to enhance (improve) the product portfolio, increase production, reduce costs, and add value to the marketing of the products.

iv. Develop new specialty nutrient blends produced at the mixing plants that are strategically located in or near the principal markets to meet specific customer needs.

v. Focus primarily on the markets where SQM can sell plant nutrients in soluble and foliar applications to establish a leadership position.

vi. Further develop the global distribution and marketing system directly and through strategic alliances with other producers and global or local distributors.

vii. Reduce production costs through improved processes and higher labor productivity to compete more effectively.

viii. Supply a product with consistent quality according to the specific requirements of customers.

Specialty plant Nutrition: Market

The target market for the specialty plant nutrients includes producers of high-value crops such as vegetables, fruits, industrial crops, flowers, cotton and others. Furthermore, SQM sells specialty plant nutrients to producers of chloride-sensitive crops.

Since 1990, the international market for specialty plant nutrients has grown at a faster rate than the international market for commodity-type fertilizers. This is mainly due to:

i. The application of new agricultural technologies such as fertigation, hydroponics and greenhouses.

ii. The increase in the cost of land and the scarcity of water, which has forced farmers to improve their yields and reduce water use.

iii. The increase in the demand for higher quality crops.

Over the last ten years the compound annual growth rate for per capita vegetable production was 3% while the same rate for the world population was close to 1%.

The global scarcity of water and arable land is driving the development of new agricultural techniques to maximize the use of these resources. An example of this is the more efficient use of water. While total irrigation has grown at an annual average of 1% over the last 20 years (like population growth), micro-irrigation (more efficient in water use) has grown by 10% per year in the same period. Micro-irrigation systems, which include drip irrigation and micro-sprinklers, are the most efficient forms of technical irrigation. These applications require fully water-soluble plant nutrients. The specialty nitrate-based plant nutrients are fully water soluble and provide nitric nitrogen, which allows faster nutrient uptake by the crop than when using urea or ammonium-based fertilizers. This facilitates the efficiency in the consumption of nutrients in the plant and, therefore, increases the yield of the harvest and improves its quality.

The lowest global share of hectares under micro-irrigation over total irrigated hectares is recorded in Asia with a figure of around 3%. This means that there is a high potential for the introduction of this technology in the region in the next years.

China is an important market for potassium nitrate, however agricultural demand for this product is largely met by local producers. The demand for potassium nitrate in the Asian country reaches approximately 400,000 to 420,000 metric tons, of which approximately 130,000 metric tons are linked to the tobacco industry and approximately another 120,000 metric tons are related to horticulture.

Specialty plant Nutrition: Products

Potassium nitrate, and specialty blends are higher margin products that use sodium nitrate as a feedstock. These products can be manufactured in crystallized or prilled form. Specialty blends are produced using the company's own specialty plant nutrients and other components at blending plants operated by the Company or its affiliates and related companies in Brazil, Chile, China, Spain, the United States, the Netherlands, Italy, Mexico, Peru and South Africa.

The following table shows sales volumes and revenue for specialty plant nutrients for 2021, 2020 and 2019:

Table 16-3. Sales Volumes and Revenue for Specialty Plant Nutrients, 2021, 2020, 2019, 2018

Sales Volumes (Thousands of Metric Tons)	**2021**	**2020**	**2019**	**2018**
Sodium Nitrate	32.0	25.6	30.2	25
Potassium Nitrate and Sodium Potassium Nitrate	640.3	572.2	617.4	373.4
Specialty blends	305.5	271.3	238.9	242.5
Blended Nutrients and other Specialty Plant Nutrients	168.3	164.4	155.3	141.6
Total Revenues (in US$ millions)	**909**	**701.7**	**723.9**	**781.8**

In 2021, SQM's revenues from the sale of specialty plant nutrients increased to US$909 million, representing 32% of the total revenues for that year and 29% more than US$702 million for sales of the previous year. Average prices during 2021 were up approximately 17%.

It is estimated that SQM's sales volume of potassium nitrate marketed during 2021 represented close to 52% of the total potassium nitrate marketed in the world for all its applications (including agricultural use). During 2021, the agricultural potassium nitrate market increased approximately 4% when compared to 2020. These estimates do not include potassium nitrate produced and sold locally in China, only Chinese net imports and exports.

Depending on the application systems used to deliver specialty nutrients, fertilizers can be classified as granular (also known as "SFF" or Specialty Field Fertilizer) or soluble (also known as "WSF" or Water soluble fertilizer).

Granulated specialty nutrients are those for direct application to the soil, either manually or mechanized, which have the characteristics of high solubility, are free of chloride and do not present acid reactions, which makes them especially recommended for crops of tobacco, potatoes, coffee, cotton and for various fruit trees and vegetables.

In the soluble line, all those specialty nutrients that are incorporated into technician irrigation systems are considered. Due to the high-tech characteristics of these systems, the products used must be highly soluble, highly nutritional, free of impurities and insoluble particles, and with a low salt index. Potassium nitrate stands out in this segment, which, due to its optimal balance of nitric nitrogen and chloride-free potassium (the two macronutrients most required by plants), becomes an irreplaceable source for crop nutrition under technical irrigation systems.

Potassium nitrate is widely known to be a vital component in foliar applications, where it is recommended to prevent nutritional deficiencies before the appearance of the first symptoms, to correct deficiencies and increase resistance to pests and diseases, to prevent stress situations and promote a good balance of fruits and/or plant growth along with its development, especially in crops affected by physiological disorders.

Specialty Plant Nutrition: Marketing and Customers

In 2021, SQM sold specialty plant nutrients in approximately 101 countries and to more than 1.300 customers. No customer represented more than 10% of specialty plant nutrition revenues during 2021, and the ten largest customers accounted in the aggregate for approximately 22% of revenues during that period. No supplier accounted for more than 10% of the costs of sales for this business line.

The following table shows the geographical breakdown of the sales:

Table 16-4. Geographical Breakdown of the Sales

Sales Breakdown	2021	2020	2019	2018
North America	35%	35%	34%	31%
Europe	20%	21%	21%	26%
Chile	14%	14%	15%	14%
Central and South America (excluding Chile)	10%	10%	11%	10%
Asia and Others	19%	20%	20%	19%

SQM sells specialty plant nutrition products worldwide mainly through its own global network of sales offices and distributors.

Specialty Plant Nutrition: Competition

The main competitive factors in potassium nitrate sales are product quality, customer service, location, logistics, agronomic expertise, and price.

SQM is the largest producer of sodium nitrate and potassium nitrate for agricultural use in the world.

Sodium nitrate products compete indirectly with specialty substitutes and other commodities, which may be used by some customers instead of sodium nitrate depending on the type of soil and crop to which the product will be applied. Such substitute products include calcium nitrate, ammonium nitrate and calcium ammonium nitrate.

In the potassium nitrate market, SQM´s largest competitor is Haifa Chemicals Ltd. (“Haifa”), in Israel, which is a subsidiary of Trans Resources International Inc. It is estimate that sales of potassium nitrate by Haifa accounted for approximately 17% of total world sales during 2021 (excluding sales by Chinese producers to the domestic Chinese market). SQM's sales represented approximately 52% of global potassium nitrate sales by volume for the period.

ACF, another Chilean producer, mainly oriented to iodine production, has been producing potassium nitrate from caliche and potassium chloride since 2005.

Kemapco, a Jordanian producer owned by Arab Potash, produces potassium nitrate in a plant located close to the Port of Aqaba, Jordan.

In addition, there are several potassium nitrate producers in China, the largest of which are Yuantong and Migao. Most of the Chinese production is consumed by the Chinese domestic market.

In Chile, the products mainly compete with imported fertilizer blends that use calcium ammonium nitrate or potassium magnesium sulfate. Specialty plant nutrients also compete indirectly with lower-priced synthetic commodity-type fertilizers such as ammonia and urea, which are produced by many producers in a highly price-competitive market. Products compete on the basis of advantages that make them more suitable for certain applications as described above.

16.3.2 Industrial Chemicals, Market, Competition, Products, Customers

In 2021, the SQM´s revenues from Industrial Chemicals sales amounted to US$132 million, representing 4.7% of the total revenues for that year.

SQM produces and markets three industrial chemicals: sodium nitrate, potassium nitrate and potassium chloride.

Sodium nitrate is mainly used in the production of glass and explosives, in metal treatments, metal recycling and the production of insulating materials, among others.

Potassium nitrate is used as a raw material to produce frits for ceramic and metal surfaces, in the production of special glasses, in the enamel industry, metal treatment and pyrotechnics.

Solar salts, a combination of potassium nitrate and sodium nitrate, are used as a thermal storage medium in concentrated solar power plants.

Potassium chloride is a basic chemical used to produce potassium hydroxide, and it is also used as an additive in oil drilling as well as in food processing, among other uses.

In addition to producing sodium and potassium nitrate for agricultural applications, SQM produces different grades of these products, including prilled grades, for industrial applications. The grades differ mainly in their chemical purity.

At SQM there is some operational flexibility in the production of industrial nitrates because they are produced from the same process as their equivalent agricultural grades, needing only an additional step of purification.

SQM, with certain constraints, shift production from one grade to the other depending on market conditions. This flexibility allows to maximize yields and to reduce commercial risk.

In addition to producing industrial nitrates, SQM produces, markets and sells industrial potassium chloride.

The strategy in industrial chemical business is to:

(i) Maintain the leadership position in the industrial nitrates market.

(ii) Encourage demand growth in different applications as well as exploring new potential applications.

(iii) Reliable supplier for the thermal storage industry, maintaining close relationships with R&D programs and industrial initiatives.

(iv) Reduce production costs through improved processes and higher productivity to compete more effectively

(v) Supply a product with consistent quality according to the requirements of the customers.

Industrial Chemicals Market

Industrial sodium and potassium nitrates are used in a wide range of industrial applications, including the production of glass, ceramics and explosives, metal recycling, insulation materials, metal treatments, thermal solar and various chemical processes.

In addition, this product line has also experienced growth from the use of industrial nitrates as thermal storage in concentrated solar power plants (commonly known as "concentrated solar power" or "CSP"). Solar salts for this specific application contain a blend of 60% sodium nitrate and 40% potassium nitrate by weight ratio and are used as a storage and heat transfer medium. Unlike traditional photovoltaic plants, these new plants use a "thermal battery" that contains molten sodium nitrate and potassium nitrate, which store the heat collected during the day. The salts are heated up during the day, while the plants are operating under direct sunlight, and at night they release the solar energy that they have captured, allowing the plants to operate even during hours of darkness. Depending on the power plant technology, solar salts are also used as a heat transfer fluid in the plant system and thereby make CSP plants even more efficient, increasing their output and reducing the Levelized Cost of Electricity (LCOE).

A growing trend for the CSP application is seen because of its economical long duration electricity storage. The thermal storage of CSP plants helps to improve the stabilization of the electricity grid. Like all large power generation plants, such large CSP power plants are capital intensive and require a relatively long development period.

We supply solar salts to CSP projects around the world. In 2021, we sold approximately 100,000 metric tons of solar salts to supply a CSP project in the Middle East. We expect to supply over 400,000 metric tons to this project between 2020-2022. In addition, there are several major solar salt and Carnot Battery projects currently under development worldwide that we believe we could supply between 2022-2025. There is also a growing interest in using solar salts in thermal storage solutions not related to CSP technology. Due to their proven performance, solar salts are being tested in industrial heat processes and heat waste solutions. These new applications may open new opportunities for solar salts uses in the near future, such as retrofitting coal plants.

Industrial Chemicals Products

Revenues for industrial chemicals decreased to US$132 million in 2021 from US$161 million in 2020, because of lower sales volumes in this business line. Sales volumes in 2021 decreased 22.0% compared to sales volumes reported last year.

The following table shows the sales volumes of industrial chemicals and total revenues for 2021, 2020, 2019 and 2018:

Table 16-5. Sales Volumes of Industrial Chemicals and Total Revenues for 2021, 2020, 2019 and 2018

Sales Volumes (Thousands of Metric Tons)	2021	2020	2019	2018
Industrial Chemicals	173.4	225.1	123.5	135.9
Total Revenues (In US$ millions)	132	160.6	94.9	108.3

Industrial Chemicals: Marketing and Customers

In 2021 SQM sold industrial nitrate products in 59 countries to 338 customers. One customer accounted for more than 10% of SQM´s revenues of industrial chemicals in 2021, accounting for approximately 51%, and the ten largest customers accounted in the aggregate for approximately 61% of such revenues.

No supplier accounted for more than 10% of the cost of sales of this business line. SQM makes 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.

The following table shows the geographical breakdown of the revenues for 2021,2020, 2019 and 2018:

Table 16-6. Geographical Breakdown of the Revenues

Sales breakdown	2021	2020	2019	2018
North America	23%	15%	29%	25%
Europe	15%	7%	16%	16%
Chile	1%	3%	42%	4%
Central and South America (excluding Chile)	6%	3%	7%	11%
Asia and Others	56%	72%	6%	43%

SQM´s industrial chemical products are marketed mainly through its own network of offices, representatives and distributors. SQM maintains updated inventories of the stocks of sodium nitrate and potassium nitrate, classified according to graduation, to facilitate prompt dispatch from its warehouses. SQM provides support to its customers and continuously work with them to develop new products and applications for its products.

Industrial Chemicals Competition

SQM is one of the world's largest producers of industrial sodium nitrate and potassium nitrate. In 2021, SQM's estimated market share by volume for industrial potassium nitrate was 61% and for industrial sodium nitrate was 43% (excluding domestic demand in China and India).

The competitors are mainly based in Europe and Asia, producing sodium nitrate as a by-product of other production processes. In refined grade sodium nitrate, BASF AG, a German corporation, and several producers in China and Eastern Europe are highly competitive. They produce industrial sodium nitrate as a by-product of other production processes.

SQM´s industrial sodium nitrate products also compete indirectly with substitute chemicals, including sodium carbonate, sodium sulfate, calcium nitrate and ammonium nitrate, which may be used in certain applications instead of sodium nitrate and are available from many producers worldwide.

The main competitor in the industrial potassium nitrate business is Haifa, which had a market share of 10% for 2020. SQM's market share was approximately 61% for 2021. Other competitors are mainly based in China.

Producers of industrial sodium nitrate and industrial potassium nitrate compete in the marketplace based on attributes such as product quality, delivery reliability, price, and customer service. SQM´s operation offers both products at high quality and with low cost. In addition, SQM´s operation is flexible, allowing to produce industrial or agricultural nitrates, maximizing the yields, and reducing commercial risk. In addition, with certain restrictions, SQM can adapt production from one grade to another depending on market needs.

In the potassium chloride market, SQM is a relatively small producer, mainly focused on supplying regional needs.

Pricing Estimates

The QP has determined that using 40.0 USD/kg for iodine at the port of Tocopilla is the appropriate price for this study. Nitrates are more complicated since various products are produced based on market conditions, however the QP has determined that an appropriate average price for nitrates at Tocopilla is $US820. The derivation of a price for delivery of nitrates for refining in Coya Sur is detailed in Section 19.

17 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

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 to begin mining operations. The Environmental Assessment (SEA) process requires data to be collected on many components and consultations to inform relevant Project stakeholders. The main results of this inventory and consultation process are also documented in this section. Design criteria for water and mining waste infrastructure are also described. Finally, the general outline of the mine rehabilitation plan is presented to the extent of the information available at this time.

17.1 Environmental Studies

Law 19.300/1994 on the General Bases of the Environment (Law 19,300 or Environmental Law), as amended by Law 20,417/2010 and Supreme Decree No. 40/2012 Regulation of the Environmental Impact Assessment Service (Supreme Decree No. 40/2012 or RSEIA)) determines how projects that generate some type of environmental impact should be developed, operated and closed. As for mining projects, art. 3.i of the Environmental Law defines that the mining project must be submitted to the Environmental Impact Assessment System (SEIA) before being developed.

The Orcoma project aims to produce iodide, iodine and nitrate-rich salts from the extraction and processing of caliche, from deposits rich in this mineral, located in the area called Pampa Orcoma, commune of Huara. It was presented in 2015 and has the following projects:

Orcoma Project, presented through an EIA and approved by RCA No. 75/2017.

Project "220/33 Kv Orcoma Sectioning Substation", presented through a DIA and approved by RCA No. 20220100167/2022.

17.1.1 Baseline Studies

Each time the project has been submitted to the SEIA, baseline environmental studies have been carried out, which corresponds to a description of the physical, biological and socioeconomic environmental components that characterize the area of influence of the project. The last Environmental Impact Study (EIA) approved by RCA No. 75/2017included the following environmental baseline studies.

The following is a more detailed analysis of certain components of the baseline:

Hydrology

Regarding precipitation, in the area of influence it is almost zero with average annual values between 0.8 and 1.3 mm with a slightly marked seasonality towards the summer months, with years in which precipitation is zero and years in which it reached magnitudes of 7.9 and 19.4 mm per year respectively for each station (information from Huara weather stations in Fuerte Baquedano, in force since 1993, and Iquique, in force since 1984 respectively).

R Spec of runoff, due to the condition of extreme aridity of the area, in the area of influence there are no surface runoffs of permanent characteristics, and there may only be sporadic or intermittent runoff, associated with precipitation events such as storms. Tributary flood flows were estimated at points of intersection with the linear and polygonal works of the project for a rainfall of 10 years of return period, obtaining flows of the order of 0.9 to 2 m^3 / s.

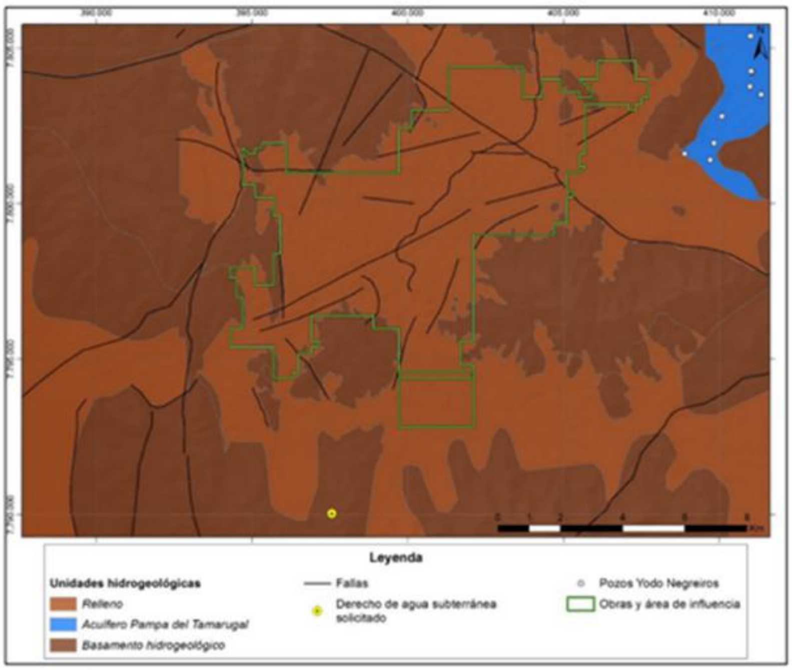
Hydrogeology

In the area of influence 2 hydrogeological units are developed: filling and hydrogeological basement (see Figure 17-1). The area of influence is almost exclusively on the Sedimentary Fill unit. The filling corresponds to polymictic sandy gravel, supported matrix, well cemented by salts, while the hydrogeological basement corresponds to intrusive and volcanic sequences.

The area of influence, according to the DGA, is located in an area of very low hydrogeological importance. In this area there are no wells or geophysical information that give indications of the existence of groundwater. The limestones excavated in the mine area showed no water for the first few meters from the surface.

Based on the available and analyzed background, it can be estimated that there is no groundwater resource in the project site area.

Figure 17-1. Hydrogeological units



Fuente: Arcadis Chile

Soil

The soils present in the area of influence correspond to soils with a very low degree of soil development, according to the extreme environmental conditions of aridity, which have limited the intensity with which the soil-forming processes have acted.

Two homogeneous soil units have been identified, cataloged as "Desert Soil of the Pampas" and "Desert alluvial soils", mainly associated with the depositional plains or alluvial flats sectors.

95.5% of the total area of influence is associated with the homogeneous unit "Desert Soils of the Pampas" and 1.1% with "Desert Alluvial Soils"; while the representativeness of the miscellaneous units "Tierras de Ladera del Farellón Costero" and "Dune Litoral" is very marginal, each representing 2.7% and 0.7% of the total area of influence, respectively.

Plants

Sector (Huara - Caleta Buena): The absence of vegetation and living vascular flora in the sector, such as stubble, shows the effect of the severe desertification suffered by these ecosystems in inter-Niño periods, whose degradation of plant material (greater pressure of herbivory and collection of woody material as fuel, etc.) reduces the expectations of regeneration, regrowth and germination of the species that inhabit such severe ecosystems.

The results obtained for the rest of the IA of the Project, and which are located to the east, are inserted in an area of absolute desert, where the extreme conditions of aridity prevent the development of specimens of flora and the existence of vegetation formations.

Zapiga Sector – Pampa del Tamarugal: Within the area planted with P. tamarugo in the Zapiga sector, 5 strata were identified in which the inventoried surface was classified. For the definition of the different strata, the differences in the coverage of tree canopies identified on satellite images were used as a criterion.

The forest inventory carried out determined a total of 276,541 specimens present in the area planted in this sector. Of these, 4.4% (12,101 specimens) correspond to dead trees standing.

The dominant height of the trees in the Zapiga sector turned out to be very variable, registering trees between 2.5 and 14 m high. The dominant heights that occurred most frequently varied between 3.5 and 4.5 m, which was observed in 51.9% of the total area inventoried (2,749 ha).

Wild animals

During the collection of information carried out in the different sampling stations, in the pampas were registered or species, being 7 Native and one species introduced. Of the former, three correspond to reptiles, two to birds and two to mammals. Of the species that are classified in some conservation category: the species *Microlophus theresioides* (Teresa corridor), classified as "Rare", and *Phrynosaura reichei* (Reiche's dragon) as "Insufficiently known", are endemic, corresponding to reptile species highly adapted to life in extreme desert environments, and are characterized by small populations and low mobility. Likewise, *Phyllodactylus gerrhopygus* (great northern salamander) is in the "Vulnerable" conservation category, in addition to presenting a "High" risk index, being a species sensitive to disturbances. For its part, Leucophaeus modestus (garuma gull) is classified as "Vulnerable", with a risk index "Medium", being considered endemic to the Humboldt current and extreme nesting of the Atacama Desert, so it is also possible to consider it as a species of high sensitivity. Finally, the presence of Pseudalopex culpaeus (culpeo fox), a highly mobile species and conservation category of "Least Concern"

On the coastal edge the greatest wealth was recorded, accounting for a total of 16 species, represented by a reptile, thirteen birds and two species of mammals. As for endemism in this sector, the species that are considered endemic correspond to: Microlophus quadrivittatus (four-banded corridor), Cinclodes nigrofumosus (coastal churrete), L. modestus (garuma gull), and Numenius phaeopus (curlew), which is a migratory bird boreal. In the coastal sector, eight species are in some conservation category according to current legislation. The species Lontra feline (chungungo) is highly sensitive to disturbances, being in the "Vulnerable" conservation category and presenting a "High" risk index as a habitat specialist. However, it has a high mobility on the coastal edge, which allows it to widely use this type of environment. The species *Phalacrocorax bougainvillii* (guanay) and *Leucophaeus modestus* (garuma gull), classified as "Vulnerable", and M. quadrivittatus (four-band corridor), in conservation category "Insufficiently known", have a risk index "Medium". With risk index "Low" and conservation category "Insufficiently known" are the species *Phalacrocorax gaimardi* (Lile) and Sula variegata (booby). Finally, Spheniscus humboldti (Humboldt penguin) has category "Vulnerable" and was detected only by remains of a specimen, establishing itself as a circumstantial record.

In the sector of Zapiga three species were recorded, of which 2 are reptiles, seven correspond to birds and four to mammals, one of the latter pests corresponds to an introduced species. Finally, in relation to the Zapiga sector, five species have conservation status: *P. gerrhopygus* (great northern salamander) classified as "Vulnerable", *M. theresioides* (Teresa corridor) classified as "Rare", in addition to be the only endemic of this sector, *Conirostrum tamarugense* (Tamarugal comesebo) classified as "Insufficiently known", while *Eligmodontia puerulus* (silky-footed mouse) and *P. culpaeus* (culpeo fox) are listed as "Least concern."

Fungi and Lichens

For Lichen species present in the area of influence, it is observed that a significant proportion corresponds to endemic species (15%). This characteristic is due to the environmental conditions of the coastal desert of northern Chile, where the presence of the so-called oases of fog allows the establishment of lichen communities that have been isolated since the rise of the Cordillera de la Costa and the increase in temperatures.

In the case of macromycetes, they could not be detected in the area of influence of the project, a situation justified by the conditions of extreme aridity and absence of vegetational formations. In addition, it is considered that the field campaigns carried out are sufficient to characterize the component in the area.

Biological Oceanography

Planktonic communities

The results obtained in this study indicated that the phytoplanktonic organisms registered in the study area corresponded to taxa characteristic of temperate waters of the northern zone of Chile. The taxonomic composition, considering the two seasonal campaigns evaluated, was generally marked by species of the division *Bacillariophyta* (diatoms) and *Dinophyta* (dinoflagellates).

Regarding the zooplankton community, the results obtained in this study showed that the organisms identified in Caleta Buena corresponded to planktonic taxa characteristic of the northern zone of Chile (Hidalgo et al. 2012). In the two monitored seasonal campaigns, the composition of the zooplankton assemblage was represented by holoplankton and meroplankton organisms, mostly early developmental stages.

The ecological variables described for holoplankton showed variations between the sampling points evaluated in Caleta Buena, without a clear pattern between coastal and oceanic points for either of the two seasonal campaigns evaluated. The same pattern was observed for zooplankton biomass.

Finally, the ichthyoplankton evaluated in Caleta Buena was represented, in the two seasonal campaigns, mostly by eggs and larvae. In both campaigns, in the six sampling points, eggs of the species *Engraulis ringens* (Anchovy) and *Normanichthys crockeri* (Mote or Cod) stood out as dominant taxa.

Intertidal Communities Hard Fund

The epibiota assemblages present in the intertidal zone of hard substrate are made up of faunal and phycological elements characteristic of rocky coastal environments of northern Chile.

In general, all the transects visited presented uniform zonation patterns characterized by the presence in the lower stratum of the brown macroalgae belt of the genus *Lessonia sp*. and the *molluscs Enoplochiton niger* and various representatives of *fissurélidos* snails (*Fissurella crassa and Fissurella sp*.), as well as *cirripedios Balanus sp*. In the intermediate stratum was characteristic the presence of the belt of cirripedios (of the *genus Balanus sp*. in the lower zone of the stratum and of *Jhelius cirratus* in the upper zone of the stratum) covered by various species of green, red and brown macroalgae, where Ulva sp. stands out. Meanwhile, in the upper stratum highlights the presence of the belt of littorinid snails *Nodilittorina peruviana*, which cohabit in some transects visited with the cirripedios J. cirratus.

Intertidal Communities Soft Fund

The soft-bottomed intertidal community in the study area, during the summer and winter campaign of 2015, was characterized by registering a taxonomic composition characteristic of intertidal zones of sandy beaches where *polychaete* worms were the faunal group with more taxonomic representation in the transects evaluated.

Subtidal Communities Hard Fund

The dominant species in the study area corresponded to calcareous macroalgae of the genus *Lithotamnium*, while in the sessile fauna the banks of *mytilids* (Choros and cholgas) represent a prominent group in the study area. Meanwhile, for the group of mobile fauna gastropod molluscs of different types are the animals that characterize the prospected assemblies.

Subtidal Communities Soft Fund

The taxonomic composition of the prospected assemblages was configured by taxonomic groups of wide geographical distribution, which are also characteristic for northern latitudes. Considering the two seasons sampled, in general, a differentiation was recognized with respect to the composition of the prospected assemblages between coastal and oceanic sampling points. While in the former, species associated with soft substrates of greater granulometry (medium sand-fine sand) such as *polychaete* worms *P. peruana or S. bombyx* dominated, in the oceanic points taxonomic groups associated with finer substrates (fine-mud sand) dominated as representatives of the *Magelonidae family or P. pinnata.*

Human environment

The settlements or human groups that are part of the Project's Area of Influence correspond to: Huara, Bajo Soga, Colonos Rurales and Pisagua, all belonging to the commune of Huara, Tarapacá Region.

The justification of the Area of Influence is due to the fact that the aforementioned settlements are the potential recipients of the effects associated with vehicular traffic on Route 5; demand for food and lodging services; emission of particulate matter and polluting gases; emission of noise and vibrations, product of the activities of the Project during the different phases, in addition to the sporadic alteration of economic activities during the construction and operation of a seawater collection system in the northern sector of Caleta Buena (32 km south of Pisagua).

By way of conclusion, it is possible to point out that:

Geographical Dimension: in all the settlements of the AI, there is natural flow towards Iquique, due to its role as a nodal pole. There the population is supplied with products, attend procedures, to be treated in the most complex and specialized health and education system, etc. On the other hand, it should be considered that an important part of the population of these settlements has relatives who reside in Iquique, and commercializes their agricultural products in this city, for which they maintain a constant link with it.

Anthropological: with regard to this dimension, it is worth mentioning that some of the IIA settlements have an indigenous character, mainly in the Bajo Soga sector. In the Huara sector the population has a greater identification with the Pampas culture and in the town of Pisagua with the artisanal fishing tradition of Northern Chile. In addition, there are Aymara indigenous organizations It should be noted that the Orcoma project as well as the settlements of the AI, are located outside the geographical limits of the ADI Jiwasa Oraje.

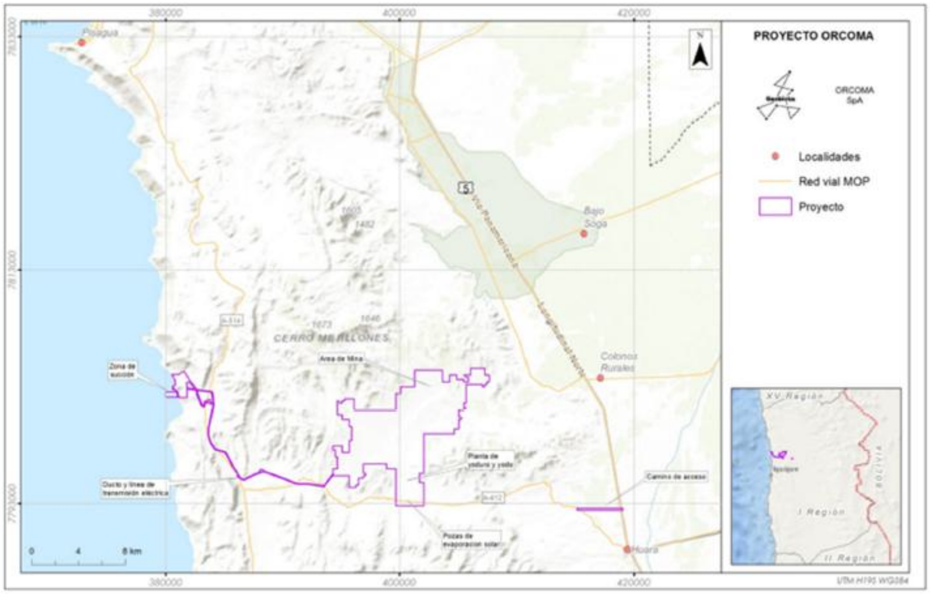
Bajo Soga and Colonos Rurales are the closest settlements, both composed mainly of Aymara population (although in Colonos Rurales the owners of plots reside more permanently in Arica). Although Bajo Soga has a larger indigenous population than in the other localities located in the AI, however, at present the indigenous organizations (Pueblo de Colchane Indigenous Community, Pisiga Choque Indigenous Community, and Central Citani Indigenous Community) are not active in the sector, since their territorial origin is in the highland commune of Colchane , being the lands they own in the Bajo Soga sector a recent grant by the State for a compensation of land in their commune of origin. The villages with the largest indigenous population in the commune of Huara are mainly located in the streams located outside the project's area of influence.

Regarding cultural events, it is worth mentioning the celebration of San Lorenzo de Tarapacá, on August 10. This festival, which attracts inhabitants of the towns of Huara and other cities of the Tarapacá Region, is the second most important in the region after La Tirana, due to its high turnout.

Socioeconomic: both Bajo Soga and Settlers Rural, are eminently agricultural settlements, where the main economic activities are the cultivation of vegetables, vegetables and fruits. In the case of Bajo Soga, production is higher, so they market products to regional markets, such as Iquique and Arica. Regarding Pisagua, the economy of the settlement revolves around the extraction of marine resources (fishing, diving and seaweed collection). According to the interviews carried out, the fishermen and seaweeds declare to use the Caleta Buena sector sporadically, as an area free of fishing and seaweed collection. In this sense, it does not constitute an area of preferential productive use for fishermen, who develop extraction activities on a regular basis in Caletas Pisagua, Junin and Mejillones Norte. In addition, the area of Caleta Buena would serve to protect the boats that use it occasionally.

Basic Social Welfare: the town of Huara has few accommodation and food establishments, along with Pisagua, while the rest of the towns do not have any type of establishments. In addition, in the town of Huara is the Family Health Center, which has the capacity to serve exclusively the inhabitants of the commune.

Figure 17-2. Sectors of the area of influence



Fuente: Elaboración propia

Cultural heritage

Of the two natural attractions identified, the Pampa del Tamarugal National Reserve, specifically lot No. 1 corresponding to the Zapiga sector, is the closest to the Project, however, it is outside its area of influence. Regarding the infrastructure of services, it should be noted that none of the natural attractions has such infrastructure. As for its importance, none of the natural attractions identified is within an international hierarchy, that is, that they have great significance for the international tourism market, capable by itself of motivating a significant flow of visitors.

In relation to cultural attractions, 23 attractions were identified in the study area which allow the development of cultural tourism based mainly on the visit to historical places related to the saltpeter era, the Pacific War and other episodes of our history, as well as the visit to archaeological sites such as the "Atacama Giant", places of scenic beauty and religious importance such as the town of Tarapacá and religious events of local and in some cases regional importance. They stand out within the cultural attractions, three of them; the Church and bell tower of Tarapacá, the former Port of Pisagua and the Geoglyphs of Cerro Unitas (Atacama Giant) for being attractions of international importance.

17.1.2 Environmental Impact Study

Based on the results of the EIA (Chapter 7), project activities and their potential environmental impacts were analyzed. This made it possible to identify the environmental components that could be directly or indirectly affected during the different phases of the project and where they are located.

For those significant environmental impacts, management measures were designed to mitigate, repair and compensate the relevant affected elements.

The following table summarizes that information.

Table 17-1. Environmental impacts of the Orcoma project and measures contemplated in the Mitigation, restoration and compensation Plan.

Impact	Phase in which it occurs	Type of measure	Measures
Increase in the concentration of particulate matter and gases pollutants	All	Mitigation	Control of emissions of particulate matter and polluting gases
			Wetting roads and work areas
			Road dust suppression
			Speed restriction for unpaved roads.
			SO2 abatement system in iodide plant
			Bag filter in lime silo
Disturbance of species habitat low mobility in conservation category (reptiles)	Construction, operation	Mitigation	The species to be rescued are all those of the group of fauna defined in the EIA as low mobility (reptiles): - Phyllodactylus gerrhopygus (CC: Vulnerable) - Microlophus theresioides (CC: Rare) - Phrynosaura reichei (Liolaemus reichei) (CC: Insufficiently known) - Microlophus quadrivittatus (CC: Insufficiently known)
		Compensation	Enabling micro-shelters for rescued reptiles
Collision and/or electrocution of birds	Operation	Mitigation	Installation of collision avoidance devices
			Design of conductor support on poles that prevent electrocution
Alteration of Biota intertidal	Construction	Mitigation	Use of rock fracturers in intertidal zone
Alteration of subtidal biota. Alteration of planktonic communities. Alteration of sea currents.	Operation	Mitigation	Control of suction speed and depth
Alteration of the heritage archaeological terrestrial	Construction and Operation	Mitigation	Creation of areas for the protection of archaeological heritage
		Compensation	Intensive archaeological survey and documentation
Alteration of cultural heritage paleontological	Operation	Mitigation	Rescue of elements of paleontological interest
Habitat disturbance of low-mobility species in conservation category (reptiles)	Construction and Operation	Mitigation	An enrichment of environments or microhabitats will be carried out to favor the establishment of reptile species, rescued in the environmental release of the Project.
Alteration of the terrestrial archaeological heritage	Construction and Operation	Mitigation	In those archaeological findings of linear, punctual and areal type, it is considered: -Topographic - Intensive documentary, photographic and video survey - Conservation diagnosis - Virtual and real surface collection - Stratigraphic excavation - Analysis of cultural materials - Absolute dating - Historical documentation of contexts and materials - Dissemination of results.

The Orcoma project has a modification called Orcoma 220/33 kV Disconnector Substation Project. This project is part of the modification that must be made due to the need to replace the Tap Off substation of the Orcoma project that is approved by Environmental Qualification Resolution (RCA) No. 75/2017, with a Disconnecting Substation, which will allow the connection with the Condors-Parinacota Electric Transmission Line (LTE). It should be noted that it modifies only the indicated, maintaining everything else that is approved by RCA No. 75/2017.

This replacement is due to the changes introduced in the Technical Standard for Safety and Quality of Service (NTS and CS) carried out in 2019 by the National Energy Commission (CNE), after the approval of the Orcoma project, which establishes that all line starts in transmission system must be of the line disconnector type in configuration with switch and a half, requirement that does not satisfy the Tap Off contemplated in the original project, since this consists of a simple connection.

The EIS of the Orcoma 220/33 kV Sectioning Substation Project was rated favorably on 21.10.2022 by RCA No. 20220100167.

17.2 Operating and Post Closure Requirements and Plans

17.2.1 Waste disposal requirements and plans

During the operation of the Project, solid waste assimilable to households, non-hazardous industrial solid waste and hazardous solid waste will be generated. The type, quantities, handling and final disposal of the different wastes to be generated during this phase of the Project are presented in detail below.

Solid Waste Assimilable to Household (RSA)

The solid waste assimilable to household (RSA) will correspond mainly to food scraps, generated by the personnel of the operation phase, in the dining rooms enabled in the COM, north mine workshop and industrial area. According to the above, a maximum generation of 225 kg/day 9 of this type of waste is estimated.

This waste will be stored in garbage bags or in closed containers, inside hermetic containers properly labeled that avoid the attraction of wildlife and vectors. The containers will be installed in a delimited area for this purpose. The removal of the RSAs will be carried out by an authorized company -with a weekly frequency- which will transfer them to an authorized final disposal site.

It is worth mentioning that during this phase of the Project any type of delivery of food to the wildlife present in the work areas, by the Owner and / or by the contractors, will be strictly prohibited.

Non-hazardous Industrial Solid Waste

Non-hazardous industrial solid waste corresponds, for the most part, to by-products generated during the different processes contemplated in the operation. Both the discard salts and the gypsum will be definitively available in the waste salt collection sector, near the solar evaporation pools. The clays will be permanently disposed of in a depleted leaching pile. The rest of the waste from the generation points will be disposed of in duly identified drums, located in the temporary storage sectors defined throughout the project, for subsequent removal, transfer and final disposal, through a duly certified company.

Hazardous Industrial Solid Waste

In relation to hazardous waste, these will be generated as a result of operating activities. They mainly correspond to waste oils, used batteries, activated carbon, iodine-contaminated material and waste contaminated with hydrocarbons.

17.2.2 Monitoring and Management Plan as Defined in the Environmental Authorization

The Environmental Monitoring Plan (PES) aims to ensure that the relevant environmental variables that were subject to environmental assessment evolve as projected. In accordance with the above, the PES is an instrument that allows verifying the validity of the environmental impact forecast and the effectiveness of the mitigation, repair and compensation measures to be implemented. If the monitoring data indicate values that conform to the impact estimates, it is concluded that the system is behaving according to the expected environmental safety ranges. On the other hand, if the monitoring indicates variations that do not conform to the forecasts, it is necessary to examine whether the causes of these variations correspond to natural processes of the system in question or represent anomalies during the construction or operation of the Project.

The owner, as well as the Contractors designated by him, will have a team of professionals to ensure compliance with the RCA, the Plan of Mitigation, Restoration and Compensation Measures (PMMRC), and Chilean environmental regulations. Thus, the holder will have a multidisciplinary professional team, which will advise and accompany the contractors in the process of implementing the PMMRC and the environmental commitments stipulated in the RCA. The owner will control that the authorized surfaces and that the environmental components intervened by the Contractors coincide with those declared in the EIA. It should be noted that this Monitoring Plan contains all the elements stipulated in article 105 of title VI of Supreme Decree No. 40/2012 of the MMA and Resolution No. 223/2015 of the SMA, which are:

- Project phase,
- Components of the environment to be measured and monitored,
- Environmental impacts and associated measure,
- Location of the points where the monitoring is carried out,
- Parameters that will be used to characterize the state and evolution of this component,
- Permitted or committed levels or limits,
- Frequency and duration of the monitoring plan according to the phase of the project,
- Measurement methods or procedures, and
- Deadline and frequency of report delivery with monitoring results.

17.3 Status of Environmental and Sectorial Permits

The following table summarizes the sectoral environmental permits and pronouncements applicable to the Project, as set out in Supreme Decree No. 40/2012 of the Ministry of the Environment, which approves the Regulation of the Environmental Impact Assessment System (RSEIA).

Table 17-1. Sectoral Permits defined in Environmental Resolutions

Name of the Sectorial Permit (PAS)	NO Number	Resolution of Sectoral Approval
Permission for indicated rescue and relocation activities in the Marine Envirnment Monitoring Plan	119	RCA 75/2017
Permission to carry out archaeological, anthropological and paleontological excavations	132	RCA 75/2017; Res.2673/2021 (archaeology); Res. 233/2022 (paleontology) RCA 20220100167/2022; Res. 5003/2022
Permission to establish a dump of sterile or accumulation of mining	136	Resolution 1985/2021
Permit for approval of a mine closure plan	137	Resolution 1067/2022
Permit for the construction, repair, modification and extension of any public or private work intended for the evacuation, treatment or final disposal of drains, sewage of any nature	138	RCA 75/2017 Resolutions: 6536/2022; 6269/2022; 6528/2022; 6206/2022; 8537/2022; 6216/2022
Permit for the construction, repair, modification and expansion of any waste and waste treatment plant of kind or for the installation of all place intended for the accumulation, selection, industrialization, trade or final disposal of garbage and waste of any kind	140	RCA 75/2017 Res. 2101641476/2022 (debris) Res. 2201163229/2022 (Rises)
Permission for any site intended for Waste storage dangerous	142	RCA 75/2017 Res. 2201163301/2022
Permit for the hunting or capture of specimens of animals protected species for research purposes, for the establishment of breeding centers or hatcheries and for the sustainable use of the resource	146	Resolutions: 672/2021 ; 673/2021 ; 676/2021
Permit for the construction of certain hydraulic works	155	Resolution 3537/2022
Permission to made modifications of channel	156	Resolution 140/2022
Permission to subdivide and develop rural land or to constructions outside urban limits	160	In process

In addition, it has authorization from the Sernageomin Exploitation Method and Processing Plant:

Resolution Ex. 671/2022. Approves Project "Profit Plant, Orcoma Project".

Resolution Ex. 1860/2021. Approves "Orcoma Project Exploitation Method".

17.4 Social and Community

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 Study period; no unforeseen environmental, social or community events disrupt timely approvals.

17.4.1 Plans, Negotiations, or Agreements with Individuals, or Local Groups

The company has established agreements with indigenous and non-indigenous communities on different aspects that derive from both previous commitments and programs associated with corporate policies on community relations, for example:

Registration of the community hotline, as a permanent communication mechanism. Community telephone.

Permanent briefings.

Working groups with different communities and territories:

It should be noted that, in general terms, and in accordance with the confidentiality clause, the final amount of the commitments signed by SQM with local organizations or communities is not available.

Notwithstanding the foregoing, a document or agreement of standardized format was available, with contents such as the following: general background of the agreement; background on community relations; long-term relationship; validation of agreements; Contributions; accountability of funds; external audit; work table and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; dispute settlement; mechanisms to revise the agreement; assignment of rights; anti-corruption clause; other commitments; duration of the agreement; domicile.

However, within the framework of the company's relationship policies, the following working groups are maintained:

HUARA

1) Huara Working Group: 14 social organizations.

2) Pisagua Working Group: 9 organizations

3) Bajo Soga Working Group: 8 organizations.

4) Working Group of Rural Settlers: stan-by due to inactivity of the Rural Settlers AG.

17.4.2 **Commitments to local Procurement or Contracting**

Notwithstanding the foregoing, as part of its community relations policy, SQM has programs aimed at hiring local labor, such as:

Employability workshops aimed at improving the curriculum vitae for job interviews.

More Suppliers of Tarapacá Program.

17.4.3 **Social Risk Matrix**

There is no specific risk matrix to assess these aspects at the corporate level. In the framework of the working meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects but that they lack a specific program or derive from a specific commitment or objective.

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 unit costs are as estimated in constant (or real) dollar terms, 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 Recovery Plans**

During the abandonment stage of the Project, the measures established in the "Orcoma" Closure Plan approved by the National Geology and Mining Service (SNGM), through Resolution No. 1067 of 20 22.

Among the measures to be implemented are the removal of metal structures, equipment, materials, panels and electrical systems, deactivation of facilities, closure of accesses and installation of signaling. The activities related to the cessation of the 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.

Closing Measures

Prior to the execution of the closure plan, an analysis will be carried out to identify those facilities, parts and equipment of the Project that represent a potential risk to the health of people and the environment and that, therefore, need to be removed or dismantled to ensure the physical and chemical stability of the Project. Prior to the implementation of the leaching pile closure plan, during the operation phase, aspects of the design of the piles that ensure their stability for the closure phase of the batteries will be considered.

The closure phase considers an inspection of the condition of the piles and the stabilization of the slopes if necessary, for which some of the following measures may be taken: (i) reduction of the slope angle, (ii) construction of berms and (iii) placement of heels. Finally, the corresponding safety signage will be installed.

Given the climatic conditions that prevail in the sector, which correspond to the normal desert climate, with almost absolute absence of rainfall, it is estimated that the construction of interceptor dikes and rainwater channels is not necessary.

Since the leaching agent used is water, it is not necessary to wash gravel, in addition the behavior of the collected gravel forms a layer that mitigates the fugitive emissions that could be generated with the dragging of the wind, therefore it is not necessary to cover the stockpiles. For the rest of the complementary and auxiliary installations, the measures are also aimed at protecting the safety of people and animals, and are basically the removal of structures, road closures, signaling installation, remove energy of the facilities and perimeter closures, and leveling of the land.

Once the dismantling and recovery works of the intervened areas have been carried out, those records that evidence the execution of the activities planned for this phase, such as technical reports of activities carried out, plans, photographic records, among others, will be presented to the corresponding environmental authority.

Risk Analysis

SERNAGEOMIN, in consideration of Law 20,551 and Supreme Decree No. 41/2012, requests owners to carry out a risk assessment that considers the impacts on the health of people and the environment in the context of the closure of the mining site at the end of its useful life. This risk assessment was carried out considering the Risk Assessment Methodology for Mine Closure currently in force.

Table 17-2. Risk Assessment of the main Orcoma facilities

Registration	Risk	Description of Risk	Level	Impotance
PE1	PE1.P	To people due to failure on the slope of the pool, which exceeds the exclusion zone due to an earthquake.	LOW	Non- significant
	PE1.MA	To the Environment for failure in the slope of the pool, which exceeds the exclusion zone due to an earthquake.	LOW	Non- significant
PE2	PE2.P	To people for DAR infiltration	LOW	Non- significant
	PE2.MA	To the environment by DAR infiltration	LOW	Non- significant
Discard salt deposits				
DE1	DE1.P	To people due to contamination of groundwater by rain (infiltration of solutions).	LOW	Non- significant
	DE1.MA	To the environment due to groundwater pollution caused by rainfall (infiltration of solutions).	LOW	Non- significant
DE2	DE2.P	To people due to groundwater contamination by flooding/flooding	LOW	Non- significant
	DE2.MA	To the environment due to groundwater pollution caused by flooding/flooding	LOW	Non- significant
DE3	DE3.P	To people due to particulate emissions into the atmosphere caused by wind.	LOW	Non- significant
	DE3.MA	To the environment due to emissions of particles into the atmosphere caused by wind	LOW	Non- significant
DE4	DE4.P	To people due to surface water pollution caused by heavy rains	LOW	Non- significant
	DE4.MA	To the Environment due to surface water pollution caused by heavy rains	LOW	Non- significant
DE5	DE5.P	To people due to surface water pollution caused by flooding	LOW	Non- significant
	DE5.MA	To the Environment due to surface water pollution caused by flooding	LOW	Non- significant
DE6	DE6.P	To people as a result of slope failure due to water erosion	LOW	Non- significant
	DE6.MA	To the Environment due to slope failure due to water erosion	LOW	Non- significant
DE7	DE7.P	To people due to slope failure as a result of an earthquake	LOW	Non- significant
	DE7.MA	To the Environment due to slope failure caused by an earthquake	LOW	Non- significant

17.5.2 Closure Plan, Closing Cost

The total amount of Orcoma's closing, considering the closing and post-closing activities, amounts to 123,253 UF (107,652 UF for closing and 15,601 UF for post-closing). Below is a summary of the costs reported to the authority in the Orcoma Closure Plan see Table 17-4 and 17-5

Table 17-3. Orcoma Closing Cost

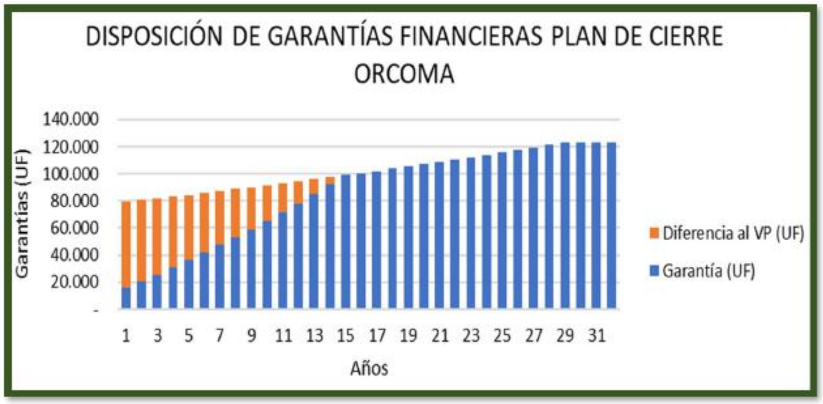
Article	Total (UF)
Costthem Directs	60,309
Indirect Costs and Administration	12,062
Contingencies	18,093
VAT (19%)	17,188
Closing Plan Amount (UF)	**107,652**

Table 17-4. Post-Closure Cost of Orcoma

Article	Total (UF)
Costthe Direct	8,740
Indirect Cost and Administration	1,748
Contingencies	2,622
VAT (19%)	1,782,94
Closing Plan Amount (UF)	**15,601**

The useful life of the project is 28 years, as established in the Closure Plan. The evolution of the provision of guarantees is shown below.

Figure 17-3. Financial Guarantees



Blue color is the guarantee or bond (UF), orange color is the difference with protected value (UF).

Table 17-5. Financial Guarantees

General Background				
Discount Rate Used (average BCU30 monthly of the last 60 months prior to March 2021 presentation)	1.58%			
Certified End of Life	29 years from the notice of star of mining exploitation in accordance with article 53 law 20,551.			
Year of Closure of the Mining Site	Year 32 from the start of mining operations			
Installation	**Total Closing Cost (UF)**	**Year End of Operations**	**Year Start of Closure**	**Year End of Closure**
Mine Area	2,302	29	30	31
Mine Operation Center	15,522	29	30	32
Neutralization Plant and Evapotation Pools	7,526	29	30	32
Seawater Supply System	50,730	29	30	32
Power Supply System	24,932	29	30	32
Plant Iodine-Iodide	5,993	29	30	32
Temporary disposal of non hazardous waste Sector	60	29	30	32
Hazardous waste disposal Sector	584	29	30	32
Total	**107,652**			

17.6 The Qualified Person's Opinion on the Adequacy of Current Plans to Address any Issues Related to Environmental Compliance, Permitting, and Local Individuals, or Groups.

In terms of environmental studies, permits, plans, and relations with local groups, the Pampa Orcoma Project submitted an EIA, complying with the established contents and criteria, and the legal requirements of current environmental regulations. Since it is a project (construction has not begun), it is possible to conclude the following:

Generally, the main effects generated by this type of project are the result of the extraction of fresh water, but, since this particular Project does not consider the extraction of fresh water and, on the other hand, it considers the supply of the required water from a seawater supply system, it can be concluded that this will be sufficient to avoid any effects that the project could generate on the water, fauna and flora as a consequence of the water requirement of the Project.

In addition, the Project committed to some monitoring measures to follow-up on the different components and detect any effects on them as a result of project implementation. This will allow the project owner to define measures, if necessary.

Additionally, SQM is elaborating a new EIA for the increment of prill Iodine production of Pampa Orcoma's operation. There is no detailed information regarding the characteristic of the project to assess the main risks, measures or costs that may be generated by its approval and execution. SQM has experience presented and submitted several successful projects under SEA with similar characteristics. Finally, there is a risk of not obtain the environmental authorization in the timeframe and/or terms required.

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 in constant (or real) dollar terms, 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 92% of the sales derived to countries outside Chile.

The Pampa Orcoma Project contemplates:

- Open pit exploitation of mining deposits.
- Enabling support facilities called the COM.
- Construction of an iodide production plant, with a capacity of 5,000 tpy (of equivalent iodine).
- Construction of an iodine plant, to process up to 5,000 tpy.
- Construction of evaporation ponds to produce Nitrate Salts for fertilizer at a rate of 941,222 tpy.
- Construction of a seawater adduction pipe from the northern sector of Caleta Buena to the mining area, to meet the water needs during the operation phase, at a maximum flow rate of 400 L/s.
- Connection of the industrial areas of the Project to the Norte Grande Interconnected System (SING), in order to provide sufficient energy for their electrical requirements.

18.1 Capital Cost Estimates

The facilities for the production operations of iodide and iodine salts at the Pampa Orcoma Project mainly include caliche extraction mine, leaching, iodide and iodine production plants, solar evaporation ponds, water resources, as well as other minor facilities.

The cost of capital distributed in the areas related to Pampa Orcoma Project is shown in Table 18-1.

Table 18-1. Capital Cost for Nitrate and Iodine at the Orcoma Project

	Capital Cost	
	% Total	MM USD
Category	100%	383
Caliche Mining	8.6%	33
Heap Leaching	4.2%	16
Seawater	31.8%	121
Iodide & Iodine Plants	9.4%	36
Solar Evaporation Ponds	37.4%	143
EIA	2.1%	8
Electrical Distribution System	6.5%	25

18.2 Basis for Capital and Operating Cost Estimates

The operating costs of the Orcoma Project are divided according to the production of iodine and production of solar salts sent to the Coya Sur site for production of nitrates.

The Orcoma Project is expected to be in operation between 2024 and 2040.

The production relies on the following assumptions, as shown in Table 18-2.

Table 18-2. Productions Assumptions for Pampa Orcoma Project

Item	Unit	Average
Iodine	kt	7.7
AFA	kt Nitrate	667.4
Caliche	Mt	20.0
Iodine grade	ppm	408.1
Nitrate grade	%	6.7%
Iodine Leaching Yield		65.3%
Nitrate Leaching Yield		53.4%
Soluble Salts		47.5%
Iodine Plants Yield		92.8%
Pond Yield		65.0%
Nitrate Salts for fertilizer	kt Salts	368.8

Orcoma's operating cost comprises the cost to produce the base solution, the cost of iodine production, and the cost of producing solar salts, the latter being delivered to the Coya Sur site.

The estimated costs to produce the base solution for iodine and nitrate are presented in Table 18-3. The cost presented is per t of caliche extracted.

Table 18-3. Estimated Operating costs, per Ton of Caliche Extracted

Cost Category	Unit	Estimated Cost
Mining	USD/tonne Caliche	2.32
Leaching	USD/tonne Caliche	1.20
Seawater	USD/tonne Caliche	0.51

To produce iodine, it is estimated that approximately 1 kg of iodine is obtained for every 3.75 t of caliche. In the case of the production of nitrates, it is estimated that approximately 19 kt of nitrate salts for fertilizer is obtained for every 1 Mt of caliche, which is taken to the Coya Sur site for final processing.

The estimated costs to produce iodine are presented in Table 18-4. The cost presented is per kg of iodine produced and left in port.

Table 18-4. Estimated Costs to Produce Iodine (kg)

Cost Category	Unit	Estimated Cost
Solution	USD/tonne Iodine	9.20
Plant Iodide	USD/tonne Iodine	3.75
Plant Iodine Prill	USD/tonne Iodine	1.76

The estimated costs to produce nitrates are presented in Table 18-5. The cost presented is per ton of intermediate salts produced by the Orcoma Project that are then taken to the Coya Sur site for the final production of nitrates.

Table 18-5. Estimated Costs to Produce Nitrate (per ton)

Cost Category	Unit	Estimated Cost
Solution Cost	USD/tonne Nitrate Salt	43.08
Ponds and preparation	USD/tonne Nitrate Salt	24.33
Harvest production	USD/tonne Nitrate Salt	3.93
Others (G&A)	USD/tonne Nitrate Salt	4.55
Transport to Coya Sur	USD/tonne Nitrate Salt	55.94

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.

19.1 Principal Assumptions

Capital and operating costs used in the economic analysis are as described in Section 18. Sales prices used for Iodine and Nitrates are as described in Section 16. A 10% discount rate was used for the cashflow and is deemed reasonable to account for cost of capital and project risk. A 28% income tax rate was assumed based on information provided by SQM.

All costs, prices, and values shown in this section are in 2022 US$.

19.2 Production and Sales

The estimated production of iodine and nitrates for the period 2024 to 2040 is presented in Table 19-1.

19.3 Prices and Revenue

To obtain an income flow in relation to the production of Iodine and Nitrates in the period 2022 to 2040. The year 2022 has been considered as the beginning, to show the investment made in the period, and the first year of sales is 2024.

An average sales price of 40.0 USD/Kg (40,000 USD/Ton) was used for sales of Iodine based on the market study presented in in Section 16. This price is assessed as FOB port.

As a vertically integrated company, nitrate production from the mining operations are directed to the plant at Coya Sur for the production of specialty fertilizer products. An imputed sales price of 333 USD/tonne was assumed for nitrates salts for fertilizer based on an average sales price of 820 USD/tonne for finished fertilizer products sold at Coya Sur, less 487 USD/tonne for production costs at Coya Sur.

These prices and the revenue streams derived from the sale of iodine and nitrates is shown in Table 19-2.

Table 19-1. Production of Iodine and Nitrates with and without Orcoma Project

MATERIAL MOVEMENT	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Orcoma Ore Tonnage	**Mt**	**0**	**2.1**	**8.4**	**8.4**	**8.4**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**	**287.4**
Average grade Iodine in Situ	ppm	0	412	415	405	405	400	401	410	401	408	409	414	410	413	409	410	410	410	**408**
Iodine (I2) in situ	kt	0.0	0.9	3.5	3.4	3.4	8.0	8.0	8.2	8.0	8.2	8.2	8.3	8.2	8.3	8.2	8.2	8.2	8.2	**117.3**
Yield process to produce prilled Iodine	%	0.0%	67.7%	68.9%	67.0%	65.6%	68.5%	66.8%	65.3%	67.9%	68.1%	67.7%	67.5%	68.3%	67.5%	68.2%	68.0%	68.3%	68.0%	**67.7%**
Prilled Iodine produced	**kt**	**0.0**	**0.6**	**2.4**	**2.3**	**2.2**	**5.5**	**5.4**	**5.4**	**5.4**	**5.6**	**5.5**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**79.4**
Average grade Nitrate in Situ	**%**	0%	6.0%	6.1%	6.5%	6.4%	6.5%	6.8%	6.1%	6.6%	6.7%	6.7%	6.8%	6.6%	6.8%	6.9%	6.7%	6.9%	6.8%	**6.7%**
Nitrate Salts in situ	kt	0	127	515	549	540	1,304	1,360	1,221	1,320	1,331	1,347	1,364	1,327	1,359	1,380	1,337	1,380	1,360	**19,120**
Yield process to produce Nitrates	%	0.0%	59.6%	59.3%	58.8%	59.3%	57.4%	57.3%	59.1%	57.4%	57.3%	57.3%	57.3%	57.3%	57.3%	56.9%	57.3%	56.8%	57.1%	**57.5%**
Nitrate production from Leaching	kt	0	76	306	322	320	748	780	721	758	763	772	781	761	778	785	766	784	777	**10,998**
Ponds Yield to produce Nitrates Salts	%	0.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	**65.0%**
Nitrate Salts for Fertilizers	**kt**	**0**	**0**	**0**	**49**	**199**	**210**	**208**	**486**	**507**	**469**	**493**	**496**	**502**	**507**	**494**	**506**	**510**	**498**	**6,134**

Table 19-2. Production of Iodine and Nitrates with and without Orcoma Project

PRICES	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Iodine	US$/kg	0	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	**40**
Nitrates delivered to Coya Sur	US$/t	0	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	**333**
REVENUE	**UNITS**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
Iodine	US$M	0	23	96	91	90	219	214	214	218	222	222	224	224	223	223	223	224	223	**3,175**
Nitrates delivered to Coya Sur	US$M	0	0	0	16	66	70	69	162	169	156	164	165	167	169	165	168	170	166	**2,043**
Total Revenues	**US$M**	**0**	**23**	**96**	**108**	**156**	**289**	**284**	**376**	**387**	**378**	**386**	**389**	**391**	**392**	**388**	**392**	**394**	**389**	**5,217**

19.4 Operating Costs

The main costs to produce Iodine and Nitrates involve the common production cost for iodine and nitrates, such as Mining, Leaching and Seawater, production cost of iodine in the plant, and the production cost of nitrate before processing at the Coya Sur site.

The production cost of nitrate at Coya Sur Plant is not considered in this analysis, as we have considered a nitrate price before any process in Coya Sur.

The estimate of total costs per item is obtained from approximate estimates of its unit cost, considering a variable part and a fixed part, independent of the volume of production. These unit costs are shown in Table 19-4.

Table 19-3. Main Costs of Iodine and Nitrates Production

COSTS	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
COMMON																				
Mining	US$M	0	5	20	20	20	46	46	46	46	46	46	46	46	46	46	46	46	46	**667**
Leaching	US$M	0	3	10	10	10	24	24	24	24	24	24	24	24	24	24	24	24	24	**343**
Seawater	US$M	0	1	4	4	4	10	10	10	10	10	10	10	10	10	10	10	10	10	**147**
Total Mining Costs	**US$M**	**0**	**8**	**34**	**34**	**34**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**1,157**
IODINE PRODUCTION																				
Solution Cost	US$M	0	6	25	25	25	60	59	60	59	59	59	59	59	59	59	59	59	59	**850**
Iodide Plant	US$M	0	2	9	9	8	21	20	20	20	21	21	21	21	21	21	21	21	21	**297**
Iodine Plant	US$M	0	1	4	4	4	10	9	9	10	10	10	10	10	10	10	10	10	10	**140**
Total Iodine Production Cost	US$M	**0**	**10**	**38**	**37**	**37**	**90**	**88**	**90**	**89**	**90**	**89**	**89**	**90**	**89**	**89**	**90**	**90**	**90**	**1,287**
Total Iodine Production Cost	**US$/kg Iodine**	**0**	**16**	**16**	**16**	**17**	**16**	**16**	**17**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
NITRATE PRODUCTION																				
Solution Cost	US$M	0	2	9	9	9	21	22	20	21	21	22	22	21	22	22	21	21	21	**307**
Ponds and preparation	US$M	0	1	5	5	5	12	12	11	12	12	12	12	12	12	12	12	12	12	**173**
Harvest production	US$M	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	**24**
Others (G&A)	US$M	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	**28**
Transport to Coya Sur	US$M	0	0	0	3	11	12	12	27	28	26	28	28	28	28	28	28	29	28	**343**
Total Nitrate Production Cost	**US$M**	**0**	**3**	**13**	**17**	**27**	**46**	**48**	**63**	**66**	**64**	**66**	**66**	**66**	**67**	**66**	**66**	**66**	**66**	**876**
Total Nitrate Production Cost	**US$/t Nitrate**	**0**	**44**	**44**	**352**	**135**	**221**	**229**	**129**	**130**	**136**	**133**	**133**	**131**	**132**	**134**	**131**	**130**	**132**	**143**
TOTAL OPERATING COST	**US$M**	**0**	**13**	**52**	**55**	**64**	**136**	**136**	**153**	**155**	**153**	**155**	**156**	**156**	**156**	**155**	**156**	**156**	**155**	**2,163**
TOTAL OPERATING COST	**US$/t Caliche**	**0.0**	**6.1**	**6.2**	**6.5**	**7.6**	**6.8**	**6.8**	**7.6**	**7.8**	**7.7**	**7.7**	**7.8**	**7.8**	**7.8**	**7.8**	**7.8**	**7.8**	**7.8**	**7.5**

19.5 Capital Expenditure

SQM has developed a production strategy to face the future demand for Iodine and Nitrate. The strategy for Pampa Orcoma is described herein.

Base case for investment considers increasing the production of iodine and nitrate from seawater for Orcoma Project, sequentially from a capacity of 200 to 400 L/s of seawater.

The supply of seawater from the Orcoma project allows the project to move forward with the commitment to sustainable development, in addition to supporting production of at least 400 L/s with seawater without using continental resources.

These scenarios allow establishing a balance between the exploitation sectors (quality/laws) and productive processes that allow balancing the supply of Iodine and Nitrate.

The Orcoma project considers 400 l/s of seawater, 5,000 tpy of Iodine, 730 Ktpy of Nitrate Salts and 5.0 MMm² of Evaporation ponds, with a useful life of 25 years.

Pampa Orcoma reserves have been quantified at 309 Mtpy with 413 ppm of iodine, 6.9% $NaNO_3$ and 47.9%. of Soluble Salts.

The Orcoma project initial investment is close to USD 383 million, distributed as follows:

- Solar evaporation ponds for USD 143 million
- Seawater Intake and Piping for USD 121 million
- Iodide and Iodine Plants for USD 36 million.
- Caliche mining for USD 33 million.
- Electrical Connection System, USD 25 million.
- Other Investments, USD 49 million (Heap leaching and environmental impact studies).

The estimated investments in the period 2023 to 2040 are presented in Table 19-4.

It is assumed that the initial investments (2022-2023) are financed:

a) 60% by a bank loan, and

b) 40% equity.

The bank loan had been simulated with a payment period of 8 years, and a real interest rate (all in) of 5% annually.

19.6 Cashflow Forecast

The key valuation assumptions used in the financial model consider a discount rate of 10% and a tax rate of 28% in the period 2022 to 2040.

The cashflow for the Nueva Victoria Project is presented in Table 19-5.

The following is a summary of key results from the cashflow:

- Total Revenue: estimated to be USD 2.22 billion including sales of iodine and nitrates.
- Total Operating Cost: estimated to be USD 2.16 billion.
- EBITDA: estimated at USD 3.06 billion.
- Tax Rate of 28% on pre-tax gross income.
- Capital Expenditure estimated at USD 480 million.
- Bank Loan and Loan Amortization estimated at USD 186 million.
- Net Change in Working Capital is based on two months of EBITDA.
- A discount rate of 10% was utilized to determine NPV. The QP deems this to be a reasonable discount rate to apply for this TRS which reasonable accounts for cost of capital and project risk.]
- After-tax Cashflow: The cashflow is calculated by subtracting all operating costs, taxes, capital costs, interest payments, and closure costs from the total revenue.
- Net Present Value: The after tax NPV is estimated to be USD 509 million at a discount rate of 10%

The QP considers the accuracy and contingency of cost estimates to be well within a Prefeasibility Study (PFS) standard and sufficient for the economic analysis supporting the Mineral Reserve estimate for Orcoma project.

Table 19-4. Estimated Investments

Investment (US$M)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Orcoma	**31**	**116**	**136**	**100**	**6**	**6**	**6**	**18**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**480**

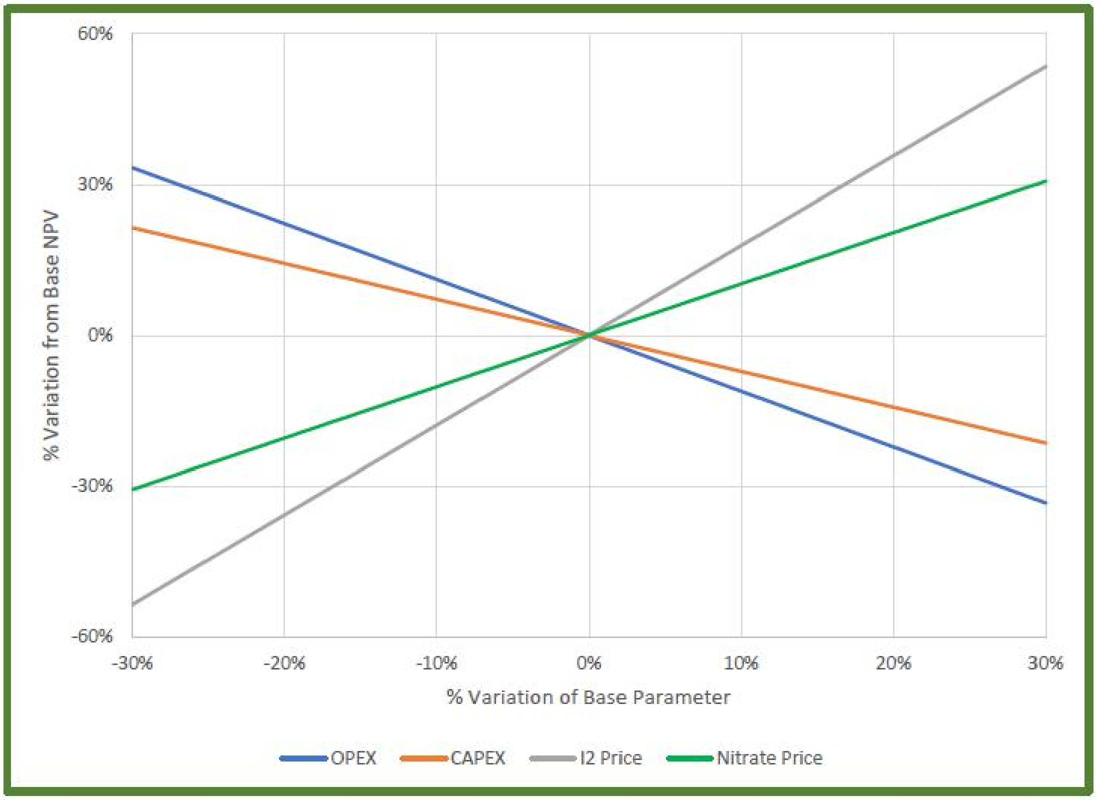
Table 19-5. Estimated Net Present Value (NPV) for the Period

REVENUE	UNITS	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Total Revenues	**US$M**	**0**	**23**	**96**	**108**	**156**	**289**	**284**	**376**	**387**	**378**	**386**	**389**	**391**	**392**	**388**	**392**	**394**	**389**	**5,217**
COSTS																				
Total Mining Costs	US$M	0	8	34	34	34	81	81	81	81	81	81	81	81	81	81	81	81	81	1,157
Total Iodine Production Cost	US$M	0	10	38	37	37	90	88	90	89	90	89	89	90	89	89	90	90	90	1,287
Total Nitrate Production Cost	US$M	0	3	13	17	27	46	48	63	66	64	66	66	66	67	66	66	66	66	876
TOTAL OPERATING COST	US$M	0	13	52	55	64	136	136	153	155	153	155	156	156	156	155	156	156	155	2,163
EBITDA	US$M	0	11	44	53	92	153	148	223	232	225	231	233	235	236	232	236	238	234	3,055
Depreciation	US$M	0	6	11	15	16	16	16	17	17	17	18	18	18	18	18	19	19	19	278
Interest Payments	US$M	0	1	5	5	4	4	3	2	2	1	0	0	0	0	0	0	0	0	26
Pre-Tax Gross Income	US$M	0	4	28	33	72	134	129	204	213	207	213	215	217	218	214	217	219	214	2,751
Taxes	28%	0	1	8	9	20	37	36	57	60	58	60	60	61	61	60	61	61	60	770
Operating Income	US$M	0	3	20	24	52	96	93	147	153	149	153	155	157	157	154	156	157	154	1,980
Add back depreciation	US$M	0	6	11	15	16	16	16	17	17	17	18	18	18	18	18	19	19	19	278
NET INCOME AFTER TAXES	US$M	0	9	32	39	67	112	109	164	170	166	171	173	175	175	172	175	176	174	2,258
Total CAPEX	US$M	31	116	136	100	6	6	6	18	6	6	6	6	6	6	6	6	6	6	480
Bank Loan	US$M	20	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93
Loan Amortization	US$M	0	2	10	10	11	11	12	13	13	11	0	0	0	0	0	0	0	0	93
Working Capital	US$M	0	2	6	1	6	10	-1	13	1	-1	1	0	0	0	-1	1	0	-1	39
Pre-Tax Cashflow	US$M	-11	-37	-112	-63	64	122	128	178	209	208	224	227	229	230	227	229	231	228	2,509
After-Tax Cashflow	US$M	-11	-38	-120	-73	44	84	92	121	150	150	164	166	168	169	167	168	170	168	1,739
Pre-Tax NPV	US$M	799																		
After-Tax NPV	**US$M**	**509**																		
Discount Rate	**US$M**	**10%**																		

19.7 Sensitivity Analysis

Sensitivity analysis gives visibility to the assumptions that present the key risks to the value of the Project. The analysis also identifies the skew of the impact of each assumption in terms of the rise and fall of the value. Figure 19-1 shows the sensitivity of changes to the base case on pre-tax NPV.

Figure 19-1. Sensitivity Analysis



As seen in the above figure, the project NPV is more sensitive to product price while being least sensitive to capital and operational costs.

20 ADJACENT PROPERTIES

The Project is in the Tarapacá region, Tamarugal province, Huara commune. The mine area comprises an approximate surface of 6,883 ha, while the Project works involve an area of 7,387 ha (Geobiota, 2015). Because of the seawater adduction works and the power transmission line, the Project extends to the west of the commune and to the north of Caleta Buena, at which point the seawater intake system is placed. Near the site, specifically in the access sector, is the "BHP aqueduct easement.

The most significant areas near the project's mineral processing plants is Pampa del Tamarugal Reserve - Zapiga sector located approximately 6 km from the project.

Exploration program results have indicated that these prospects reflect a mineralized trend hosting nitrate and iodine. Also, exploration efforts are focused on possible metallic mineralization beneath the caliche. The area has significant potential for metallic mineralization, especially copper and gold. Exploration has generated discoveries that in some cases may lead to exploitation, discovery sales, and future royalty generation.

Within SQM-Pampa Orcoma's boundary, as presented in Figure 20 1, it is stated that:

There are properties adjacent to the project with mineral resources with geological characteristics similar to those of the SQM-Pampa Orcoma property.

The issuer has no interests in adjacent properties. There is no prospecting work in any of the adjacent areas.

There are some other properties adjacent to the Project which are being exploited by third parties and there are some mining rights.

Four adjacent mining lots belong to SCM Bullmine and COSAYACH, which also mine for iodine production. SCM Bullmine is adjacent to sector 1, while COSAYACH's mining and production sectors adjacent to the project are four and identified below:

Chiquiquiray mine adjacent to the northeast.

Huara Project adjacent to the southeast.

Cala Cala site adjacent to and south of Mapocho.

Figure 20-1. Pampa Orcoma Adjacent Properties

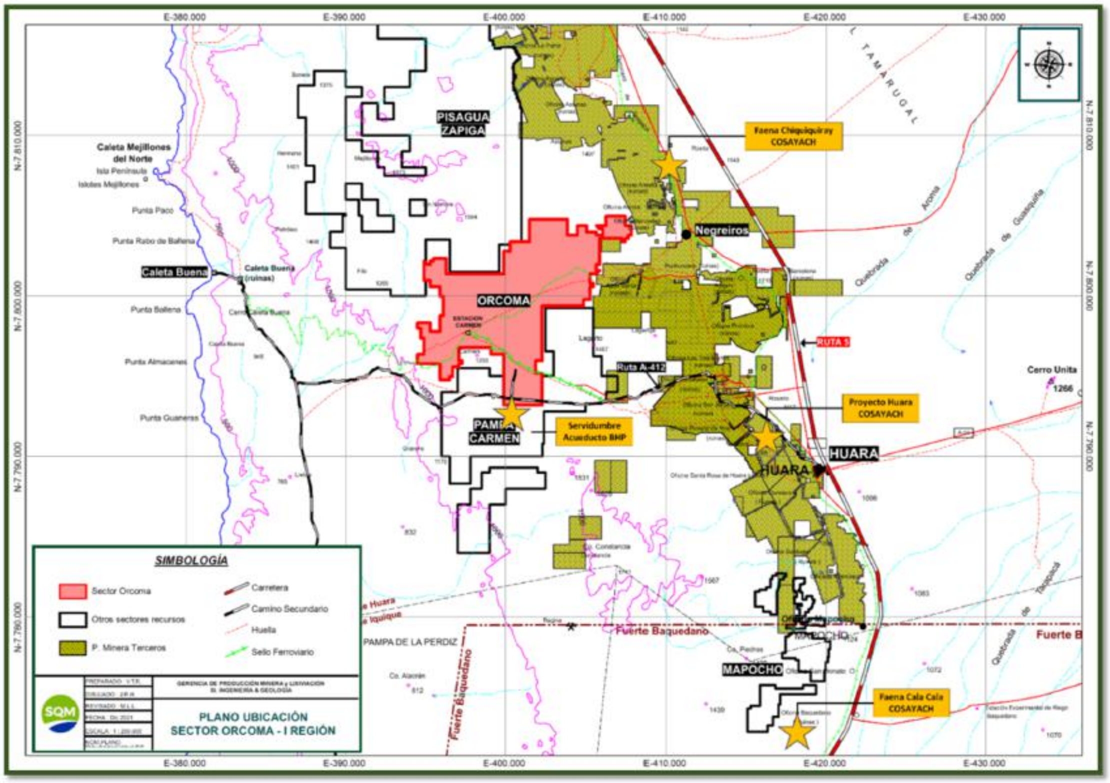
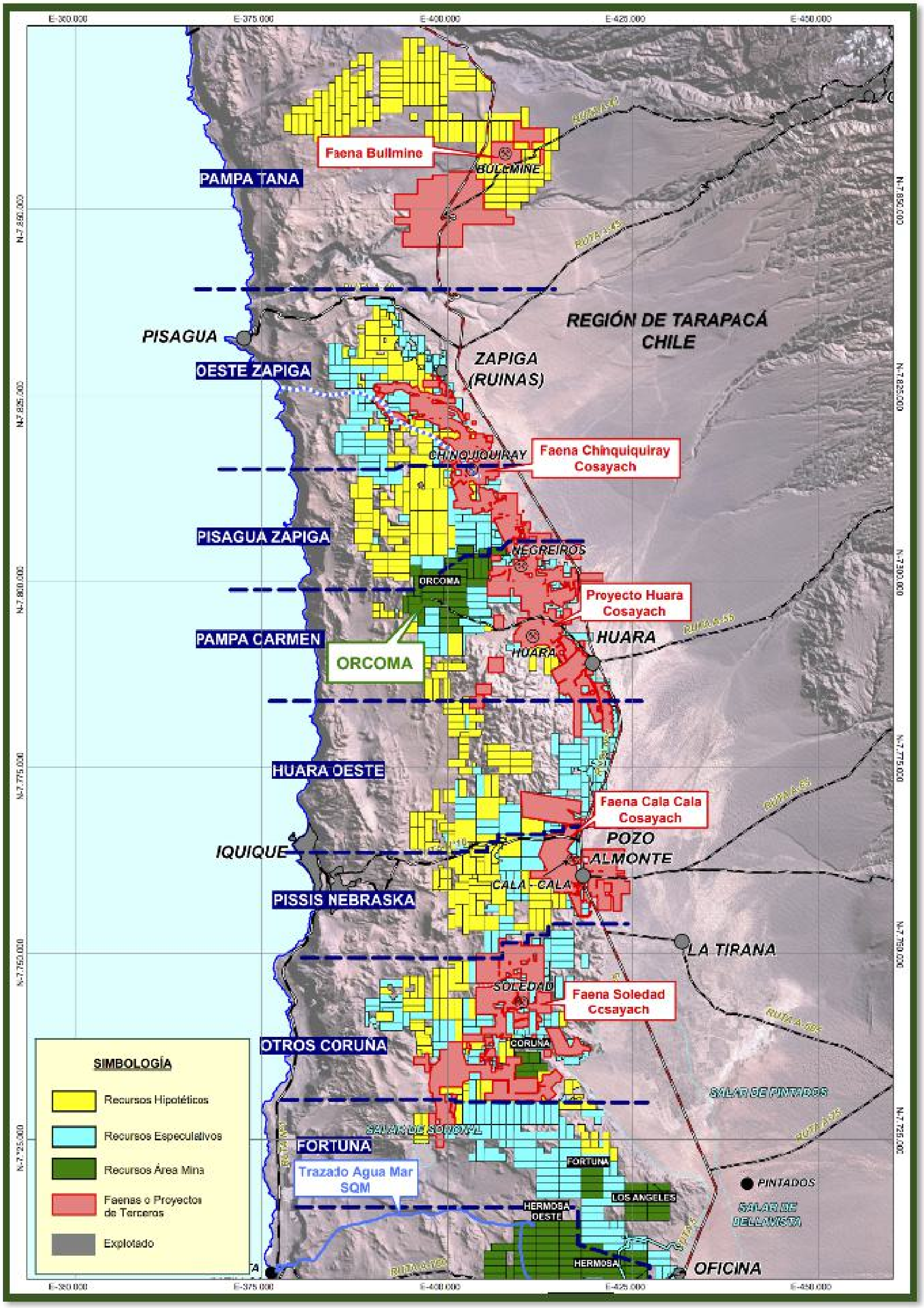


Figure 20-2. Pampa Orcoma Adjacent Properties



21 OTHER RELEVANT DATA AND INFORMATION

The QP is 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 Mineral Resources and the LOM plan 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 forth in this sub-section including: geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction; grade continuity analysis and assumptions; Mineral Resource model tons and grade and mine design parameters; actual plant feed 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; mining strategy and production rates; expected mine life and mining unit dimensions; prevailing economic conditions, commodity markets and prices over the LOM period; regulatory framework is unchanged during the Study period and no unforeseen environmental, social or community events disrupt timely approvals; estimated capital and operating costs; and project schedule and approvals timing with availability of funding.

22.1 Results

22.1.1 Sample Preparation, Analysis, and Security

Sample preparation, sample safety, and analytical procedures used by SQM in Pampa Orcoma follow industry standards mostly with no noted issues. SQM has detailed procedures that allow for the viable execution of the necessary activities, both in the field and laboratory, for an optimal assurance of the results. QA/QC results are satisfactory for 400x400 m and 200x200 m grid drill holes.

22.1.2 Data Verification

The data available from the exploration, regarding analytical results of geotechnical and chemical analysis of caliche in Pampa Orcoma is adequate for estimation of geologic resources and reserves present in the project area.

22.1.3 Mineral Processing and Metallurgical Testing

Gino Slanzi Guerra, QP who is responsible for the metallurgy and processing of the resource, said: "The metallurgical test work developed to date has been adequate to establish the appropriate processing routes for the caliche resource:

- The metallurgical test work completed to date has been adequate to establish appropriate processing routes for the caliche resource.

- The samples used to generate the metallurgical data have been representative and support estimates of future throughput.

- The data derived from test work activities described above are adequate for estimating recovery from mineral resources.

- From the information reviewed, no processing factors or deleterious elements were found which could significantly affect the economic extraction potential projected for the project. The mineral deposit that supports it corresponds in composition and chemical-metallurgical similar responses to nearby caliche deposits, in which the company has extensive historical know-how and a body of professionals with extensive experience, with finished and successful knowledge regarding the search and solution of operational problems. This aspect was recognized in field visits where this characteristic was confirmed in all the plants visited.

- The metallurgical test data for the resources to be processed in the production plan projected to 2040 indicate that the recovery methods are adequate.

22.1.3 Mineral Resource Estimate

Drill hole data collected by SQM in Pampa Orcoma is sufficient to characterize iodine and nitrate grades, as well as mineralized thickness throughout the project area. Calculations have been verified independently, with minor differences that have no implications on indicated resource estimations. Diamond drilling and recategorization of drill hole grids currently in process, have the potential to upgrade resource classification to measured.

22.1.4 Mineral Reserve Estimate

Mineral Resource estimate is the basis for Mineral Reserve estimation, accounting for dilution of iodine and sodium nitrate grades through modifying factors. Estimates have been verified independently, reporting reserve values for approved and pending environmental area permits, with minor differences that have no implications on Probable Reserve estimates.

22.1.5 Processing and Recovery Methods

The level of laboratory, bench, and pilot plant scale metallurgical testing conducted in recent years has determined that the raw material is reasonably amenable to production. Reagent forecasting and dosing will be based on analytical processes that establish mineral grades, valuable element content, and impurity content to ensure that the system's treatment requirements are effective.

Most of the material fed to the heaps is ROM minerals in granulometry. Continuous surface mining machines are used where caliche mantles break up using cutting equipment, which provides a smaller and more homogeneous grain size of the ore that produces higher recoveries, approximately ten percent higher the recovery in the ROM heaps.

22.2 Significant Risks

22.2.1 Sample Preparation, Analysis, and Security

QC results of original and duplicate samples show a data bias for iodine and nitrate grades. As described in Section 9, the error is not statistically significant; however, an audit of the sample preparation and analyses should be completed.

22.2.2 Geology and Mineral Resources

The mineral resource estimate is based on sample analysis and geological controls. Unknown variability in either of these parameters could render the resulting mineral resource estimate biased. Best practice procedures have been used to test this information.

22.2.3 Permitting

The Pampa Orcoma Project is currently permitted for exploration, environmental and pre-production works. The application for construction and operation is in preparation and is planned for submission is 2024. Currently there is an initiative in Chile to modify the management of mining rights which presents a risk for the future operating conditions for the project.

22.2.4 Processing and Recovery Methods

Water incorporation in the process is a risk aspect, bearing in mind the current water shortage and that is a contribution to the project since the tests carried out even show a benefit, from the perspective of its contribution to an increase in the recovery of iodine and nitrate. The planned use of seawater and construction of the intake in Caleta Buena will limit this risk.

22.2.5 Metal Pricing and Market Conditions

The estimated product prices used in this evaluation will have changed when the project is in production in 2024. Both prices and costs will provide a source of risk, which can be mitigated in the short to medium term by strategic planning and contract negotiations.

22.2.6 Mineral Processing and Metallurgical Testing

The impact factors in the processing or elements detrimental to recovery or the quality of the product obtained are the potentially harmful elements present. Those related to the raw material are insoluble materials and other elements such as magnesium and perchlorate. In this regard, the company's constant concern to improve the operation and obtain the best product.

22.2.7 Environmental Studies, Permitting and Social or Community Impact

There is a risk that the environmental authorization for production increasing from 2,500 tons prill Iodine/year to 5,000 tons prill Iodine/year will not be obtained within the required timeframe.

22.3 Significant Opportunities

22.3.1 Mineral Resource Statement

The 100 T m spacing drill hole grid currently in process will allow for a future recategorization of the resource as Measured. The diamond drilling campaign currently in process will provide a comparison of caliche depths and iodine and nitrate grades with respect to the 200x200 m grid resource estimation.

22.3.2 Geology and Mineral Resources

There is an opportunity to improve the resource estimation simplicity and reproducibility using a block model approach not only in the case of smaller drill hole grids (100T m), which is considered once the drilling campaign finished, but also for larger drill hole grids to avoid separating the resource model and databases by drill hole spacing, bringing the estimation and management of the resource model to industry standards.

SQM has exploration rights to a large land area around Pampa Orcoma. With further exploration there is potential to increase the mineral resources and eventually mineral reserves for the project.

22.3.3 Metallurgy and Mineral Processing

The research and development team has demonstrated significant progress in the development of new processes and products to maximize the returns obtained from the resources they exploit. An example of this is that, since 2002, SQM nitrates have sought options to expand and improve iodine production by initiating a test plan for an oxidative treatment of the concentrate. Trials demonstrated that it is possible to dispense the flotation stage, that the process of obtaining iodine with oxidative treatment works well, and that it is economically viable and less costly to build and operate than the conventional process with the flotation stage.

In this sense, continuous tests were completed in the pilot plant with different iodine brines from different resources to confirm these results.

The research is developed by three different units, which adequately cover the characterization of raw materials, traceability of operations, and finished product, covering topics such as chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of finished products.

23 RECOMMENDATIONS

Analyze the mineral distribution and statistical characteristics of drill hole grids currently in process have the potential to upgrade the mineral resource and mineral reserve classification.

Improvements are required for the Quality Assurance/Quality Control (QA/QC) program to align with industry best practice and facilitate more meaningful QC.

Confirm the accuracy and precision of SQM internal laboratory implementing an external QA/QC check with a representative number of samples as a routine procedure.

Infilling RC drill hole grids with 100 T m or 100x50 m spacing, which is currently in progress, has the potential to upgrade the Mineral Resource estimates from Indicated to Measured Mineral Resources, and in turn upgrade Mineral Reserves from Probable to Proven. It is recommended to re-estimate Pampa Orcoma's Mineral Reserves when Mineral Resource have been updated based on the additional drilling

Detail the construction development timeline to a feasibility level to best account for the timing of cash flows and risk points to the time and cost.

All the above recommendations are considered within the declared capital and operating expenditures and do not imply additional costs for their execution.

24 REFERENCES

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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.

Environmental matter outside the expertise of the qualified person.